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LED Bulb Cost Will Drop by Half to \$11 in 2020

Technology innovation will shift to the surrounding thermal management, drivers and optics as the price of the main LED package falls, says Lux Research

Boston, MA – July 10, 2012 — Cost has long been the name of the game with LEDs, but focus is now shifting from the package to the surrounding balance of system, with innovation in areas such as thermal management, drivers, and optics helping to halve prices of LED bulbs to \$11.06 in 2020, according to [Lux Research](#).

Costs of the central LED package will fall by more than 70% to \$2.14 in the next decade, constituting 19% of the bulb costs in 2020. However, to drive overall costs lower – and ensure adoption in a market still dominated by incandescent and CFLs (compact fluorescent lamps) – other system costs need to keep pace.

“We find that today’s balance of system technology solutions fall short of the dramatic cost reductions needed to mirror the LED package and existing alternate solutions are ineffective and uneconomical, presenting opportunities for technology innovation,” said Pallavi Madakasira, Lux Research Analyst and the lead author of the report titled, “[Cheaper, Brighter, Cooler: The Need for Cost Reduction Past the Package](#).” “LED lighting is by no means standardized, and potential disruptions to the component stack abound,” she added.

Lux Research analysts studied the key LED cost stack components of a 60 W incandescent equivalent LED bulb as well as the technologies available to accelerate cost cuts in order to understand the true pathways to LED bulbs’ potential. Among their findings:

- **Thermal management will yield modest cost gains.** Thermal management is the biggest target for cost reduction past the package. Active thermal management technologies such as Nuventix’s SynJet will lead to cost savings over aluminum-based solutions, but only from 2017.
- **Dimmable drivers lead to energy savings.** Dimmable drivers are priced at a premium to non-dimmable ones because they enable precise control of the light output and lead to energy savings. Innovation in this area will bring about a 1% cost saving in 2020, boosting the performance of the LEDs overall.
- **Secondary optics in focus.** Secondary optics account for about 5% of the total cost of a 60 W equivalent LED bulb. The field is dominated by specialists such as Ledil, Khatod, and Fraen, and innovation lies in improving the shape of the beam and the ability to collect more light from primary optics.

The report, titled “Cheaper, Brighter, Cooler: The Need for Cost Reduction Past the Package,” is part of the Lux Research [Energy Electronics Intelligence](#) service.

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