OLED experts to advance improved production techniques

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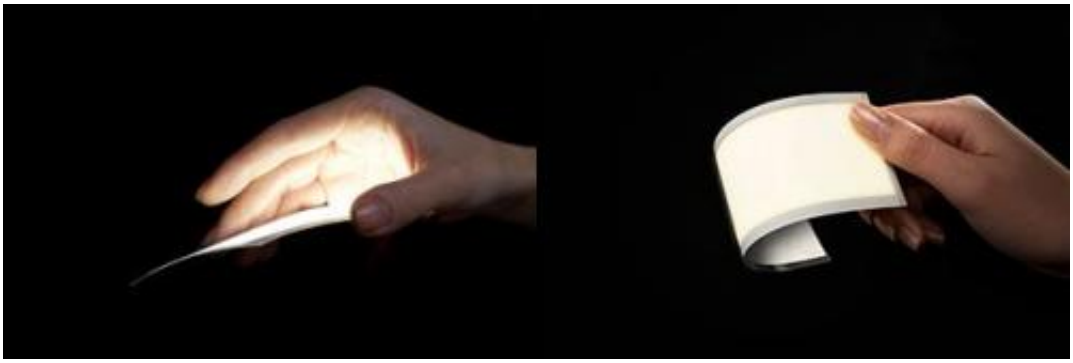

Konica Minolta’s flexible OLED panel.

Back in May, Steven Shankland in CNET said that, for the lighting business, "the next technology is coming: OLED (organic light-emitting diode) lighting. It replaces the small, bright dots of LEDs with sheets of light that aren't so piercingly bright." Now MIT Technology Review is also posing a potential glimpse into OLED's future: Could lighting sheets be the next chapter in materials for lighting—glowing sheets using only half as much energy as an equivalent fluorescent fixture and laminated to walls or ceilings?

Those interested in learning more can read the Tuesday report by Kevin Bullis in MIT Technology Review. He is talking about sheets that have OLEDs. He said, "OLEDs could be used in large sheets, because organic light-emitting molecules can be deposited over large surfaces. They also

run cooler than LEDs, so they don't require elaborate heat sinks, making a lighting structure simpler." One company focused on making the OLED difference is Konica-Minolta, which is to begin full-scale production of OLED lights on flexible plastic sheets, he said. Production involves "roll-to-roll" processing, which should be faster and cheaper than making OLED lights in batches. The factory will be able to produce a million panels per month, he added.

In March, Konica Minolta said it "has reached the conclusion that offerings of light, bendable and hard-to-break OLED lighting panels with proven plastic substrate technologies will be able to deliver new values to customers not only in general lighting and architecture sectors but also in electric appliances and automobile sectors. These findings have paved the way for the plant construction." The company said that its roll-to-roll manufacturing method was being introduced for "the world's first mass production of plastic substrate flexible OLED lighting panels with white color and color tunable functions."

Costs have been an OLED drawback as an immediate replacement for conventional fixtures. Bullis said OLED, while highly efficient, is 10 to 100 times more expensive than conventional lighting. He wrote that OLED lighting is expensive in part because manufacturers typically use equipment developed for making high-resolution displays, according to Michael Boroson, the chief technology officer of OLED Works. His company is reengineering the equipment so it uses less material and works more quickly.

There is more light, no pun intended, at the end of the pricing tunnel. "Costs are expected to drop further as the scale of production increases," said Bullis in MIT Technology Review.

Discussed on the OLED-Info.com site, OLED is a flat light-emitting technology made by placing a series of organic thin films between two

conductors. When electrical current is applied, a bright light is emitted. OLEDs can be used to make displays and lighting. OLEDs are thinner and more efficient than LCD displays. According to the site, OLEDs are "organic" in that they are made from carbon and hydrogen. Also, OLEDs are not perfect, said OLED-Info.com, as today "it costs more to produce an OLED than it does to produce an LCD - although this should hopefully change in the future, as OLEDs has a potential to be even cheaper than LCDs because of their simple design."

Bullis quoted a professor of materials science and engineering at the University of Michigan, Stephen Forrest, who said, "I believe OLED lighting will be a very important lighting source in the future, perhaps a dominant one. But there's a big gap between what we can do now and what we need to get costs down."

More information: www.technologyreview.com/news/ … power-as-lightbulbs/
www.oled-info.com/introduction
www.konicaminolta.com/oled/research/flex_oled.html