



LED Parking Lot Lights

Upgrade Your Parking Lot Lights

For businesses that serve customers at night, providing patrons with safe, well-lit, welcoming places to park can provide a competitive advantage. Replacing traditional parking lot lights with energy-efficient, Light Emitting Diode (LED) lights can provide significant energy and cost savings, as well as a short payback period on the equipment investment.

Through Pacific Gas and Electric Company's (PG&E) New Efficiency Options (NEO) program, upgrading parking lot lighting just got easier. Your upgrade may qualify for technical support and financial incentives of 0.07 per kWh. Earned incentives may cover nearly 30 percent of installation costs and help to reduce the payback period on the new equipment investment. Our expert consultants can advise on lighting technology, design assistance and guidance throughout the LED upgrade process.

Improved Efficiency and Control

Many commercial and institutional parking lots and parking garages are illuminated with high intensity discharge (HID) lighting sources - typically metal halide (MH) or high pressure sodium (HPS) lights. These traditional light sources use more energy than LED lights and produce overlit "hot spots" on the ground below, while the LEDs maintain consistent luminance levels.

LED fixtures can be equipped with bi-level controls, or "motion sensors," that enhance the ability to manage energy use by reducing lighting levels in parking lot zones that are not being used. Bi-level controls automatically set lights at higher luminance levels when motion is detected and then reset to lower levels when motion is no longer detected. The California Lighting Technology Center (CLTC), through its Smart Lighting Initiative, has evaluated this control concept in numerous applications where significant energy savings were realized.

LED lighting uses less energy and often provides better illumination than conventional HID luminaries. In addition, payback on investment can be short. In the application described below, the payback was 3.3 years for a new construction project and 4.7 years if installed during a retrofit.

LED Performance Study

PG&E, through its Emerging Technologies program, supported the installation of LED lights in a parking lot at a Raley's supermarket located in West Sacramento, California. Following the installation, PG&E teamed with the Pacific Northwest National Laboratory and manufacturer BetaLED to evaluate the lighting performance,



Bi-level LED parking lot lights at Raley's supermarket in West Sacramento have reduced energy consumption by 70 percent.

energy and cost savings, and customer satisfaction of the Raley's upgraded parking lot lights.

Prior to the lighting upgrade, the Raley's parking lot relied on 16, pole-mounted 320-watt MH fixtures. The MH lights consumed 346 watts each, providing an average lighting level of 1.8 footcandles (fc). Half of these were replaced by new LED bi-level lights.

Researchers found the following results:

- While set to high, the LED fixtures produced a higher average lighting level (1.9 fc) than the MH fixtures, with improved uniformity. The LED lights also reduced power consumption by 57 percent with an average reduction of 197 watts per fixture.
- Bi-level operation allowed the LED lights to remain on low about half of the time. On low, the power consumption was reduced by 85 percent, with an average reduction of 294 watts per fixture.
- By combining the results of the LED lights on both high and low, energy use overall was reduced by 70 percent.
- If the entire parking lot was upgraded to LED lighting, the estimated annual electricity savings - for 4,380 hours of operation at this facility - would be 16,889 kWh per year.
- When motion was detected in the parking lot and the lights were on at full light output, the LED Light output exceeded recommendations set forth by The Illuminating Engineering Society of North America (IESNA). IESNA recommends minimum lighting levels of 0.2 fc when a parking lot or garage is occupied, 0.5 fc for enhanced security, and 0.1 fc for general property security when the area is not occupied.

Results from a survey distributed to Raley's employees after the LED installation indicated that 90 percent of those employees who responded believed the LED lighting was brighter and improved the appearance of the parking lot. Employees also reported they felt safer with the new lighting and that they had received direct positive feedback from store customers.

Taking Action

For more information on LED parking lot lights or PG&E's New Efficiency Options program, please visit www.pge.com/NEO or contact PG&E's **Business Customer Service Center** at **1-800-468-4743**.

