BREAKING NEWS

DOE Gives $11.5 Million for LED Lighting Projects Nationwide

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The U.S. Department of Energy recently awarded $11.5 million to install light emitting diode lighting in parks, police stations, an airport runway, baseball fields and city buildings to promote energy efficiency across the nation.

The LED funding was released Nov. 14 as part of $17.7 million in 61 awards made from the Energy Efficiency and Conservation Block Grant program to enable local and state governments as well as Tribes to increase efficiency, while lowering energy usage and emissions.

Projects receiving the LED awards are in Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Illinois, Indiana, Maine, Maryland, Massachusetts, Nebraska, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Wisconsin and Wyoming.

Announcing the awards, U.S. Energy Secretary Jennifer Granholm noted in a press statement that the EECBG program "provides localities with the tools needed to increase access to clean energy and boost energy resilience through community-led initiatives."

LED Lighting Projects Across the Nation

Alaska was approved for a $77,080 grant to retrofit the North Pole Ice Rink with LED lighting to achieve greater energy efficiency in Fairbanks North Star Borough.

LED projects were also funded for police facilities, courthouses and jails:

- Nashville's Metropolitan Courthouse will have $644,440 in new LED lighting.
- Davis County in Texas will spend $293,610 to install LED lights at the Blackwell Thurman Criminal Justice Center.
- Greeley, Colo. was given $158,860 for LED lighting at its police headquarters.
- Somerset County, Maine will use a $76,720 grant to install LED lighting to replace fluorescent lights and fixtures in a county courthouse and jail.
- Trumbell, Conn. won a $76,260 award to install LEDs at a police station.
- Cass County, N.D. officials will remove 500 halogen lighting fixtures in favor of $75,660 worth of LED lights in the Cass County Jail administration building.

In Tuscaloosa, Ala., officials will spend the $158,340 DOE grant to covert nearly 500 airport runway and taxiway lights to LED lighting.

New LEDs are coming to city halls in Chicopee, Mass. (awarded $116,600) and Winter Garden, Fla. (granted $76,560) for their projects. In a similar effort, a town hall will receive $73,526 in Hudson, N.H. to add LED lighting, insulation and windows to improve energy usage.

Benefits from LED Technology

LED lights are touted as offering 90% greater energy efficiency than ordinary incandescent light bulbs and compact fluorescent lighting.

"Widespread use of LED lighting has a large potential impact on energy savings in the United States," the DOE says. "By 2035, the majority of lighting installations are anticipated to use LED technology, and energy savings from LED lighting could top 569 terawatt-hours annually by 2035, equal to the annual energy output of more than 92 1,000 megawatt power plants."

LEDs produce directional light after a current of electricity travels through a semiconductor assembly (microchip). A heat sink in the lighting absorbs heat produced.

In contrast, incandescent bulbs need electricity to heat an internal metal filament inside the glass to produce light, which is released in every direction. Some 90% of bulb energy is released as heat.

The DOE notes LEDs offer benefits over traditional incandescent lighting. One advantage is that LEDs are cooler and less likely to combust or burn. They also aren't made of glass and easily broken. Since LEDs consume less energy, up to 25 LED lighting strings can be connected together for greater lighting without overloading electrical wall sockets.

Health Concerns for People and Animals

"LEDs emit high-intensity optical radiation across the ultraviolet, visible, and infrared spectrums," noted Lawrence Berkeley National Laboratory, a unit of the DOE, in an environmental, health and safety evaluation.

The evaluation discussed potential health issues regarding greater use of ultraviolet emitting, white and very bright LEDs. Although the eyes and skin are more likely to be harmed by optical radiation, the laboratory said traditional LEDs are usually considered safe. LED glare and flickering have the potential to lead to some visual health issues.

The European Commission weighed in on health concerns associated with LED lighting. It issued a fact sheet called "So far, no health risks dim LED lights' bright future." The assessment determined LED lights are safe for people and was based on a 2018 opinion in a report by the Scientific Committee on Health, Environmental and Emerging Risks.

However, the American Medical Association raised health concerns about LED lighting in a 2016 press release.

"High-intensity LED lighting designs emit a large amount of blue light that appears white to the naked eye and create worse nighttime glare than conventional lighting. Discomfort and disability from intense, blue-rich LED lighting can decrease visual acuity and safety, resulting in concerns and creating a road hazard. In addition to its impact on drivers, blue-rich LED streetlights operate at a wavelength that most adversely suppresses melatonin during night. It is estimated that white LED lamps have five times greater impact on circadian sleep rhythms than conventional street lamps," the press release stated.

The AMA contended that high-intensity LED lighting is potentially harmful to people and animals.

"Excessive outdoor lighting disrupts many species that need a dark environment. For instance, poorly designed LED lighting disorients some bird, insect, turtle and fish species, and U.S. national parks have adopted optimal lighting designs and practices that minimize the effects of light pollution on the environment," the AMA noted.

Consequently, the AMA issued guidance adopted by grassroots physicians to bolster "the AMA's policy stand against light pollution and public awareness of the adverse health and environmental effects of pervasive nighttime lighting."

More recently an October 2024 policy forum article in the AMA Journal of Ethics by Dr. Mario E. Motta discussed a linkage between LED lighting and outdoor light at night (LAN) that can suppress the human body's melatonin production.

"There are now voluminous peer-reviewed articles showing a higher risk of hormonally linked cancers, such as breast and prostate cancers, with melatonin suppression. Higher risk of thyroid and pancreatic carcinoma associated with LAN has also been reported in the literature," the article stated.

Motta also discussed how some outdoor LED lighting can disrupt normal functioning in nocturnal animals and nature. "There now exists a burgeoning and robust literature documenting the environmental damage caused by excessive outdoor LAN. Birds, insects, and mammals are especially hard hit," the article noted.

Need for Greater Awareness About Pros and Cons

There are multiple factors to consider when deciding whether to use advanced technology such as LED lighting to improve efficiency. Money savings are one part of the equation. Others include the types of LED lighting and potential impacts to others beyond energy efficiency.

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