

3M's Progress in Hydrogen Fuel Cell Research is Advanced by Department of Energy Research and Development Awards

- Company Selected for Research and Development Funding to Continue Membrane and Catalyst Development -

3M's progress toward developing hydrogen fuel cell materials and components with the performance and durability to power cars and trucks has been recognized by the U.S. Department of Energy (DOE) with their selection for award of \$17.3 million in research and development funding over the next four years.

"Our proposals received the largest share of the funds awarded – 17 percent – which is encouraging recognition of the steady advances being made toward a fuel cell that is technologically and economically viable for transportation and other applications," said Dr. Eric Funkenbusch, director of 3M's Fuel Cell Program.

In all, eight companies and nine universities and national laboratories were selected for a total of \$100 million in funding from the DOE.

The DOE funds for 3M are intended to further the progress of projects aimed at improved membranes and advanced electrocatalysts, two of the key components of membrane electrode assemblies (MEAs). MEAs are critical components of fuel cells that convert hydrogen fuel and air into electricity and water in the fuel cell system.

Company scientists are working on advanced membranes with improved chemical and mechanical properties and expanded operating temperature ranges. In addition, 3M is further developing its proprietary nanostructured, thin-film electrocatalyst technology that has produced more robust performance with less platinum by reducing surface area loss under repetitive high-voltage cycling. The new catalyst also eliminates carbon corrosion which impedes conventional electrocatalysts.

Earlier this year, Dr. Mark Debe, 3M senior staff scientist, received the DOE's Hydrogen Program R&D Award for "outstanding achievement" in his team's work on advanced electrocatalysts.

"While technical challenges remain, the track record of progress has been very impressive and gives one confidence going forward," says Funkenbusch. "These awards will allow us to continue to focus our technical efforts on addressing key remaining materials and performance needs by approaches which are scaleable and commercially viable."

3M is a leading developer and manufacturer of MEAs for hydrogen fuel cells, which are already finding widespread use as back-up power sources in various industries, especially in telecommunications facilities. Eventually, miniaturized hydrogen fuel cells are expected to become a primary power source for hand-held electronic products.

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