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NEXCERIS AWARDED \$8M FOR PHASE II OF THE ARPA-E INTEGRATE PROGRAM

Lewis Center, OH (October 12, 2020) – [Nexceris](#) announces that it has been awarded \$8M as Phase II of the [ARPA-E INTEGRATE](#) (Innovative Natural-gas Technologies for Efficiency Gain in Reliable and Affordable Thermochemical Electricity-generation) program. ARPA-E’s INTEGRATE program aims to develop electrical generation systems with ultra-high efficiency and low manufacturing cost (<\$1800 per kW installed). The program focuses on hybrid system designs that integrate a fuel cell with a heat or reactive engine, such as a gas turbine or a reciprocating internal combustion engine. The INTEGRATE program encourages the development and demonstration of integrated hybrid systems and/or enabling component technologies.

In Phase I of this project, Nexceris designed, developed and is currently validating a 10 kW-scale solid oxide fuel cell (SOFC) stack that is tailored for hybrid power systems. In Phase II, Nexceris is collaborating with [CZero Solutions](#) and [Brayton Energy](#) on the design and development of an ultra-high-efficiency, 100 kW-scale power system combining a solid oxide fuel cell (SOFC) and a gas turbine. Nexceris will manage the project and lead SOFC technology development and stack production activities; CZero will serve as the system integrator; and Brayton will contribute gas turbine technology expertise to the effort. The hybrid power system will operate on natural gas, with a target of 70 percent efficiency (based on the lower heating value of the fuel).

The SOFC stacks for this system are based on Nexceris’ patented planar electrolyte supported cells and were designed for elevated pressure operation. The hybrid system will include multiple 10 kW-scale stacks that are housed within a pressure vessel to enable stack operation at elevated pressure (3-4 bars) and to facilitate efficient hybridization with an appropriately sized gas turbine. The Phase II effort will culminate with a demonstration of a fully integrated 100 kW-scale hybrid power system.

Potential applications include maritime, including ships and port installations, locomotives, grid-edge and grid independent distributed generation and micro-grids. Nexceris’ team is actively seeking stakeholders in these segments to develop customized low-emissions, power generation solutions.

Nexceris’ CTO and the project’s principal investigator, Scott Swartz said, “This Phase II project will result in a first-of-its-kind hybrid system demonstration that will advance Nexceris’ solid oxide fuel cell technology toward commercial deployment. We are extremely grateful to ARPA-E for their trust and financial support.” Kyle Shen, Nexceris CEO, said that “This project aligns directly with Nexceris’ vision to create a better world through energy innovations. We look forward to working together with ARPA-E, CZero and Brayton to accelerate commercialization of our SOFC technology.”

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About Nexceris: Nexceris is an energy company that develops innovative sensor, power generation and catalyst solutions. Founded in 1994, Nexceris' vision is to create a better world through energy innovations. The company collaborates with global customers and partners to transform powerful ideas to make energy production safer, more efficient, and environmentally responsible. Nexceris sells solid oxide fuel cell materials and advanced gas sensors under the [fuelcellmaterials](#) and [Li-ion Tamer®](#) brands. Learn more at www.nexceris.com.