



SIEMENS

Published by and copyright © 2011:
Siemens AG
Energy Sector
Freyeslebenstrasse 1
91058 Erlangen, Germany

Siemens Wind Power A/S
Borupvej 16
7330 Brande, Denmark
www.siemens.com/wind
For more information, please contact
our Customer Support Center.
Phone: +49 180 524 70 00
Fax: +49 180 524 24 71
(Charges depending on provider)
E-mail: support.energy@siemens.com

Service Division
E50001-G530-A100-X-4A00

Printed in Germany
Dispo 34804 c4bs No. 7491
MCS 11.11.1
Printed on elementary chlorine-free
bleached paper.
All rights reserved.
Trademarks mentioned in this document
are the property of Siemens AG, its affiliates,
or their respective owners.
Subject to change without prior notice.
The information in this document contains
general descriptions of the technical options
available, which may not apply in all cases.
The required technical options should therefore
be specified in the contract.

Offshore Service

We can't conquer the elements
But we can outthink them



We make maintenance a routine, not an adventure

Turning unpredictability into output

Massive waves. Racing tides. Early nightfall. Hail, lightning, blizzards and ice. All realities that Siemens Offshore Technicians regularly take in their stride.

Siemens is relentlessly focused on driving down the cost of wind energy. As a company, we do everything possible to help your wind turbines produce the maximum electrical energy in the widest possible range of conditions.

Our service offering is vital to that goal. The less time a wind turbine spends idle, the higher the return on your investment. And by retro-fitting power curve upgrades to existing wind turbines, we can significantly increase their daily output.

We have put decades of brainpower into ensuring that your offshore installation will deliver in the toughest conditions. And no less brainpower into ensuring that our service capability can do the same.

Not through encouraging heroics. Far from it. Our remote diagnostics are dedicated to identifying and when possible resolving issues remotely. Our rigorous technician training stresses the importance of extensive onshore preparation and planning.

A broad variety of service vessel types safely provides accessibility to your offshore installation. We retrofit turbines with the objective of increasing output and reducing maintenance requirements. And some of our latest nacelles even have built-in workshops that make maintenance a routine, not an adventure.

Two decades of offshore experience

Since installing the world's first offshore wind farm in Vindeby, Denmark, in 1991, we have gone on to install – and service – half of the world's offshore wind turbines.

As our turbines grow larger and are placed further from land, our service offering has been continuously developed to match.

The reassurance of a strong service partner

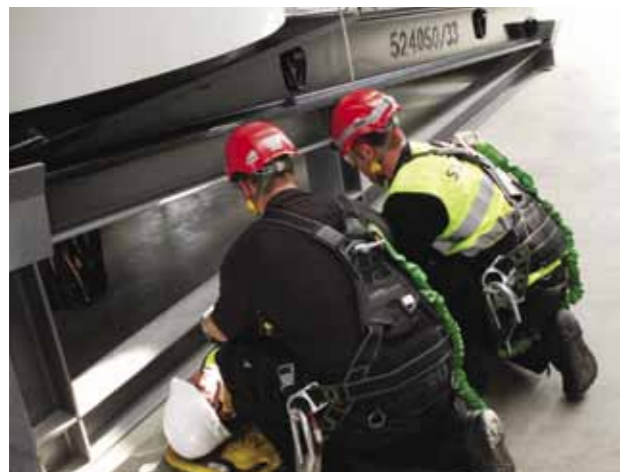
When service contracts can last the entire lifetime of your wind turbine, it's a given that you need a partner with staying power. Founded over 160 years ago, and with 400,000 global employees – of whom over 15,000 are employed by Siemens Energy Service – Siemens is that partner.

Today, our offshore service HQ in Denmark is a hub for

regional service centres in the USA, Singapore, Germany and the UK. And with Siemens Group now represented in 190 countries, we can quickly build up a service capability and supply chain close to any new installation.

The sheer scale of our offshore operations also leads to a more efficient service operation in terms of knowledge sharing, vessel availability and training.

The world's leading training centres



Our service technician training is focused on reducing risks. Not taking them.

With enormously experienced technicians available as instructors, our training courses are world-class. Training centres in Brande (Denmark), Bremen (Germany), Newcastle (UK) and Houston (USA) provide training excellence in safety planning and technical skills.

New developments in turbine and nacelle design are fed directly into our training. We also keep a record of technicians' individual competencies so that suitably specialized teams can be made available for specific issues. Our training allows our technicians to react to situations in an efficient and above all safe way.

Site-specific logistic planning

Each wind farm is unique in terms of location, distance from shore, water depth, tidal variation, weather complexity, wave height and number of turbines. Based on historic and simulated weather data, we build service right into the planning process. With a designed-in access plan, we can help increase safety, reduce risk, and increase customer profitability.

Minimizing emergencies with intelligent diagnostics

The sooner a fault can be detected, the better. Our remote diagnostics systems significantly enhance our ability to proactively plan service and maintenance events:

Our remote diagnostic services help prevent sudden turbine shut-downs and unscheduled visits, reducing service costs and allowing for increased energy output from your installation.

Siemens WebWPS SCADA system

Our Supervisory Control and Data Acquisition system provides customers with a detailed turbine output analysis including electrical, mechanical meteorological, and statistical data.

Siemens Condition Monitoring

Siemens' Condition Monitoring system compares the vibration levels of the gearbox, generator, main shaft bearings and blades with a set of established reference spectra and instantly detects deviations from normal operating conditions.

The right vessel for the right task

In addition to fast-response helicopters, particularly useful in high wind locations, specialist service vessels can safely and efficiently respond to your needs, including:

- Crew Transfer Vessels: the simplest transport and access method, used at most of our offshore sites
- Advanced Vessels: specially adapted to enable tower access in poor weather
- Service Operation Vessels: combining tower access, storage and accommodation
- Flotels: offering longer-term accommodation as well as storage
- Jack-up vessel: a custom-built wind turbine installation and service vessel with a 900 ton crane capacity, anticipated to be available from 2012.



Specialist service vessels: saving time, helping enhance your returns



Specially trained Siemens Service Rope Access Technicians install a power curve upgrade package

Continuous upgrades for increased energy output

Over the lifespan of a wind farm, new innovations will steadily help to reduce the Levelized Cost of Energy of wind energy. Our commitment to modernization procedures and upgrades enables our customers to benefit from up-to-date technology and increased energy output.

One example is our power curve upgrade package, where adding specially designed components to legacy turbine blades can result in better aerodynamic performance and enhanced energy conversion. And a practical deployment plan is part of the design.



Service programs tailored to your goals

We have a range of solutions that can be customized to suit any customer's particular needs. Siemens' specialists can help you choose the most appropriate service program.

Long term program – helping you attain highly predictable returns

Available for up to the entire lifetime of your wind turbine, this package is tailored to Siemens offshore customers who are seeking a larger degree of security from their wind turbine investment over the lifetime of the wind turbine. It offers customers the unique opportunity of securing extended warranties on Siemens turbine components – and with clear and transparent pricing models, we can ensure that our objectives are aligned with yours. Last but not least, the package can include a Siemens availability warranty.

Balance of Plant – reducing interface risk

Our expanded scope solution offers one point of contact throughout the service period, with the service contract covering physical assets including turbines, substations, cables and subsea cables, foundations, site roads, buildings and Structural Integrity Management.

This substantially reduces the interface risk between different parties, which can lead to added downtime and lost output.

Customer satisfaction: our ultimate aim

We're not entirely focused on the machines. We take great pride in the loyalty of our customers – and to this end we measure customer satisfaction annually and continuously strive to meet your expectations as a business partner.

Why choose Siemens Offshore Service?

- Two decades' experience
- Commitment to ZERO HARM
- Commitment to enhancing lifetime energy output to drive down the cost of energy
- Pro-active service planning
- Global/local presence
- Financial predictability