

# Going Green in Wisconsin with LED Streetlights

The world of light-emitting diode (LED) lighting is rapidly expanding. LED technology has the potential to save significant amounts of energy and money for Wisconsin businesses and consumers, but finding the right product for each application is critical. That's why Wisconsin Energy Conservation Corporation (WECC) and Wisconsin Public Service (WPS) teamed up to put LED streetlights to the test.

The Portage County Business Park in the city of Stevens Point was chosen as a test site, and together WECC and WPS replaced 24 standard high-pressure sodium (HPS) streetlights with energy-efficient LED fixtures in the business park. Twelve LED lights from two different manufacturers were tested.



The Portage County Business Park was chosen as a test site for 24 LED streetlights. Half of the lights were installed on the streets in the upper left portion of the photo and the other half were installed on the streets shown at the bottom right.

## Comparing LEDs to HPSs

As part of this unique project, intensive testing was done over a 9-month period at different seasons and temperatures to analyze the energy consumption and light levels of the new LED lights compared to the original HPS lights. The results show that there was relatively no change in the light levels or power consumption by the LED fixtures at various times of the year regardless of ambient temperature. The LED fixtures used approximately half the energy compared to the original HPS fixtures and provided adequate light levels on the street.

The lights were also studied as to how people perceive the color of the light in the test areas. The findings from the study leave room for interpretation as to the nighttime effectiveness of LED lights, and this presents some controversy in the lighting world: LED lights can be more energy-efficient than HPS lights, however, lower light levels may be measured with LEDs.



The street view on the left was taken with the original HPS fixtures in Sept. 2009. The street view on the right shows the LED fixtures in June 2010.

## Making the most of LED lighting

In addition to variations in energy consumption, it was also observed that fixtures from the two different manufacturers provided significant variations in visual lighting patterns. For example, a type-two distribution pattern will not necessarily be the same between manufacturers. A thorough review should be conducted to determine the lighting needs and the product offerings available in order to ensure that all lighting needs are met. Specific attention should also be made to the layout, uniformity, design, and type for best results.

Municipalities should consider their needs on a case-by-case basis, and understand that LEDs have the potential for significant energy savings, but they must educate themselves to maximize the benefits of LED lighting compared to standard HPS lighting.

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For full results from the testing, please visit the *Stevens Point LED Street Light Project Final Report* available at [weccusa.org/ledreport](http://weccusa.org/ledreport).

For additional information on LED and other energy-efficient solutions for street lighting, visit [www1.eere.energy.gov/buildings/ssl/index.html](http://www1.eere.energy.gov/buildings/ssl/index.html).

For information on color of lighting sources, consult the U.S. Department of Energy's website at [www1.eere.energy.gov/buildings/spectrally\\_enhanced.html](http://www1.eere.energy.gov/buildings/spectrally_enhanced.html).

To learn about energy-efficiency programs available in your area, contact Wisconsin Energy Conservation Corporation at [weccusa.org](http://weccusa.org) or **800.969.9322**.