



### **GE and Highview Power Sign Global Energy Storage Collaboration Agreement**

- *GE Oil & Gas Licenses U.K.-Based Highview's Liquid Air Energy Storage Technology*
- *Highview's LAES System to be Combined with GE's Gas Turbines and Engines*
- *Agreement to Enable Both Companies to Expand in Growing Energy Storage Sector*

LONDON—March 18, 2014—Seeking a larger role in the energy storage sector, GE Oil & Gas (NYSE: GE) has signed a global licensing and technology collaboration agreement with Highview Power Storage, a U.K. supplier of large-scale liquid air energy storage (LAES) systems. The companies will explore opportunities to integrate Highview's LAES technology in peaker power plants where GE gas turbines and gas engines are currently or will be installed to increase power plant efficiency, grid reliability and the distribution of renewable energy.

Highview's LAES technology uses liquid air or nitrogen as the storage medium to provide long-duration energy storage without the geographical restrictions found with other energy storage methods. The technology also can convert low-grade waste heat into power, increasing the overall efficiency of a host power plant.

Since 2011, Highview's LAES technology has been operating at a grid-connected 350-kW/2.5MWh pilot plant hosted by SSE (Scottish & Southern Energy) adjacent to SSE's 80-MW Slough Heat and Power Biomass Plant in Greater London.

In February 2014, the U.K. Department of Energy & Climate Change awarded Highview and Viridor, a U.K. recycling, renewable energy and waste management company, more than £8 million to build a new 5-MW/15MWh LAES demonstration plant at a Viridor landfill gas-to-energy plant in the U.K. The LAES facility will be powered by a GE Oil & Gas turbo-generator and will demonstrate the technology at commercial scale for the first time when it begins operating in the spring of 2015.

"Highview's LAES technology and access to an operational pilot plant, makes it an ideal partner for GE Oil & Gas to provide fully integrated energy solutions to our customers," said Luca Maria Rossi, product management general manager for GE Oil & Gas' Turbomachinery Solutions business.

"Working with GE is a great opportunity for Highview to access a broader customer base. The use of our LAES technology with GE's solutions for flexible peaker plants will help make a significant contribution to balancing the electrical network of the future," said Highview CEO Gareth Brett.

With Highview's LAES process, ambient air is drawn from the environment where it is cleaned, compressed and then refrigerated. Once liquefied, it is stored in an insulated storage tank at low pressure during off peak demand periods. When power is required, the cold liquid air is drawn from the tank and pumped to high pressure and sent to Highview's patented evaporation and cold recycle unit, in order to capture and then later recycle the cold required for the liquefaction process. The regasified air is then heated by waste energy present at the exhaust of the gas turbine or engine, and expanded in a multi-stage process gas expander which drives the generator to produce electricity.

The LAES system is ideally suited for peaker power plants that operate at periods of peak demand and add grid flexibility when baseload power plants struggle to cope with the rising demands. The integration of LAES technology with GE's power plant equipment will provide customers with significant advantages, including improved start-up times and efficiency/heat rates, as well as offering waste-heat-to-power and energy storage capabilities.

Energy storage technologies are expected to become increasingly important since they can absorb excess power during periods of low demand and release needed power during system shortages. For example, the LAES technology also should enable utilities to add more wind, solar and biogas energy to the grid by helping grid operators overcome the intermittency of renewables.

"Operators increasingly need to integrate intermittent and non-dispatchable renewable energy sources into the current energy grid," GE's Rossi said. "Energy storage is an application that can help address this need."

The Highview LAES technology is scalable from around 5 MW to significantly greater than 50 MW and unlike other large-scale storage technologies, such as pumped hydro and compressed air, does not require mountains or caverns to operate.

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## **About Highview Power Storage**

Highview is a privately owned, award-winning technology company located in Central London, England. Highview has developed and owns the IP to a novel, large scale long duration Liquid Air Energy Storage (LAES) system using liquefied air as the storage medium. During discharge, the system can simultaneously convert low grade waste heat into power, further increasing the overall efficiency by producing additional power. For more information please visit, [www.highview-power.com](http://www.highview-power.com)

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