



# RELIGHTING CALIFORNIA PARKING LOTS

*A strategy for rapid statewide energy savings and infrastructure improvements*

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Most parking areas in California are lit with inefficient lighting technologies that operate at full power throughout the night, despite these lots being vacant for many of those hours. This wastes energy and contributes to light pollution, but both problems can easily be addressed with advanced light sources (such as LED, induction or metal halide lamps) and adaptive lighting controls. This highly cost-effective solution has consistently shown energy savings of 40–70%, depending on occupancy rates and other variables.

The 2013 Title 24, Part 6 code, in effect as of July 2014, mandates the use of adaptive (bi-level) lighting in new exterior lighting applications, including parking lots where fixtures are mounted at a height of 24 feet or lower. This is an important step forward in the right direction, but California's existing lots will still constitute an enormous opportunity for energy savings. Taking steps to replace old HPS lighting technology with controls-ready, energy-efficient lights and adaptive controls achieves immediate, sizable gains in energy efficiency and economic savings.

## **BACKGROUND**

Control systems use a variety of technologies (occupancy and daylight sensors, RF networks, etc.) to make lighting respond to the actual usage and lighting demands of various spaces in real time. Adaptive controls with occupancy sensors, for example, reduce power to luminaires 50% or more when lots or garage areas are vacant then increase lighting power when pedestrians or cars are detected. This switching between high and low light levels based on occupancy

maintains ample light levels for security and wayfinding purposes while significantly reducing energy consumption, improving lighting quality, and enhancing safety and security in parking areas.

Adaptive lighting solutions for parking lots and garages consistently achieve energy savings of at least 40%, and many projects have demonstrated savings in excess of 70% compared to traditional HID luminaires without controls.

The California Lighting Technology Center (CLTC), in partnership with state utilities and lighting industry representatives, conducted some of the first demonstrations of adaptive exterior lighting. These projects were carried out with support from the Public Interest Energy Research program (PIER), as part of PIER's State Partnership for Energy Efficient Demonstrations program (SPEED).

The following sites have hosted SPEED demonstrations of adaptive (bi-level) parking luminaires since 2007 (click on the blue examples below for case studies or project information):

- [UC Davis](#)
- [UC Santa Barbara](#)
- [California Department of Public Health, Richmond](#)
- [CSU Long Beach](#)
- [CSU Sacramento](#)
- [CSU San Francisco](#)
- [California Polytechnic State University, San Luis Obispo](#)
- [Los Angeles Trade-Technical College](#)
- [City of San Marcos](#)
- [U.S. Navy Southwest Region](#)