

March 5, 2015

Photo Release -- Competitive Carbon Reduction Solution Advancing With Affordable and Ultra-Clean Fuel Cells

- Ability to capture up to 90 percent of carbon emissions with a scalable solution
- Performance milestones reached for coal and natural gas power plant carbon capture
- Cost per ton of carbon captured below U.S. Department of Energy target of \$40/ton
- Added benefit includes destroying smog-producing nitrogen oxide (NO_x)

DANBURY, Conn., March 5, 2015 (GLOBE NEWSWIRE) -- [FuelCell Energy, Inc.](http://www.fuelcellenergy.com) (Nasdaq:FCEL), a global leader in the design, manufacture, operation and service of ultra - clean, efficient and reliable fuel cell power plants, today announced the continued progress in the commercialization of an affordable and efficient carbon capture solution utilizing fuel cells, following thousands of hours of testing with simulated flue gas of a coal-fired power plant. In addition to this evaluation under a U.S. Department of Energy (DOE) contract, the program included a detailed design and cost analysis for fuel cell applications capturing carbon dioxide (CO₂) from large scale coal-fired power plants. Results of this study support cost targets below the U.S. Department of Energy threshold of \$40/ton. An additional benefit demonstrated is tolerance levels and clean up requirements for the impurities in coal plant exhaust, as well as the ability to destroy approximately 70 percent of smog-producing nitrogen oxide (NO_x).

A photo accompanying this release is available at <http://www.globenewswire.com/newsroom/prs/?pkgid=31198>

In addition to this progress for coal-fired applications, testing is being conducted with private funding for the evaluation of fuel cells for capturing CO₂ from natural gas fired power plants. Results to date are supporting the viability and cost targets for gas-fired power plants and exhaust sources.

Discussions are currently underway with multiple parties to scale the technology from the current sub-megawatt level to a multi-megawatt fuel cell demonstration project at an operating coal or gas-fired power plant.

"Our ability to efficiently and affordably capture carbon emissions from existing power plants with fuel cells while also destroying pollutants represents a sizeable potential market opportunity," said Chip Bottone, President & Chief Executive Officer, FuelCell Energy, Inc. "Assuming only a one percent market penetration of existing coal-fired power plants in the USA, this is potentially a one billion dollar near term market opportunity or approximately 120 megawatts of fuel cell plants."

"Our fuel cell power generation and carbon capture solutions are scalable, enabling an initial installation that can begin with capturing six percent of carbon output, consistent with first-step reductions recommended by U.S. EPA rule 111(d)," said Tony Leo, Vice President Applications & Advanced Technology Development, FuelCell Energy, Inc. "Beginning with five or six percent carbon capture, additional fuel cell power plants can then be added incrementally to reach the ultimate goal of 90 percent capture."

- Conventional carbon capture technologies for coal-fired power plants nearly double the cost of power, without any significant destruction of pollutants and consumes about 20 percent of overall power output.
- Utilizing a fuel cell solution to capture 90 percent of carbon emissions results in a 78 percent reduction in NO_x emissions, increases power output by 80 percent, and only increases costs by less than half of conventional amine capture, which is within DOE cost targets of capturing carbon for less than \$40/ton.
- Fuel cell plants can be added incrementally in a cost effective manner. For example, beginning with five percent capture of carbon emissions doesn't materially change the cost of power for rate payers while decreasing pollutants and increasing power output.

"It is also appropriate to highlight the value of the Federal Investment Tax Credit in relation to carbon capture as the presence of the ITC reduces the total capital investment needed by the power plant owner to meet carbon reduction targets and facilitates the attraction of private capital to own the fuel cell power plants, leading to lower costs for rate-payers," continued Mr. Bottone.

The FuelCell Energy technology efficiently separates and concentrates CO₂ as a side reaction during the power generation process. In a typical application, clean natural gas is combined with ambient air to the fuel cells for their power generation process. For the [carbon capture fuel cell solution](#), the exhaust flue gas of a coal or gas-fired power plant is directed to the air

intake of the fuel cell plant, replacing the use of ambient air. Within the fuel cells, the CO₂ in the flue gas is separated and concentrated enabling cost effective capture.

An additional benefit is that approximately 70 percent of the smog-producing nitrogen oxide (NO_x) emissions in coal and gas-fired power plant exhaust is destroyed by the electro-chemical reaction within the fuel cells. This reduces the cost of NO_x removal equipment for power plant operators while benefiting society with cleaner air. Since DFC power plants produce power efficiently and with virtually zero emissions, the net result is a compelling solution for preventing the release of green-house gases by coal or gas-fired power plants while simultaneously increasing overall net efficiency and power output. Additional benefits include reduction of the operating cost related to removal of NO_x and reduction in water usage as existing carbon capture technologies are water intensive.

Direct FuelCell® (DFC®) power plants utilize carbonate fuel cell technology and provide continuous power where the power is used, including both on-site applications and electric grid support. The combination of near-zero pollutants, modest land-use needs, and quiet operating nature of these stationary fuel cell power plants facilitates locating the power plants in urban locations. The power plants are fuel flexible, capable of operating on clean natural gas, on-site renewable biogas, or directed biogas. The fuel cells generate power via a highly efficient electrochemical process that is virtually devoid of nitrogen oxide (NO_x) that causes smog, sulfur dioxide (SO_x) that contributes to acid rain, or particulate matter (PM¹⁰) that can aggravate asthma.

About FuelCell Energy

Direct FuelCell® power plants are generating ultra-clean, efficient and reliable power at more than 50 locations worldwide. With more than 300 megawatts of power generation capacity installed or in backlog, FuelCell Energy is a global leader in providing ultra-clean baseload distributed generation to utilities, industrial operations, universities, municipal water treatment facilities, government installations and other customers around the world. The Company's power plants have generated more than 3 billion kilowatt hours of ultra-clean power using a variety of fuels including renewable biogas from wastewater treatment and food processing, as well as clean natural gas. For more information, please visit www.fuelcellenergy.com

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Efficient and Affordable Carbon Capture with Fuel Cells