

As LED Streetlights Spread, Some Critics Look for Dimmer Switch

Concerns about bright, bluish lights and impact on sleep lead some cities to reconsider their plans

By Yuliya Chernova • Sept. 13, 2016 10:01 p.m. ET



LED streetlights save about 50% on energy, but the AMA said recently that poorly designed versions can increase glare and disrupt sleep. *Photo: Ethan Miller/Getty Images*

Cities around the world are replacing old streetlights with energy-efficient LEDs. Not everyone is happy about it.

Streetlights that use light-emitting diodes have a lot of appeal. They require

roughly 50% less energy than the common high-pressure sodium and metal-halide lamps. And they last much longer, resulting in big cost savings.

The number of LED streetlights in the U.S. grew to 5.7 million in 2014, or about 13% of all streetlights, from 1.3 million in 2012, according to the U.S. Energy Department.

But some concerns have arisen about the LEDs most commonly used in streetlights.

Most LEDs in street lamps emit a bluish light, and some research has shown that humans see that light as brighter than other light sources, prompting some city residents to complain that the lights are keeping them up at night. Studies also have suggested that the bluish light in LEDs can suppress melatonin, a hormone that helps regulate sleep cycles.

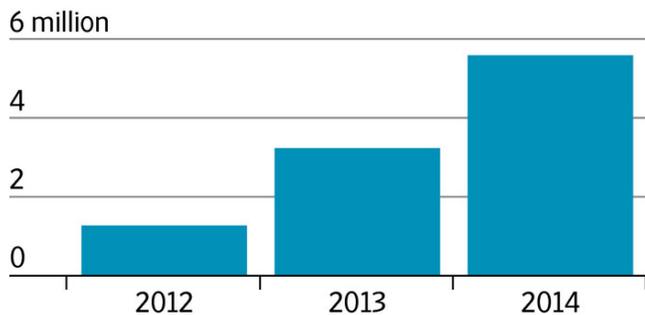
In June, the American Medical Association said that poorly designed LED streetlights in the U.S. today can increase glare and disrupt sleep—which can lead to chronic health problems—and confuse animals. The AMA supports installation of LEDs, but says cities should use LEDs that cast a more yellow light and are fully shielded to direct their light downward.

About 500 New York City residents signed a petition urging the city to stop installing certain kinds of LEDs. “It’s turning NYC into a bad Wal-Mart parking lot,” read one complaint. The petition asked for fully shielded lights that would decrease light pollution and for LED lights of a warmer color—meaning more yellow.

New York has installed mostly LED street lamps of the bluer variety, but plans to switch to LEDs of a more yellow color for the 116,000 LED streetlights still to be installed, a Transportation Department spokesman says. Once the current installation of LED street lamps is complete, it is expected to save the city about \$6 million a year on electricity and \$8 million on maintenance. “The energy savings are a mathematical fact,” the

A New Light

The number of LED streetlights installed in the U.S., out of about 45 million total. The Energy Department estimates an energy saving of 50% or more from outdoor LEDs.



Source: Energy Department
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spokesman says.

John Bullough, director of transportation and safety lighting programs at the Lighting Research Center at Rensselaer Polytechnic Institute, says the effect of outdoor LEDs on human health hasn't been clearly established; in fact, he says, the use of computer screens at night might have a stronger effect on sleep disruption than outdoor streetlights.

But his research does show that people see many LEDs as brighter than other light sources at the same measured intensity, and he says the best way to reduce problems from early LED installations is to replace older, brighter models with LEDs of lower intensity.

Some cities are revising streetlight-replacement plans in response to residents' protests. In Phoenix, opposition to plans for 90,000 bluish LED streetlights led the city to request that bidders propose a wider range of colors for the LEDs. In an online survey conducted by the city, citizens preferred the lights with the more yellow hue.

Phoenix officials say they will decide on the color of the lamps this fall. While the citizen input will be taken into account, says Monica Hernandez, a spokeswoman for the city's Street Transportation Department, the city will also consider feasibility, sustainability and dollar savings.

In Lake Worth, Fla., town officials chose the more yellow light when they decided to convert some 5,300 streetlights to LEDs earlier this year. The color temperature of the lights was measured at 2,700 Kelvins. The Florida Transportation Department, however, specifies bluer, 4,000K lights for major roadways.

After analyzing the intensity of the new lamps, the town found that the more yellow lights produced as much brightness as the state required. The results persuaded the state to allow the town to go with the lower-Kelvin LEDs, says Michael Bornstein, Lake Worth's city manager.

The town also chose LEDs with several brightness settings and is letting homeowners associations or residents choose the setting at the time of installation. The town is also installing shields when residents request them. The more-yellow LEDs cost as much to install as the bluer variety, says Jack Borsch, electric utilities director at Lake Worth. The shields added a tiny fraction to the cost of each light.

[Eversource Energy](#), a Connecticut utility, has installed about 889 LEDs of 4,000K—the industry standard last year—in 25 towns, but now will install 3,000K LEDs. “We will make any modifications or replacements necessary to ensure the protection of public health and welfare,” says Tricia Taskey Modifica, a spokeswoman for the company.

The Connecticut Conference of Municipalities, which helps cities make joint purchases and other decisions, says its towns are satisfied with the LED streetlights they have. “If you look at why cities and towns are changing to LEDs, the main driver is economic,” says Andy Merola, energy and program development manager for the association. The AMA report “doesn't change the economics,” he says. “I don't think anyone is second-guessing their LED installation.”

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