

# Monitoring the world's largest offshore wind farm

Solutions from Siemens play vital role in protecting Greater Gabbard



The Greater Gabbard Offshore Wind Farm will play a vital part in supplying green electricity to meet the EU target to obtain 20 per cent of energy from renewable sources by 2020.

## ■ A look to the future with Greater Gabbard

The wind farm, currently under construction approximately 25 km off the coast of Suffolk in the UK, is due for completion in 2012. The wind farm is being jointly developed by SSE (Scottish Southern Electric) and RWE npower renewables, and it has a capacity of 500 megawatts (MW), making it the world's largest offshore wind farm once it becomes operational.

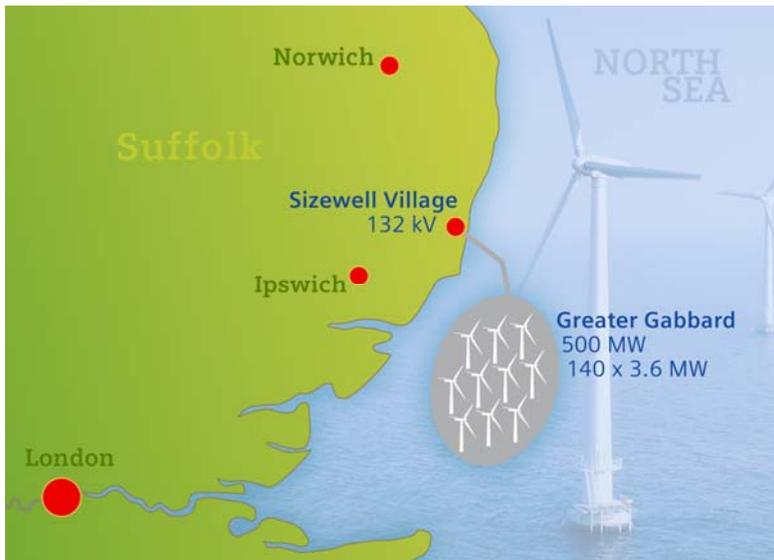
Siemens is supplying the 140 3.6 MW wind turbines which connect the wind farm to the National Grid. To assist in the safe operation of the wind farm, Siemens Security Solutions will deliver life-critical telecoms, video surveillance including a virtual video network and integrated alarm monitoring across a fully integrated IP based monitoring network which includes Voice Over IP operating 25km out at sea. To enable viewing of the video data from the UK and

Europe, Siemens is also integrating the video alarms and monitoring into a Siemens SCADA platform, and the client's IP network.

## ■ Managing challenges and risks

The primary purpose of the surveillance of the offshore wind farm is to evaluate conditions on the remote site, safeguard personnel and monitor the operation offshore. The video information is also used for logistic purposes, planning and for potential incident evaluation.

Both the network and the equipment chosen had to be robust and resilient to meet the challenge of this hostile marine environment. This project required a delivery methodology to accommodate the demands of both land and sea and to meet the key critical health and safety challenges set by the two different environments for delivery and maintenance.



#### ■ Crucial remote location monitoring

In particular, one of the most important design considerations for the Security Solutions team at Siemens was the remote locations of the turbines. The 140 turbines are mounted on steel monopiles and transition pieces, in water depths between 24 and 34 metres. The most important aspect of the solution was that the system had high-availability with reliable proven components. As additional back up, Siemens has built in remote diagnostics within the IP platform to facilitate remote repair.

#### ■ Siemens expertise at work

Siemens has designed the system to meet the clients' needs using experience gained from working on projects for the National Grid and Off-shore. Siemens understand just how crucial the design and testing – Factory Acceptance Testing (FAT) and Site Acceptance Testing (SAT) – elements are prior to shipping for an offshore project of this scale.

Siemens is overseeing both the installation and commissioning works. The system has been designed to eliminate catastrophic failures enabling a "return to land" service approach.

Dave Pickles, managing director of the UK Security Solutions Business Segment of the Siemens Building Technologies Division explains: "Renewable energy is a growing industry and an exciting new sector for Siemens. On completion, Greater Gabbard will be the largest offshore wind farm in the world and will have provided Siemens the opportunity to share its technology and services in one of the UK's most exciting renewable energy projects. Siemens is a market leader in the design, installation and maintenance of innovative and customised security solutions. Our proven track record and experience in delivering multi-discipline technological solutions for critical national infrastructure, urban surveillance, transport infrastructure and police projects means we are well placed to deliver this type of specialist project."

### Highlights

- Video surveillance including a virtual video network and integrated alarm monitoring
- Fully integrated IP based monitoring network
- Voice Over IP operating 25km out at sea
- Integration of the video alarms and monitoring into a Siemens SCADA platform, and the client's IP network.
- Built-in remote diagnostics within the IP platform to facilitate remote repair
- Supply of the 140 3.6 MW wind turbines

The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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