

CASE STUDY

Project:	Greater Gabbard Offshore Wind Farm
Country:	UK
Project value:	Various
Year:	2010
Product:	Automatic Voltage Regulators



Source: SSE RWE, Greater Gabbard offshore turbines

Power control for vast North Sea offshore wind farm

Greater Gabbard Offshore Wind Farm is a huge offshore wind farm currently under construction in the North Sea 25 kilometres (22 miles) off the Suffolk coast. In the onshore substation for the site a total of three of Sollatek's automatic voltage regulators control the power supply.

The wind farm lies off the Suffolk coast and is located upon two sand banks, known as Inner Gabbard and The Galloper. When completed Greater Gabbard will be the world's largest offshore wind farm with up to 140 turbines that can generate over 500 megawatts, enough to power 415,000 homes.

Each turbine is mounted on a steel monopile that sits in water depths of between 24 and 34 m. There are two offshore substation platforms, housing electrical switchgear and transformers to step up the voltages from 33,000 volts to 132,000 volts. Three sub-sea cables will bring the power ashore to a new onshore substation located near Leiston in Suffolk, where it will be connected to the national grid via existing power lines. The Sizewell B nuclear power station is close by.

Greater Gabbard is currently being developed by Scottish and Southern Energy (SSE) in a joint venture with the RWE npower renewables company. Offshore construction work is continuing and the development is on course for final completion in 2012.



Sollatek AVR3x600

Regulated power output

Sollatek have supplied and commissioned three of its Automatic Voltage Regulators (AVRs) to provide a reliable, regulated supply to power the onshore substation's control equipment and ancillary appliances. The new substation has three auxiliary 133,000 volts to 400 volts step down transformers connected to a three-phase Sollatek AVR3x600 voltage regulator, rated at 600 amps per phase.

Only one of these auxiliary step-down transformers will be in operation at any one time, with the remaining two acting as switchable primary and secondary back ups. The Sollatek AVRs regulate the 400 volt three phase supply to the site's LVAC distribution board.

All Sollatek AVRs employ high performance solid state technology, which not only makes them ultra-fast at correcting voltage variations but also much less expensive than other stabiliser technologies, such as those that use mechanical systems. The compact design also means that they are virtually maintenance free and offer a longer operational lifetime.

Leading technology

By using microprocessor technology, Sollatek AVRs can rapidly detect voltage variations and correct the output to ensure a steady supply. They allow a very wide input range (from -30% to +22% of the nominal voltage level) and have a voltage correction speed of 1250 V per second.

Sollatek are a world leader in the field of voltage regulation and protection, So wherever the electrical supply is erratic or unreliable, Sollatek has the ideal solution for protecting industrial, commercial or domestic installations.



Source: SSE RWE, Installation of turbines



SSE RWE, Energy Trading Centre



Voltright™

The Sollatek AVR Range

The Sollatek range of Automatic Voltage Regulators covers single and three phase applications. From small domestic (250 watt) to large industrial 500kVA applications, single and three phase applications, the Sollatek range of voltage regulators is your solution in the most erratic of power conditions.



AVR single phase

AVR three phase

AVR three phase OI