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Siemens' technology to boost research into green energy management

Students and researchers at the University of Manchester in the United Kingdom will be at the forefront of international research into the storage and management of renewable energy, after agreeing a new demonstrator project using Siemens Low and Medium Voltage Division's innovative Siestorage System.

Siestorage is a sustainable and modular stationary energy storage and power flow management system, which significantly increases the ability of power generators and users to respond to changes in demand.

Renewable energy is vital for our planet's long-term sustainability. However, as more renewable energy comes online it creates new challenges for power grids, in part due to the intermittent nature of wind, solar and tidal energy. Large scale energy storage and management is vital to address this issue and Siestorage allows for the smooth integration of stored energy into the grid when peak shaving, frequency regulation or voltage regulation maybe required .

Financed by the UK's Engineering and Physical Sciences Research Council (EPSRC), the system will be integrated into a research laboratory on The University of Manchester campus and will be available to students and staff at the University's School of Electrical and Electronic Engineering for teaching and research purposes. Third party organisations will also be able to use the innovative system.

The School of Electrical and Electronic Engineering trains engineers in electrical engineering and has been conducting research in this field for years on everything from nano devices to medium-voltage systems. The University of Manchester is the UK's only academic institution with a high voltage facility that is available to users to carry out research and testing for systems operating at 400kV level.

The University will connect the battery storage system to the local distribution grid and perform real life time testing on battery technology system architectures and control methods. This will allow the testing of a range of energy storage devices via a high powered grid interface in-loop test bed. This in turn will boost the development of graphene-based batteries and advanced materials research – technologies which have the potential to make a step change in the capacity and lifetime of energy storage devices.

Chris Beadsworth, Head of the Siemens Medium Voltage Business in the UK, said:

“We have to improve the way we store and distribute energy if we are going to maximize the potential of renewable energy. The use of Siemens’ Siestorage technology, and our ongoing partnership with the University, will strengthen the research base in this area and lead to the development of new technologies and solutions for managing green energy.”

Prof Andrew Forsyth, Head of the Power Conversion Group at the University, said:

“The Siestorage system is an excellent addition to our facilities for energy storage research. It will allow us to devise and evaluate control and operating strategies for future grid systems, and also to understand the requirements for next generation storage devices such as those based on graphene.”

The Siestorage modular system initially comprises two power stacks, four lithium-ion battery racks, 400-V transformer and a control management system to deliver a rated active power of 236kW and a storage capacity of 126kWh which is expandable up to 20MWh. The products are manufactured by Siemens in Leipzig.

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Notes to editors

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