SIEMENS

Press

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Siemens Technology at OTC 2018, Booth #1051

Siemens' BlueVault[™] energy storage solutions bring clean, reliable power to offshore operations

A clean, reliable power supply is critical for offshore oil and gas assets. Siemens is now applying its extensive electrification experience in the marine industry to offshore oil and gas, with a focus on reducing emissions and risk in particularly unforgiving operational environments. The company's advanced lithium-ion batterybased solution, known as BlueVault[™], is suited for both all-electric and hybrid energy-storage applications. BlueVault energy storage solutions are designed to help ensure continuity of power and to minimize carbon dioxide emissions, with an end goal of a low-emissions platform. The battery is designed to maximize life, performance and safety.

Since 2013, Siemens has been supplying the marine industry with an innovative Diesel-Electric Propulsion (DEP) system, BlueDrive PlusC, designed to reduce greenhouse gas emissions, fuel consumption and maintenance costs when compared to traditional diesel-electric propulsion systems.

The company already has a track record of developing cost- and emission-reducing solutions for marine applications. In 2015, Siemens jointly developed the world's first electric car ferry, Ampere, with Fjellstrand shipyard and ship-owner, Norled. Today, the Ampere ferry's zero-emission propulsion solution has no direct or indirect emissions, because the batteries are recharged using hydro-electric power. The all-electric ferry weighs approximately half that of a regular car ferry due to the aluminum hull, and uses only 150 kWh of renewable energy per crossing which eliminates emissions and reduces fuel costs by 60 percent.

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Press Release

Pursuant to its research and development efforts and experience with harsh offshore operating environments, the company will open a fully robotized and digitalized plant in Norway that will develop and manufacture energy storage technologies for both marine and offshore oil and gas applications. The same battery storage solutions for marine and offshore environments are also applicable to offshore wind farms. In the longer term, Siemens hopes to leverage its expertise to develop a low-emissions offshore platform.

"Energy storage solutions provide a means to establish a stable, reliable electrical network by buffering intermittency and providing clean, dispatchable power," said Terje Krogh, CEO of Siemens Offshore Solutions. "The Ampere ferry, which is entirely emission-free, serves as an example of how an energy storage system could also be successfully applied in an oil and gas environment."

Siemens has already signed several contracts for its new energy storage system and expects to deliver the first one this summer.



Above: Since 2013, Siemens has been supplying the marine industry with an innovative Diesel-Electric Propulsion (DEP) system, BlueDrive PlusC, designed to reduce greenhouse gas emissions, fuel consumption and maintenance costs when compared to traditional diesel-electric propulsion systems.

This press release and press picture are available at www.siemens.com/press/PR2018050165PGEN

For further information on energy storage solutions, please see: <u>https://www.energy.siemens.com/us/en/renewable-energy/distributed-and-hybrid-power/energy-storage-solutions.htm</u>

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Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for 170 years. The company is active around the globe, focusing on the areas of electrification, automation and digitalization. One of the world's largest producers of energy-efficient, resource-saving technologies, Siemens is a leading supplier of efficient power generation and power transmission solutions and a pioneer in infrastructure solutions as well as automation, drive and software solutions for industry. With its publicly listed subsidiary Siemens Healthineers AG, the company is also a leading provider 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 2017, which ended on September 30, 2017, Siemens generated revenue of €83.0 billion and net income of €6.2 billion. At the end of September 2017, the company had around 377,000 employees worldwide. Further information is available on the Internet at <u>www.siemens.com</u>.