DR9.09: Demand Response Tests at a Typical Office Space in a Federal Building

OPPORTUNITY

What are the capabilities of an ALCS during a DR event?

This study looked at lighting Demand Response (DR) technology installed at a Federal Building in Los Angeles, CA. The primary goal of this study was to determine the load reducing capabilities of a newly installed advanced lighting control system (ALCS) during a DR event.

TECHNOLOGY

Advanced lighting control strategies; light level tuning, daylighting, occupancy sensors, and DR signals

Several Advanced lighting control strategies were used; light level tuning for specific areas, daylighting for separate north and south zones, occupancy sensors, and the capability to reduce power levels by 10% or more through remote DR signals at designated times.

The ability of owners and utilities to effectively reduce lighting power consumption depends on whether the building has centralized control of the lights with an ALCS.

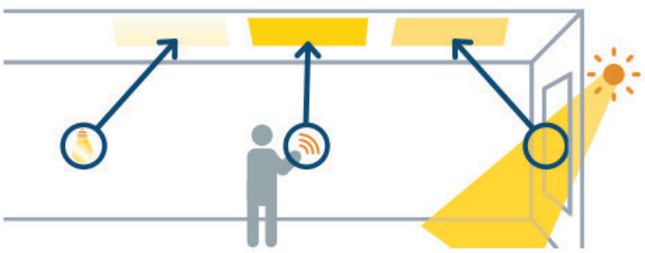


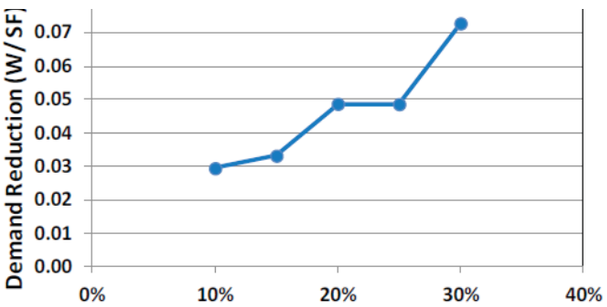
Figure 1 Advanced Lighting Control Features

RESULTS

How did the DR signals initiated from an offsite office perform?

DR signals from the utility from an offsite office lowered the light levels and reduced power density. The testing procedure included changing the lighting level to five different settings: 10%, 15%, 20%, 25%, and 30%.

If 75% of the office lighting was operating and DR could reduce 30% of the operating load that would result in 100 MW that could be shed.



Graph 1 shows g**eneral rise in Demand Reduction in W/sf** with the **increased % Demand Response Level** settings.

CONCLUSION

There was a reduction in overhead lighting load demand.

DR testing for the ALCS confirmed that lighting loads may be reliably reduced and managed in response to DR signals from the utility.

There was a reduction in overhead lighting load demand after the installation of ALCS and new lighting fixtures.