SIEMENS

Press

Atlanta, GA, November 6, 2014

Microsoft taps Siemens as technology partner to engineer power monitoring solution for first zero-carbon biogas data center

- **Siemens partners with Microsoft and FuelCell Energy to design and install power monitoring technology that measures the performance and energy output of the fuel cell system**
- **Intelligent hardware and software allow alternative resources to be proven as a source of reliable energy for critical installations like the new Microsoft datacenter**

Siemens Energy Management has partnered with Microsoft and FuelCell Energy to design, engineer and install equipment and software, including a power monitoring solution, for the nation's first zero-carbon, waste-to-energy data center in Cheyenne, WY. The project uses biogas methane produced by common waste byproducts at the nearby Dry Creek wastewater facility to power the fuel cell system. The fuel cell system then converts the biogas into electricity to power the Microsoft datacenter.

Siemens engineered and installed intelligent controls, power monitoring hardware and energy management software that is helping to power the first zero-carbon data center that will be entirely independent from the grid. The system measures the overall performance and energy output of the fuel cell to ensure consistent, high-quality power is delivered to operate Microsoft's data center 24-7. By utilizing Siemens' intelligent technology, renewable resources like biogas and technologies such as fuel cells can be a proven source of reliable energy for full-scale power projects.

"In any data center, power quality and reliability is key since the facility must run uninterrupted 24-7 to protect information stored there," said Kevin Yates, head of

Siemens AG
Communications and Government Affairs
Head: Stephan Heimbach

Wittelsbacherplatz 2
80333 Munich
Germany

Reference number: EM11062014.a

Siemens Energy Management Division. “Siemens’ brightest engineers brought their vast data center and power industry expertise to build a custom solution that proves resources like biogas and fuel cells can be relied on to provide reliable power to critical installations.”

Microsoft and FuelCell Energy came to Siemens with specific parameters for the project, and based on this data, Siemens engineered the power monitoring technology to provide detailed insight into the power generation process so the biogas and fuel cell concept could be shown to produce reliable energy and move the project from pilot to full-scale.

How the Power Monitoring System Works

- The Siemens software and hardware monitors the amount of biogas being sent to the fuel cell, the conversion to usable energy, and the fuel cell output to ensure that enough electricity is created throughout this process to reliably power Microsoft’s datacenter.
- The technology also includes predictive demand alert capability so the data center operators are made immediately aware of any power quality or energy demand issues.

The Microsoft data center will operate completely off the grid and, based on measurements from Siemens’ power monitoring system, is expected to produce 250 kilowatts of renewable power and use approximately 100 kilowatts. The additional power will be sent back to the waste water treatment facility to reduce its electric bills.

As part of the integrated solution, Siemens also provided environmental controls for this project inside the datacenter to manage air temperature, flow, and humidity. Siemens also provided circuit breakers that deliver energy to the servers and protect power supply in cases of low or high energy levels within the container.

This press release and press pictures/further material are available at http://inr.synapticdigital.com/siemens/CheyenneDataCenter/.
For further information on Siemens power monitoring solution in Cheyenne, please see www.usa.siemens.com/cheyennedatacenter.

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 2.8 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.

Contact for journalists

Annie Seiple
Phone: 202-316-0219; E-mail: annie.seiple@siemens.com

Follow us on Twitter at: www.twitter.com/siemens_press

Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for more than 165 years. The company is active in more than 200 countries, focusing on the areas of electrification, automation and digitalization. One of the world's largest producers of energy-efficient, resource-saving technologies, Siemens is No. 1 in offshore wind turbine construction, a leading supplier of combined cycle turbines for power generation, a leading provider of power transmission solutions and a pioneer in infrastructure solutions and automation and software solutions for industry. The company is also a leading supplier of medical imaging equipment – such as computed tomography and magnetic resonance imaging systems – and a leader in laboratory diagnostics as well as clinical IT. In fiscal 2013, which ended on September 30, 2013, revenue from continuing operations totaled €75.9 billion and income from continuing operations €4.2 billion. At the end of September 2013, Siemens had around 362,000 employees worldwide on the basis of continuing operations. Further information is available on the Internet at www.siemens.com.