

# BetaLED™ Project Brief Overview

Sacramento State University, Sacramento, California



## PROJECT SUMMARY

BetaLED™ two-level parking structure luminaires were presented to Sacramento State University as an energy saving solution for the university's parking structures.

Key stakeholders on the project included: California Lighting Technology Center, California Energy Commission's Public Interest Energy Research (PIER) and the Sacramento Municipal Utility District's (SMUD) Customer Advanced Technologies Program.



<b>End User:</b>	Sacramento State University, Sacramento, California
<b>Application:</b>	University parking structure (retrofit)
<b>Product:</b>	Thirty two-level THE EDGE™ Parking Structure luminaires with 30 LEDs each and integrated occupancy sensors replaced 150-watt HPS fixtures.
<b>Benefits:</b>	<ul style="list-style-type: none"><li>• 70 percent energy savings compared to 150W HPS (in low mode)</li><li>• 30,000 kWh savings per year compared to HPS</li><li>• Improved light quality and uniformity ratios compared to traditional sources resulted in increased visibility and safety</li><li>• Reduces greenhouse gas emissions</li><li>• IES recommended minimum luminance and uniformity levels were achieved in low mode.</li></ul>

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## Reaching a New Level of Savings



Before: HPS



After: BetaLED

Most parking garage structures in commercial and institutional facilities within the United States use high-pressure sodium (HPS) and metal halide (MH) ceiling-mounted fixtures. This particular application requires parking areas to be illuminated for long periods of time throughout the day and night.

In order to develop a solution that addresses the savings opportunity, the PIER program backed a demonstration of THE EDGE parking structure luminaires that integrate LED technology with occupancy-based dimming controls.

Funded by the Sacramento Municipal Utility District's (SMUD) Customer Advanced Technologies program, Sacramento State University installed two-level LED parking garage fixtures on the third level of parking structure I.

The high-efficiency and light quality delivered by BetaLED luminaires require less energy demand than traditional sources. The two-level control increases the energy savings directly proportional to automatic and pedestrian traffic patterns.

Through the use of an integrated occupancy sensor, the two-level fixture can be dimmed to one-third total power while maintaining 50 percent lumen output. Compared to traditional HID lamps, the two-level system can reduce a facility's annual energy and maintenance budget up to 80 percent.

The high-performance LEDs within THE EDGE have a color temperature of 6000K and deliver total fixture efficiencies of more than 55 lumens per watt in high mode and more than 90 lumens per watt in low mode with excellent uniformity.

### Key findings from the PIER Program project case study include:

**Easy Installation:** installation is similar to standard HID garage products. Fixtures can easily be retrofit over existing wiring.

**Attractiveness:** light emitted is of significant higher color quality than traditional sources. The improved quality of light increases safety and visibility.

**Cost Effectiveness:** the fixture is most cost effective in new construction and major renovation applications.

**Potential Impact:** optical efficiency improvements reduce energy consumption. The long life rating of the LEDs significantly reduce maintenance costs. Light level activity can increase safety by alerting occupants to other traffic.

### About PIER

*This project was conducted by the California Energy Commission's Public Interest Energy Research (PIER) Program. PIER supports public-interest energy research and development that helps improve the quality of life in California by bringing environmentally safe, affordable, and reliable energy services and products to the marketplace.*