

# LUMEWAVE BY ECHELON HELPS VACAVALLEY HOSPITAL CUT ENERGY COSTS BY 66%

## Project Highlights

Energy savings  
**66%**

Energy savings from LED  
lighting upgrade  
**34%**

Energy savings from  
adding lighting controls  
with LEDs  
**49%**

Occupancy rate  
**35-55%**



In 2014, NorthBay VacaValley Hospital became one of the first U.S. health care facilities to install an energy efficient, intelligent lighting system. The project was so successful that the NorthBay Healthcare group is now considering expanding the VacaValley system and retrofitting the outdoor lighting at other sites.

Prior to installing the networked LED system, NorthBay VacaValley Hospital's exterior lighting consisted of 40 induction, 13 high-pressure sodium (HPS), and 7 metal halide (MH) luminaires, all operating at full lighting power throughout the night. The lighting retrofit reduced the site's exterior lighting energy use by 66.4%, dramatically reduced lighting maintenance needs, and received positive reviews from about 88% of the hospital staff surveyed for feedback.

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*[I was] asked my opinion on many things regarding how bright the lights should be and in what areas I, as security, would feel they should be at their brightest point. So I pointed out areas where it would appear to be darkest and at times I think they should come on to their brightest points... I think it was great work and that it did wonders for the facility.*

**-VacaValley Hospital security staff member**

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Content from this case study was previously published in "Networked Adaptive Exterior Lighting for the Health Care Sector" by the California Lighting Technology Center (CLTC), UC Davis in May 2014. Project report: <http://cltc.ucdavis.edu/publication/adaptive-outdoor-lighting-health-care-sector>  
Photo credit: Kathreen Fontecha/CLTC, UC Davis

## Project Details

At many facilities, traditional high intensity discharge (HID) luminaires still operate at full power throughout the night, even when parking lots and other outdoor areas are vacant. This energy waste can be easily averted by implementing energy efficient light sources and lighting controls. Incorporating luminaires into a networked lighting control system further maximizes energy savings and allows light levels to be customized and scheduled according to the facility's specific needs. This is especially important for mission-critical facilities such as health care.

The upgrade integrated luminaires, sensors, networked control modules, and mounting hardware. Each dimmable LED luminaire installed at VacaValley Hospital was equipped with a fail-safe photocell to prevent energy waste during daylight hours. Passive infrared (PIR) motion sensors were installed where suitable, and *Lumewave by Echelon™* long-range microwave motion sensors were installed to provide coverage in larger areas.

Each luminaire was also equipped with a radio frequency (RF) lighting controller that incorporated each fixture into the *Lumewave by Echelon* lighting control system. The network control system included occupancy logging features, maintenance alerts, and emergency override to full ON to ensure that hospital staff, patients, and visitors are always provided with the light they need. The system allows an authorized administrator to adjust lighting schedules and tuning levels, adjust luminaire groupings, and gather revenue grade energy metering data using a device connected to the internet.



Post-retrofit parking lot photos

## Results

The pre-retrofit energy use for the lighting system totaled 43,657 kWh per year. The energy use after the LED upgrade totaled 28,853 kWh per year, an energy reduction of 33.9%. After implementing the adaptive controls, the team collected energy use for 45 days and extrapolated an annual energy use of 14,639 kWh, an energy reduction of 49.2% from lighting controls after the LED upgrade. The overall reduction between the pre-retrofit energy use and the final retrofit energy use was 66.4%.

## Learn More

For more information about *Lumewave by Echelon* products call +1 408-938-5200 or visit [www.echelon.com](http://www.echelon.com).

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