

Wireless Lighting Control System

What is this Technology?

This technology enables switches, ballasts, fixtures, and sensors from a variety of manufacturers to communicate as a single system by using wireless area controllers. The technology promises significant energy savings by enabling building operators to tailor lighting control to building characteristics and occupancy patterns in a way that is more easily reconfigured, and more cost effectively implemented than incumbent technologies offering similar levels of control.

Why is GSA Interested?

Lighting accounts for roughly 30% of total energy consumed by GSA buildings. Previous studies have shown that innovative lighting technologies have the greatest potential of any single building technology to substantially decrease the overall energy use of GSA's portfolio.



ENERGY EFFICIENCY Energy savings provided by this technology are projected to vary from modest to significant, depending on the level of control capabilities of the installed controls and lighting equipment. This evaluation will document a “typical installation”—which represents zone based occupancy and daylighting controls, applied to existing fluorescent luminaires, as well as a “state of the shelf” solution, using LED retrofit luminaires, fixture based controls, continuous dimming, and daylight harvesting strategies.



COST EFFECTIVENESS This study will evaluate comparative costs of both the “typical” and “state of the shelf” solutions relative to incumbent wired systems.



OPERATIONS & MAINTENANCE Unlike wired lighting control systems, wireless systems are highly adaptable if building schedules or occupancy patterns diverge from original plans, because they do not require intricate networks of control wiring. A key barrier—the cost of replacing the sensor node batteries—will be evaluated.



DEPLOYMENT POTENTIAL This technology supports multiple lighting scenarios and incremental levels of control. This assessment will identify the specific criteria, applications and circumstances, needed to prioritize its potential for deployment by GSA, should its performance prove out.

Adapted from a report by the National Renewable Energy Laboratory. The Green Proving Ground program, in association with a federal laboratory, is subjecting the wireless lighting control system to real-world measurement and verification in GSA buildings. Findings from that investigation will be available in late 2013 or early 2014.