



# Supermarket LED Lighting

## LED DELIVERS SAVINGS IN SUPERMARKET LIGHTING

Frozen food and refrigerated cases in supermarkets are typically illuminated by fluorescent sources. Although they are reasonably efficient and reliable, fluorescent sources are optimized to operate at indoor ambient temperatures of 60 to 80 degrees Fahrenheit. Their light output drops by as much as 60 percent in cold temperatures. Replacing them with light emitting diode (LED) illumination can cut energy consumption by nearly half.

LED lighting offers several important advantages over fluorescent lighting:

- 40 percent reduction in power demand
- More consistent lighting
- Lower maintenance costs
- Longer product life (LED lights last more than three times longer than fluorescent ones, with an effective useful life of about 50,000 hours)

The demonstration system used Xitanium drivers by Rosmont, Ill.-based Advance Transformers, Inc.

The change in lighting reduced power demand by 43 percent and resulted in more uniform illumination among cases. Customers were generally pleased with the quality of the LED lighting.

The project demonstrated:

- A combined energy savings from lighting and refrigeration of 8,811 kWh/yr.
- A continuous lighting demand reduction of 0.96 kW over 17 hours of daily operation
- Annual energy cost savings of about \$1,163
- Annual maintenance cost savings of about \$375
- Additional average demand savings of 0.46 kW for refrigeration due to lower heat output of LED light bars



Get pleasing illumination, lower maintenance costs, and energy savings with LED lighting.

## MEASURED SAVINGS

EMCOR Energy Services conducted an assessment project for Pacific Gas and Electric Company's (PG&E) Emerging Technologies Program. In a northern California grocery store, 36 five-foot, high output fluorescent (F58T8) lamps in six Hussman freezer cases were replaced with 60 four-foot LED light bars manufactured by Irvine, Calif.-based LED Power, Inc.



# Supermarket LED Lighting

Given current market conditions, the installed cost of the project is estimated to be approximately \$7,739, resulting in a simple payback period of 6.7 years based on energy savings alone. The vendor of the product tested in this study, LED Power, Inc., foresees a reduction in product cost as the market for this application matures.

Based on a mature market:

- The estimated cost for implementation would be \$6,738, with a simple payback period of 5.8 years
- Counting the impact of avoided maintenance costs, the project payback period would improve to 4.4 years (5.0 years for current conditions)

## PRODUCT AVAILABILITY

LED assemblies for use in refrigerated display cases, including some systems designed specifically for use in low temperatures, are currently available to customers.

The technologies for LED lighting, power supplies, and installation methods are all advancing rapidly, probably leading to continual price reductions and higher energy savings.

## NEXT STEPS

PG&E can help you control your operating expenses by building energy efficiency into your new and existing facilities. Services include energy analyses of existing facilities, design assistance for planned projects, equipment rebates, project incentives, and education and training.

Contact your local Sales and Service representative or call PG&E's Business Customer Center at 800-468-4743 for more information.

Your PG&E representative will work with you to determine if this program is right for you and help you to create a comprehensive energy-efficiency plan for your business.

