

# University of California, Santa Barbara

## Case Study



Tier-one research university focuses on energy efficiency

**1,567**  
Sensors

**76%**  
Energy savings

**7**  
Buildings and growing

### Intelligent lighting delivers energy savings of 76% and modernizes stately campus

University of California Santa Barbara (UCSB) is a tier-one research university, globally known and highly rated for its comprehensive liberal arts learning experience. Founded in 1891, the campus covers 989 acres, beautifully located at the edge of the Pacific Ocean. It includes 300 buildings, with 50 of them classified as major structures, each containing more than 75 thousand square feet of space.

Jordan Sager, PE, the Energy Manager for the campus, has been with the university since 2008. He now has responsibility for power, gas, and water processes and is involved in the budgeting process. He includes a carve-out for energy efficiency projects each year to upgrade from fluorescent to LED and to automate lighting controls for greatest energy efficiency.

“

With the Enlighted system, we're able to set lighting configurations based on occupancy levels, individual needs, and behaviors. This task-tuning capability has proven to save us tremendous amounts of energy while better serving the needs of our students and staff.

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**JORDAN SAGER**

Energy Manager  
University of California, Santa Barbara

## Getting started

UCSB first installed Enlighted in 2013 as part of a project funded by the Public Interest Engineering Research (PIER) program for higher-education sustainability. An administrative office was fitted with Enlighted sensors, a wireless network, and a lighting control system. It was then that the team first discovered the value of grouping and remotely controlling lighting fixtures through Enlighted's connected Energy Manager.

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**In the initial research implementation, the Enlighted system delivered 76% energy savings, and we've had similar results in our deployments here across the university.**

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**JORDAN SAGER**

Energy Manager

University of California, Santa Barbara

## Prioritizing high-impact spaces

After seeing what was possible with the Enlighted system in the initial implementation, Sager was eager to deploy it where he expected it would have the most impact – within the university corridors.

These areas had lights on 24/7, and Sager speculated that they were populated only half the time. He shared his calculations with the facilities department, which would contribute budget for project implementation. They were not aligned on his assumptions, suggesting the corridors had closer to a much higher 85 percent occupancy.

A 2013 research project conducted by the State Partnership for Energy Efficient Demonstrations (SPEED)

provided the data Sager and the facilities management team needed to agree on a plan. The researchers installed occupancy sensors in corridors and stairwells on several UC campuses.

The results surprised both teams: occupancy very rarely exceeded 15 percent. This was true campus to campus, building to building. As the report noted, this combination of long lighting hours and low occupancy rates meant corridors offered a tremendous opportunity to reduce energy costs. These areas could operate in a dimmed state 85 percent of the time. Additionally, adaptive lighting offered opportunities to reduce maintenance costs.

The research report also noted that halls and corridors typically lack direct ownership, making lighting changes easier to implement than in spaces such as classrooms, offices, and dormitories.

## Building on success

With the results of the research clearly highlighting the opportunity, Sager and the facilities management team agreed on a plan. As they continued to allocate budget for energy efficiency projects, they:

- Focused first on retrofitting corridors in buildings across campus with LED lighting
- Included Enlighted sensors and controls as part of the retrofit for these corridors
- Built out other spaces in the buildings with Enlighted capabilities to capture additional energy savings

In 2015, the university completed retrofits in their first full building – in the administrative offices where they first performed their trial implementation.

“We have a great rhythm now,” Sager says. “We’re capturing savings by reducing energy usage, our number one goal. But we’re also modernizing old buildings, improving the quality of the space for our students and staff. The ROI on this investment is compelling, yielding dramatic results.”

The campus now has over 1,500 Enlighted sensors in

seven buildings, with an assortment of space types and varying lighting needs. The installation includes six high-bay gyms, where lighting configurations are carefully managed to maximize safe experiences for student athletes, while minimizing energy use.

The team continues to build out the campus with a long-term plan toward greater efficiency and sustainability.

## Looking ahead

Ultimately, Sager and the facilities management team would like to see the Enlighted system deployed across the campus's five million square feet of state-operated building space.

They are also evaluating the opportunity to use the same Enlighted sensors to inform HVAC control and for the Energy Manager to connect to his existing building energy management system.

“

I haven't seen any equivalents to the Enlighted system. It's well designed; the components are well built and reliable; and the Energy Manager user interface to schedule and program is easy to use.

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**JORDAN SAGER**

Energy Manager

University of California, Santa Barbara



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## Sharing the knowledge

When other university energy managers ask about starting their own efficiency initiatives, Sager advises to begin with an implementation with a variety of spaces, as his team did.

“Be sure you include buildings with multi-use spaces – an office suite, private offices, a common space, gym settings, and maybe a kitchen. That will give you experience with the configuration tool and the resulting insights you need to comfortably create a plan to scale.”