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GE Global Research Breaks OLED Records

NISKAYUNA, N.Y., March 5 -- GE Global Research, the centralized research organization of General Electric, announced what it says is "a major breakthrough" in organic light-emitting diodes (OLEDs), the thin sheets of plastic-like material that emit light when powered by electricity.

The company said it broke two world records with its demonstration OLED device, a 24-inch x 24-inch panel that produces 1200 lumens of light with an efficacy of 15 lumens per watt (on par with today's incandescent bulb technology). GE said this demonstrates that the quality, output and efficiency of OLED technology can meet the needs of general illumination.

"We are extremely excited about accomplishing a task that many thought would be impossible," said Anil Duggal, manager of GE's light energy conversion program. "This is definitely a significant milestone in turning an abstract idea into a viable product."

GE said the ultimate goal is to create sheets of paper-thin lighting devices that can be applied to surfaces in a similar way to wallpapering. In order to accomplish this and bring the product to market, GE needs to make the device even more efficient -- eventually reaching 100 lumens per watt -- and to develop a low-cost production system.

During the three-year OLED project, which was cosponsored by the US Department of Energy's Building Technologies Program and the National Energy Technology

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The new level of efficiency and increased size were based on earlier research and results. When the program began three years ago, the team created a 1 in. x 1 in. prototype that emitted 3.8 lumens per watt -- proving it was possible to create illumination-quality white light using OLEDs. The following year, they developed a 6 in. x 6 in. prototype that emitted 7 lumens per watt, which demonstrated they could create a device with a more practical surface area. The current version consists of 16, 6 in. x 6 in. tiles linked together.

GE presented its final results and report to the Department of Energy last week. The next goal for the program is to demonstrate that OLEDs can be made on flexible material in a continuous roll-to-roll process, without the huge capital investment normally required for batch-processed inorganic semiconductor technology.

For more information, visit: www.netl.doe.gov/ssl/

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