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FuelCell Energy Advancing High Efficiency Electrolysis and Flexible Energy Storage with U.S. Department of Energy Solid Oxide Electrolyzer Cell Contract

- *Utilizing solid oxide electrolyzer cell (SOEC) technology to efficiently convert excess electricity during periods of low power demand into hydrogen*
- *Stored hydrogen can be used by the solid oxide fuel cells to efficiently produce power when needed*
- *Flexible solution that is scalable and easy-to-site due to clean emission profile and minimal space requirements*
- *Contract executed with U.S. Department of Energy (DOE) to support SOEC system development, adding $3.0 million to Advanced Technology backlog*

DANBURY, Conn., Oct. 20, 2016 (GLOBE NEWSWIRE) -- FuelCell Energy, Inc. (Nasdaq:FCEL), a global leader in the design, manufacture, operation and service of ultra-clean, efficient and reliable fuel cell power plants, announced a market-driven energy storage solution that affordably and efficiently converts power during periods of low demand into hydrogen, an energy carrier, through high efficiency electrolysis using solid oxide electrolysis cells (SOEC). The U.S. Department of Energy (DOE) is supporting this development with a $3.0 million cost-share contract to advance SOEC system design that will be added to the Advanced Technology backlog for the fourth quarter of 2016.

The market for energy storage is significant for high efficiency and flexible long duration storage that is affordable for rate payers. The energy storage market is expanding as utilities adjust to manage increased levels of intermittent renewable power generation supplying the electric grid. Annual global energy storage deployments are projected to increase to approximately 7 to 9 gigawatts by 2020 with continued increases thereafter. The SOEC solution being supported with this DOE funding meets these needs for both utility-scale applications as well as on-site opportunities.

"This support from the Department of Energy helps us to advance our innovative long-duration storage solution for large-scale utility applications," said Chip Bottone, Chief Executive Officer, FuelCell Energy, Inc. "Energy storage economics are driven by the round-trip efficiency and we feel we have a very compelling solution for utilities desiring affordable storage that is flexible and long duration with the added benefit of minimal land needs."

Efficient conversion of power to hydrogen is the first step of the solid oxide energy storage system, using hydrogen as an energy carrier. When power is needed, the hydrogen is cleanly and efficiently converted back into power using the same solid oxide system in fuel cell power generation mode. Suitable for installation adjacent to existing electrical substations, this easy-to-site solution enables long-duration energy storage with a process that has a high round-trip efficiency from power-to-storage and then back-to-power. FuelCell Energy's natural gas or biogas fueled SOFC technology generates industry-leading electrical efficiency of approximately 60 percent. When used in energy storage systems the power generation efficiency will be significantly higher since the cells will be producing power from pure hydrogen instead of methane. Combined with high efficiency electrolysis, this solid oxide based energy storage system is expected to be capable of round trip energy efficiency above 70 percent.

"We are actively speaking with utilities about this energy storage solution highlighting efficiency, economics and modest land use needs," continued Mr. Bottone.

The DOE contract continues the development of the solid oxide fuel cell (SOFC) technology for hydrogen production using electrolysis through a solid oxide electrolyzer cell (SOEC). Hydrogen produced from SOEC can be stored and used for grid-power, hydrogen fueling stations or for industrial purposes as an alternative to natural gas reforming. SOEC can also be applied as a clean and highly efficient solution for storing excess power produced by intermittent technologies when their output exceeds the needs of the electric grid.

"Hydrogen is a very attractive energy storage medium as it can be compressed and stored for long periods of time at minimal cost," said Tony Leo, Vice President Applications and Advanced Technology Development. "Additional storage capacity can be easily and inexpensively added at one of our installations by just adding more hydrogen storage capacity, without increasing the size of the fuel cell power plant, which makes the technology an attractive solution of the growing number of storage applications that will require long duration and flexible energy storage."

About FuelCell Energy

Direct FuelCell® power plants are generating ultra-clean, efficient and reliable power on three continents, affordably providing continuous distributed power generation to a variety of industries including utilities, commercial and municipal

customers. The Company's power plants have generated billions of kilowatt hours of ultra-clean power using a wide variety of fuels including renewable biogas from wastewater treatment and food processing, as well as clean natural gas. For additional information, please visit www.fuelcellenergy.com and follow us on Twitter.

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