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Veolia to deliver innovative project to decarbonise energy at University Hospital of Hartlepool

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Global resource management company, Veolia, is set to deliver wide-ranging energy projects to further decarbonise the heat supply at the University Hospital of Hartlepool. Designed to de-steam the current heating system, and deliver guaranteed carbon savings of 2,179 tonnes per year, it will use a ground source heat pump and thermal store, combined with solar arrays to maximise energy efficiency. The innovative new scheme is the first healthcare site where Veolia has implemented this type of design in the UK, and will help the hospital meet the NHS carbon reduction targets for 2030.

Veolia has been managing energy at the hospital that provides patients with a wide range of diagnostic services, outpatient clinics and low risk surgery, since 2003 using combined heat and power, CHP. The new upgrades will use a combination of technologies to optimise efficiency and balance the electrical and thermal requirements.

The new scheme combines a 1,400kW ground source heat pump system, with a 70,000 litre thermal store, to optimise the efficiency of the system by operating the heat pump at a higher load, when it is most efficient, to charge the store and deplete it over several hours. To maximise efficiency and give N+1 redundancy the heat pump will use the supply from two boreholes, and will be supported by 1MWp of renewable electricity supplied from ground and roof mounted solar PV arrays.

To balance the power generated by the solar PV system and the CHP, and the thermal output of the heat pump and CHP Veolia’s specialist energy team has developed a bespoke management solution which will manage the electrical and thermal balancing of the system using smart controls. The smart control

strategy will optimise the overall system efficiency, and provide additional resilience to the site through carbon balancing of the energy delivered using the combination of the heat pump, CHP heat recovery, hot water boilers and thermal store.

The scheme includes high voltage and low voltage electrical infrastructure upgrades to support the new plant and equipment with an extension of the site's existing HV ring main. Energy efficiency will also be extended through the wide ranging installation of LED light fittings across the buildings, and upgraded air handling units.

The upgrade projects will be seamlessly integrated into the working hospital, and once completed will be maintained through a 24/7 operating contract.

Commenting on this latest healthcare decarbonisation project, John Abraham, Chief Operating Officer – Industrial, Water & Energy for UK, Ireland and Nordics said:

"Veolia has been delivering energy management to University Hospital of Hartlepool for over 20 years, and this new project will further extend efficiency and the carbon savings. To make a real difference and limit the damaging effects of climate change needs innovation, and this latest hospital upgrade shows what we can do for the vital healthcare sector as part of our Green Up strategic programme.

"This will help the NHS meet the net zero target , and we look forward to working in partnership with the teams at Hartlepool, and achieving their environmental goals."

Steve Taylor, Group Director of Estates for University Hospitals Tees, said: "This is a major investment and a really exciting opportunity.

"These works will make the University Hospital of Hartlepool one of the first hospitals in the country to use an aquifer based ground source heat pump system. This involves a mix of the latest renewable technology and local geology to help heat the building for many months of the year. Solar panels are also going to be included to give green electricity to the building and reduce the need to import electricity from the grid.

"These improvements will mean we are making huge reductions to our carbon footprint, while providing the best care for our patients and protecting our environment for our local community."

Veolia has been delivering energy management to hospitals for 85 years, and currently provides energy and facilities management to over 100 hospitals in the UK. These support the healthcare for around 8.1 million inpatients each year, and reduce CO2 emissions in the healthcare sector by 120,000 tonnes.