



# CASE STUDY

## PROJECT VERIFICATION SERVICES FOR THE PRINCESS AMALIA OFFSHORE WIND FARM IN THE NETHERLANDS

SGS gave support to contractors of the Princess Amalia Offshore Wind Farm, formerly known as Q7 Wind Farm, providing independent project supervision, design review, document review, quality assurance, quality control, manufacturing surveys and technical due diligence services.

### PRINCESS AMALIA OFFSHORE WIND FARM

The Princess Amalia Offshore Wind Farm is about 23 kilometres offshore from IJmuiden, in block Q7 of the Dutch Continental Shelf. Prior to its official opening on June 4, 2008, it was called Q7 Wind Farm.

The wind farm consists of 60 Vestas V80 wind turbines of 2 MW each, with a water depth of 19 to 24 metres. In order to minimise turbine interaction, each is separated from the other by a distance of at least 5 times their rotor diameter, which is 5,502 metres. The wind farm generates over 400 GWh annually, enough to power 125,000 households. Moreover, it reduces CO<sub>2</sub> emissions by 225,000 tons each year.

The construction work began in the second half of 2006. SGS provided project verification services for over one and a half years.

### RISK MITIGATION WITH EXPERT OPINION AND ADVICE

To minimise clients' risk, independent expertise, opinions and advice were provided by different SGS specialists who were involved in the project. The SGS team consisted of a Project Manager, a Quality Assurance and Quality Control (QA/QC) Engineer, an Electrical Inspector and a Technical Inspector.

The project supervision services that SGS was called to perform allowed for the monitoring of the quality and progress of the work. During the consulting and supervision activities, possible problems were detected and reported at an early stage, effectively avoiding major delays. Within the confines of the project monitoring, SGS provided Technical Due Diligence, to verify that the wind farm will perform successfully throughout its intended lifetime.

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## **CONTINUOUS SUPERVISION ASSURES RIGHT MATERIAL QUALITY**

In addition, SGS was in charge of the design review of the steel foundation. For this work the SGS Wind Competence Center in Hamburg was responsible. Subsequently, the coordination of the weld inspections of the steel foundation took place in Poland. At the same time, the paint inspection was coordinated both in Poland and in Denmark.

Since many failures found on wind turbines in operation are related to either poor material quality, wrong choice of material or manufacturing and welding faults, continuous quality supervision is essential during production. The SGS Quality Control Inspector monitored the assembly of the high-voltage offshore station in Denmark and reviewed its manufacturing data dossier. Afterwards, Non-Destructive Testing was conducted several times and the results were reviewed. All these services performed by SGS helped in the identification of potential technical and environmental risks for the project owners.

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