

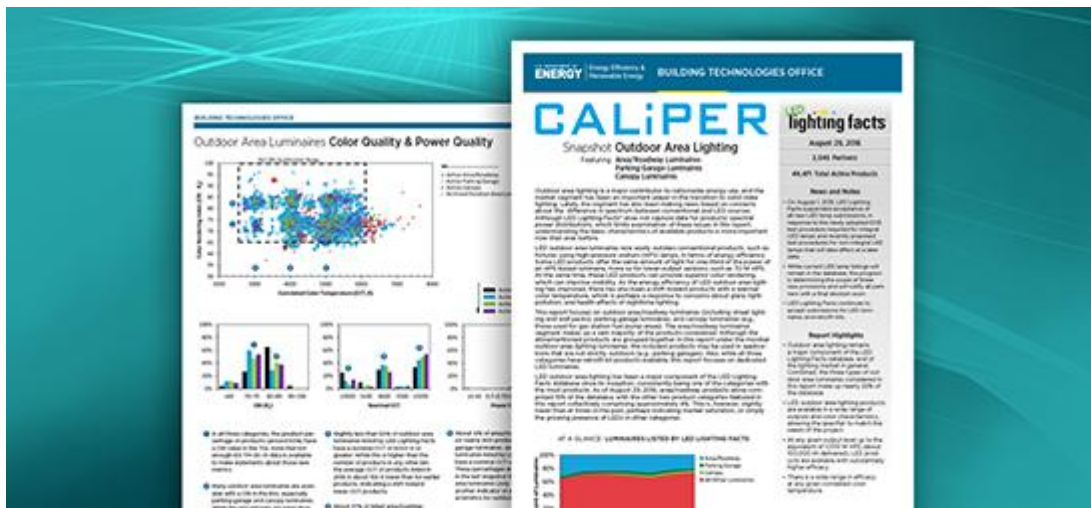
# SSL Postings

U.S. DEPARTMENT OF ENERGY

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## LED Outdoor Area Lighting

Outdoor area lighting is a major contributor to nationwide energy use, and the market segment has been an important player in the transition to SSL. DOE's [CALiPER program](#) has released a [new Snapshot report on outdoor area lighting](#) that covers LED area/roadway luminaires, parking garage luminaires, and canopy luminaires.



[Snapshot reports](#) draw from DOE's [LED Lighting Facts](#)<sup>®</sup> database, which now includes more than 52,000 registered products. LED outdoor area lighting has been a major component of that database since the LED Lighting Facts program's inception, consistently being one of the categories with the most products. The new Snapshot shows that as of August 29, 2016, area/roadway products alone comprised 15% of the entire database, with the other two product categories featured in the report comprising approximately 4%.

Lately, outdoor area lighting has been making news because of concerns about the difference in spectrum between conventional and LED sources (see [June 21<sup>st</sup> Posting on that topic](#)). Although LED Lighting Facts does not capture data for products' spectral power distributions, which limits examination of these issues in the new Snapshot, understanding the basic characteristics of available products is more important now than ever before.

LED outdoor area luminaires now easily outclass conventional products, such as fixtures using high-pressure sodium (HPS) lamps, in terms of energy efficiency. Some LED products offer the same amount of light for one-third of the power of an HPS-based luminaire, more so for lower-output versions such as 70 W HPS. At the same time, they can provide superior color rendering, which can improve visibility. As the energy efficiency of LED outdoor area lighting has improved, there has also been a shift toward products with a warmer color temperature, which is perhaps a response to concerns about glare, uplight, and the health effects of nighttime lighting.

The three types of luminaires discussed in detail in the new Snapshot report are the core products used to light surfaces or large areas outdoors or in parking garages, and are categories where LED technology has made significant inroads. According to the DOE report [Adoption of Light-Emitting Diodes in Common Lighting Applications](#), LED outdoor lighting accounted for 10.1% of installed stock in 2014. By 2015, that number was 17.9%.

Roadway lighting was one of the first major product categories to see competitive LED products, with [GATEWAY](#) demonstration projects dating back to 2007. While those early products are inferior to what's available today, they provided an important starting point for a product type that's now seeing widespread deployment and providing substantial energy savings. Using the LED Lighting Facts database, it's possible to track and understand how performance has changed over time. As with the broader set of products, the efficacy of LED outdoor area products continues to improve. Mean efficacies for the three product categories are between 93 and 98 lm/W, with some products as high as 150 lm/W. This has occurred simultaneously with decreases in mean CCT. While many early LED area lighting products were 5000K or higher, there's been a measurable shift toward 4000K products, and there is now a sizeable percentage of products available at 3000K or lower.

Looking at comparative changes in efficacy, output, and power indicates some differences in the state of development for the three product types. For area/roadway lighting, average output and power continue to increase, perhaps reflecting the emergence of LEDs in applications where greater output is needed, such as high-mast lighting. In contrast, the average output for parking garage and canopy luminaires has remained relative steady over the past few years, indicating that LED products can already meet all demands of the application.

Across the board, LED luminaires offer an energy-efficient alternative to luminaires using HPS lamps, and they simultaneously offer improved color-rendering characteristics. Numerous LED products with a nominal CCT of 3000K or less are available with an efficacy greater than 100 lm/W. Although it's not analyzed in the new Snapshot report, LED products often require fewer lumens to produce equivalent illuminance levels on the surface they are lighting, thanks to better luminous intensity distributions than lamp-based luminaires. All these trends indicate a broader range of choices for specifiers, which allows improved balancing of competing needs.

For a closer look at the findings, download the [full report](#).

Best regards,  
Jim Brodrick

As always, if you have questions or comments, you can reach us at [postings@akoyaonline.com](mailto:postings@akoyaonline.com)