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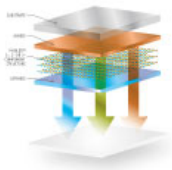
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## OVERVIEW

Since Edison's development of the incandescent light bulb in 1879, its energy efficiency has not improved beyond 4% — equivalent to about 12 lumens/Watt (lm/W). Consequently, the light bulb is losing favor here in the U.S. and around the world. In fact, plans are underway to ban and/or phase them out altogether in certain regions. Fluorescent tubes, capable of up to 90 lm/W, but typically in the 40-70 lm/W range, offer color qualities that are undesirable for many applications. They also present numerous environmental and disposal issues because they contain mercury. Thanks to Universal Display's breakthrough PHOLED technology, the next-generation of lighting is on its way.

UniversalWOLED™ white OLED lighting has the potential to reach more than 150 lm/W. In the past few years, we have made tremendous progress toward this goal. In June 2008, our team achieved a major research milestone of 102 lm/W. Our recent work has focused on converting these small-scale "pixel" results to commercial-sized panels. To this end, we recently demonstrated a 15 cm x 15 cm panel with power efficacy of >60 lm/W.

This milestone is further evidence of the potential of white OLEDs to offer significant energy savings and environmental benefits to end users around the world. With lighting accounting for over 8% of our energy consumption in the U.S., WOLEDs could have real impact on reducing energy consumption.

Already, WOLEDs have sparked keen interest from the lighting and display industries and emboldened designers and developers to consider using them in novel ways. All thanks to attractive performance features, which include:

- High power efficiency
- Bright, uniform white color quality
- Color tunability and dimmability
- Innovative form factor
- Environmental friendliness

Given the trends in development and ongoing support of the [U.S. Department of Energy](#), the outlook for WOLED technology is bright.