# Universal Display to Develop Novel Smart Windows

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Universal Display Corporation, a leading developer of organic light emitting diode (OLED) for flat technologies for flat panel displays, lighting and other opto-electronic applications, announced today a $130,000 cooperative agreement with the U.S. Department of Energy (DOE) through the Energy Efficient Building Technologies Funding Opportunity Announcement to demonstrate a novel "smart window" concept.

The agreement includes a $100,000 funding commitment from the DOE, plus an additional $30,000 cost-share contribution from Universal Display. The DOE funding commitment represents 77% of the program cost.

In this program entitled, “Novel Smart Windows Based on Transparent Phosphorescent OLEDs,” Universal Display and its partner, Princeton University, will employ its white PHOLED phosphorescent OLED and TOLED transparent OLED technologies to demonstrate a novel smart window concept for residential and commercial buildings. By integrating these proprietary technologies with reflective modulating light shuttering techniques, the company seeks to demonstrate a device that can switch rapidly from being a highly-efficient, solid-state white light source to being transparent for efficient daylight transmission.

OLED technology has been identified as a promising solid-state lighting technology by the DOE to help meet its energy targets. In a report prepared for the U.S. Department of Energy , over $25 billion per year

could be saved by 2025 if new solid-state lighting technologies, such as OLED technology, can be successfully adopted.

Improving the energy performance of windows is also a primary focus of DOE research. According to the DOE, windows currently consume 3.8 quadrillion Btu's of energy in the U.S. annually in the form of heating and air conditioning loads, at a cost of more than $30 billion. Through advanced energy-efficient window technologies, the DOE reports that if daylight can be efficiently captured and directed into the building, it may be possible to reduce lighting loads by about 25%, saving one quadrillion Btu's annually in commercial buildings.

Combining the Company's high-efficiency PHOLED technology with a daylight management technique in a smart window creates opportunities for enhanced window functionality as it can provide more energy-efficient white lighting and more effective daylighting control, as needed. In addition to increasing the energy efficiency and functionality of buildings, advances in smart window technology may also enhance the productivity, comfort, and safety of occupants, as well as pave the way to innovations in architectural design and construction.

“We believe that the use of our high-efficiency white PHOLED and TOLED technologies has the potential to provide innovative and cost-effective smart window solutions for conserving energy in the buildings sector,” stated Steven V. Abramson, President and Chief Operating Officer of Universal Display Corporation. “Such innovative approaches are important for driving towards the DOE's goal of a 50% reduction in electric lighting power consumption by 2020.”