

The Benefits of Group Relamping

CASE STUDY

When is the right time to change a light bulb? The obvious answer might seem to be “when it burns out.” But as the staffs at the Polk County Government Center in Balsam Lake and the Clark County Courthouse in Neillsville discovered, that’s not always the case.

In 2006, both counties called on Focus on Energy, Wisconsin’s energy efficiency and renewable energy program, to provide a baseline audit of county buildings as a first step toward finding ways to save energy and cut costs. Each county received a report that summarized conditions and identified energy-saving recommendations, and each opted to pursue a group relamping as their initial project.

The Polk County relamping would involve changing 800 lamps, and updating them from T-8, 32-watt lamps to T-8, 25-watt lamps. The Clark County relamping project was more extensive: it involved converting some fixtures from T-12 to T-8; doing a group relamping of over 4,000 lamps (and also switching them from 32-watt bulbs to 25-watt options); and changing select hall and bathroom lamps to compact fluorescent lights (CFLs).



The Clark County Courthouse project involved replacing T12 fixtures with T8 energy efficiency options.

In both cases all labor could easily be provided by county staff, but the cost to upgrade the lamps had the potential to be a serious stumbling block. Neither county had budgeted for the upgrades and the initial cost of the 25-watt lamps was roughly twice that of the 32-watt—a hard sell in these belt-tightening times.

But Debbie Peterson, Polk County’s director of the Department of Parks, Buildings and Solid Waste Management, and DuWayne Trunkel, Clark County’s director of maintenance had a secret weapon: their



Both Clark and Polk Counties replaced existing lamps with energy efficient T8, 25 watt lamps during group relamping projects.

Focus on Energy advisor, who attended funding meetings at each county.

“Having our advisor at the (County Facilities Committee) meeting made a big difference and so did the Focus financial incentive,” said Peterson. “Focus on Energy was able to show the committee that the group relamping made sense on a number of levels.”

Money was at the top of the list. In Polk County, the new lights would cut energy demand by 4.8 kW a month and save 28,032 kWhs annually, which translated to \$1,962 in energy cost savings. The estimated savings over the life of the project is \$9,070. In Clark County the upgrades would cut energy demand by 32.8 kW a month and save 88,857 kWhs annually, which would cut \$6,952 from the utility bill. Savings over the life of the project are estimated at \$32,138.

Even with a per lamp cost of \$3.25 for 25 watt vs. \$1.50 for 32 watt, energy savings made the new lamps a logical choice: each lamp is estimated to save almost \$10 in energy costs over the life of the lamps. The Polk County upgrade had a \$3,040 price tag and a projected payback of 1.89 years after a Focus incentive of \$430. Clark County faced a project cost of \$14,612 (\$19,015 less a Focus on Energy financial incentive of \$4,403) and a project payback of 2.10 years.

The project would also save staff time. Both facilities had lights on in the project areas for 16 hours a day, or approximately 5,800 hours a year. These lights had an estimated 20,000 hour life span and had been in place for more than three years; Focus on Energy recommends relamping at 90 percent of estimated

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life. Each county could continue to relamp lights as they burned out, but realized this was a highly inefficient approach.

In Polk County the building's fixtures are 12 feet in the air and require a ladder or lift to change. Factor in the time it takes to gather tools and supplies, and changing one lamp can be a 15+ minute process; with group relamping, changing 800 lamps would take less than a day. And in this instance the normal hassle factor was compounded by the lamps' location: the county prison. "It takes a lot of coordination to have people working in that area of the building. It's not something we can arrange every day," said Peterson.

As a result, about 10 percent of the area's lamps were burned out at any given time.

Clark County faced similar access issues. "We wanted to change every four-foot lamp and every night light in the jail cells," said Trunkel. "With a group relamping, we'd only have to clear the area out once."

Having the opportunity to experience the difference in light quality helped to tip the scales in Clark County. During the review session, the county did a before-and-after comparison starting with the existing lamps, then installing T8, 25 watt lamps in only half the fixtures in the test hallway. "The hallway test was a huge factor in the project approval process," said Trunkel.

Both counties approved their respective upgrades based on the Focus on Energy audit and presentation. Before the counties purchased replacement lamps, Focus on Energy did a test installation to ensure the 25-watt bulbs would provide adequate light. Although the wattage was lower, the new lights had a value of 4,100 Kelvin, vs. the 3,600 Kelvin of the 32-watts. With Kelvin values, lower numbers are warmer and more yellow; higher numbers are whiter and more closely mimic sunlight.

Peterson and her staff couldn't be happier with the project. "The facility is much brighter and we're saving money on our electricity costs. Plus, we have the assurance of years of useful life with these new bulbs."

Based on Focus on Energy's audit, Polk County also upgraded lighting at its fairground and ordered 1,000 bulbs for another relamping project. "We have really benefited from this assistance. We've saved time and money on the projects we've already done, and having this comprehensive report helps me to plan ahead and build energy-efficient improvements into my budget," said Peterson.

Trunkel reports that he's gotten a lot of positive feedback on the improved light quality. "People do notice that the light is better, and it's great to know that we're creating a better working environment and using less energy at the same time."

Moving forward, Trunkel believes that Clark County is likely to make additional changes as budget permits. "Focus on Energy has really helped us to think about our energy usage and ways that we can be more efficient."

POLK COUNTY SAVINGS PROJECTIONS			
Focus on Energy Recommendation	Annual Electricity Savings (kWh)	Annual Demand Savings (kW)	Annual Energy Cost Savings
Replace 800 32-watt bulbs with 25-watt bulbs	28,032	4.8	\$1,962

CLARK COUNTY SAVINGS PROJECTIONS			
Focus on Energy Recommendation	Annual Electricity Savings (kWh)	Annual Demand Savings (kW)	Annual Energy Cost Savings
Switch to CFL	6,583	2.5	
Switch from T-12 to T-8 and 25-watt update options	25,634	7.8	
Group relamping from 32-watt bulbs to 25-watt bulbs (4,000 fixtures)	56,640	22.5	
TOTAL	88,857	32.8	\$6,952

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Debbie Peterson
 Director
 Department of Parks, Buildings and Solid Waste Management
 Polk County

"Focus on Energy really understands how to optimize your energy usage. And all their services are free. Working with them was definitely a positive experience."

DuWayne Trunkel
 Director of Maintenance
 Clark County

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