DOE Awards $10 Million to Small Businesses for Fossil Energy Research and Technology Transfer

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Washington, D.C. – The U.S. Department of Energy (DOE) has selected 10 research projects to empower small businesses to develop technologies that allow for the nation to more wisely and efficiently use our vast fossil energy resources and sustain economic growth.

The projects are funded under the Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) programs for the fiscal year 2016 SBIR/STTR Phase II Release 2 funding opportunity announcements through the DOE's Office of Science. The SBIR program increases private-sector commercialization of innovations derived from Federal research and development (R&D). STTR simulates and fosters scientific innovation and technology transfer through cooperative research and development carried out between small business concerns and research institutions.

The ten selected projects, under two topic areas, will receive a total of $10 million in R&D funding.

TOPIC AREA 1: CLEAN COAL AND CARBON MANAGEMENT

Eight selections were made under topic area 1 and focus on finding new ways to extract the power from coal – while simultaneously expanding environmental protection and confronting the issue of global climate change.

Key R&D programs include: (1) Crosscutting Technologies including innovative concepts for water sensors, aiming to make these technologies commercially competitive. (2) Gasification Systems enhancement to make them cost competitive with alternative processes. (3) Solid separation of contaminants from sorbents in Advanced Combustion applications. (4) Innovative approaches for rapid manufacturing of parts for high-temperature gas Turbine applications; (5) Innovative designs, materials and manufacturing methods to produce cost-effective recuperators suitable for deployment in large-scale Supercritical CO2 applications. (6) Carbon Capture Technologies including systems improvements methods to improve the performance and lower the costs of carbon capture. (7) Carbon Storage Technologies in the area of wellbore leakage pathway detection techniques.

NanoSonic, Inc., Pembroke, VA – This project will utilize wireless networked sensors in water for heavy metal detection. The sensor will be able to identify potential contaminations in real-time, allowing the rapid identification of water contamination events and prompting remedial action. (DOE share: $1,000,000)

Sporian Microsystems, Inc., Lafayette, CO – This project will utilize a novel, rapidly/remotely deployable, wireless, fully-integrated sensor system monitoring for water quality for a range of parameters and contaminants, including hazardous heavy metal contamination. (DOE share: $1,009,897)

TDA Research, Inc., Wheat Ridge, CO – This project, will develop a Warm Gas Multi-Contaminant Removal System that will provide an enabling technology that will advance the widespread implementation and environmentally friendly use of coal. (DOE share: $1,000,000)

Envergex, LLC, Sturbridge, MA – To reduce greenhouse gas emissions from chemical looping combustion systems and to facilitate further technology development, a method for separation of the oxygen carrier material from fuel-based contaminants is critical. The proposed work aims to develop a novel technology for separation of these components which represents an improvement over existing methods. (DOE share: $999,957)

Mikro Systems, Inc., Charlottesville, VA – This project will utilize a rapid manufacturing method, which leverages additive manufacturing to produce tooling that is combined with an innovative material system to produce components in higher volumes from industry standard materials, powdered metals and ceramics. (DOE share: $999,765)

Mechanical Solutions, Inc., Whippany, NJ – This project will develop an advanced foil bearing using high pressure/ temperature sCO2 as the lubricating fluid and enable the development of more efficient power generation equipment, resulting in energy savings and reduction in associated greenhouse gas emissions. (DOE share: $1,000,000)

Altex Technologies Corporation, Sunnyvale, CA – This project will deploy Altex Technologies' innovative and low cost process to directly remove carbon from the syngas in integrated gasification combined cycle power plants, reducing the planet's overall carbon dioxide levels, and improving air and water quality, at the same time. (DOE share: $999,991)

Porifera, Inc., Hawyard, CA – Porifera, Inc., will utilize a forward osmosis-based system for treating waste water generated during energy production using waste carbon dioxide and heat. This proposal will enable the development of a system that will synergistically capture carbon and treat wastewater at power plants. The system will have higher water recovery and treat more problematic water using less energy compared to state of the art technologies. (DOE share: $999,793)

TOPIC 2: OIL AND NATURAL GAS TECHNOLOGIES

Two projects were selected under topic area two focuses on improving hydraulic fracture diagnostics and other techniques for determining the dimensions, orientation, and conductivity of hydraulic fractures created along horizontal laterals in oil and gas wells drilled in tight formations.

Amethyst Research, Inc., Ardmore, OK – This project will establish a new suite of characterization techniques using ion beam analysis to provide data that will facilitate increased productivity by improving the understanding of these complex rocks. (DOE share: $999,998)

Physical Sciences Inc., Andover, MA – This project will develop a high- performance airborne laser scanner for routine mapping of terrain from unmanned aircraft. The compact sensor payload for unmanned aircraft this program will develop represents an economical mapping solution, particularly in areas distant from airports supporting manned aircraft. (DOE share: $999,897)

To learn more about the research and development projects funded by the Office of Fossil Energy, please visit the Fossil Energy website. For more information on DOE's SBIR/STTR program, please visit the Office of Science's SBIR/STTR program page.