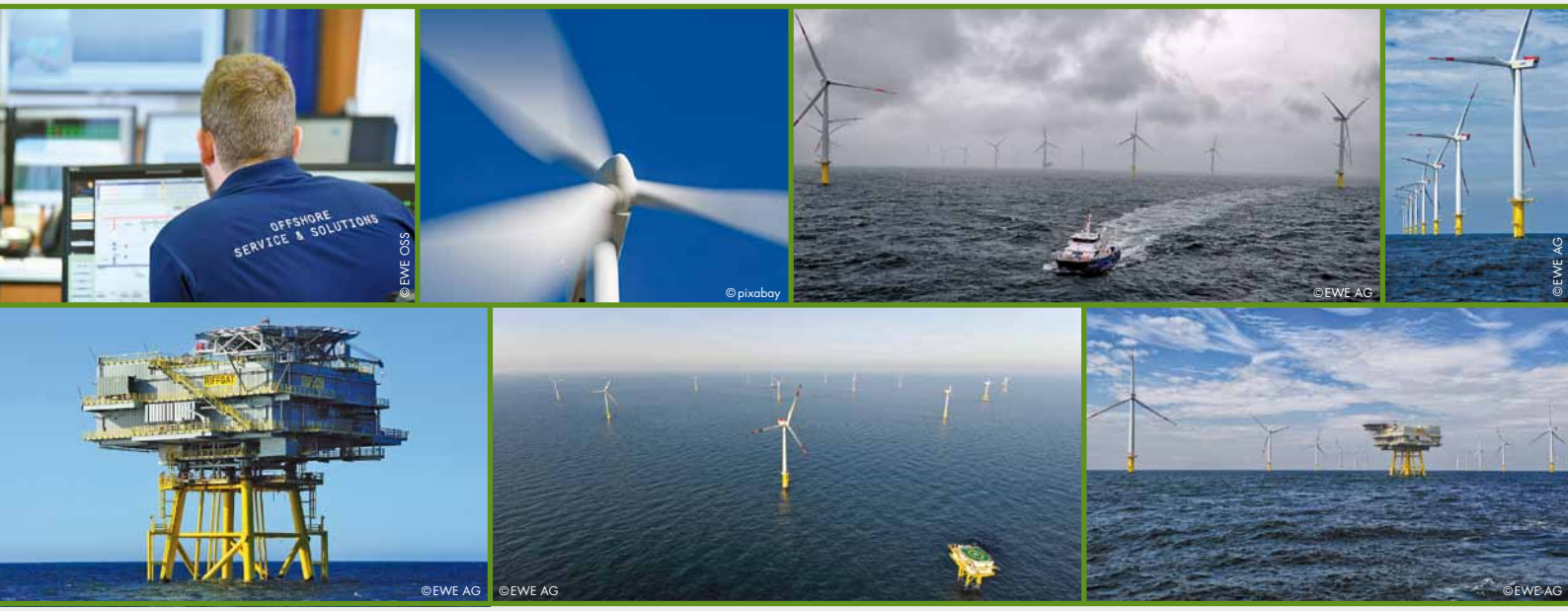
GREENGATE

Case study
EWE Offshore Service & Solutions GmbH



Everything in view

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STAYING ON TOP OF THINGS

The construction and operation of an offshore wind farm is an immensely complex task, where it is important to optimally coordinate numerous spatially distributed processes. And this is where the appropriate software helps.

Sitting in Oldenburg his thoughts are out in the middle of the Riffgat offshore wind farm in the German North Sea, about nine miles northwest of the island of Borkum. He is aware of the exact location of each ship and helicopter and which service employee is working on which offshore wind turbine. His name is Torsten Mleziva and he works in the 24/7 operational control centre at EWE Offshore Service & Solutions GmbH (EWE OSS), which operates several offshore wind farms like Riffgat.

The fact that Mleziva is so well informed is due to the GS-Service software developed by GreenGate AG. "The first thing I do in the morning is to start GS-Service, right after my computer has finished booting up", says Mleziva. Using the protocols stored in the programme he gets an overview of what has happened during the previous shift and what is pending in his shift. In the course of the day he sends fault messages to the local service stations and at the end of his shift he draws up a handover protocol in GS-Service for the next shift. "For me, GS-Service is like Outlook for other people: although it might be in the background, the programme is running the whole day", he says.

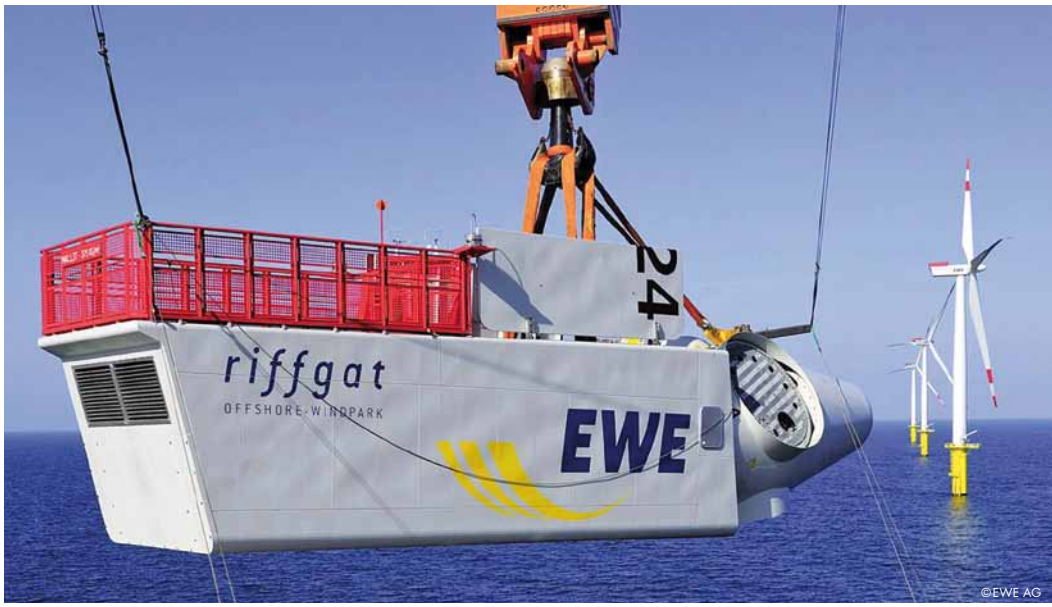
Software combines asset, personnel and resource management

A lot of things have to fit together in order to operate an offshore wind farm safely and economically, and plenty of cogs have to interlock without any friction. GS-Service is maintenance software for asset, personnel and resource management with which the owner and operations manager can handle multiple tasks with one single work platform. Numerous users can access the software at the same time; it has a modular structure and can be adapted or extended to fit individual customer requirements.

The software's database contains all the turbines in a wind farm along with all their respective components. Operations managers can also import any existing data from old systems. "Several thousand components are mapped for each wind turbine", says Thomas

Zapp, project manager at GreenGate AG. All scheduled and unscheduled service assignments are generated from this detailed database. A connected SCADA system creates work assignments, from which the site manager can issue specific daily tasks. The individual service teams receive these work orders on site on their mobile devices, which are also integrated in the system via GS-Mobile.

In order to further optimise the processes and reduce the load on the site manager, GreenGate has in association with RWTH Aachen also developed a tool called DispoOffshore. As a stand-alone application which extends GS-Service, providing the operations manager with an objective basis for drawing up schedules. This tool is the result of three years of development work funded by the Federal Ministry for Economic Affairs and Energy. It is the conclusion of industry-specific requirements paired with many methods for future-oriented work. The outcome is a self-learning system with which stored algorithms enable optimised deployment and route planning.



Frank Lagemann, CEO of GreenGate, explains a significant advantage of the software: "GS-Service makes it possible to plan service deployments more safely and at much shorter notice. Instead of three days in advance, the head of operations can now implement the latest planning just before casting off in the morning." Weather services are of course also integrated in the software to take the appropriate time window into account.

Standard solution for multiple wind farms

GS-Service has been in use at EWE since the beginning of 2017. In future the company will use it for the operation of additional wind farms as well as Riffgat, Alpha Ventus, Trianel Windpark Borkum and Gemini. Since September the web-based PTW (Permit to Work) system has also been monitoring the construction of a new offshore wind farm. This was developed in close collaboration between EWE and GreenGate AG.

"GS-Service already covered part of our requirements very well. We were however well aware that there would be enough potential for optimisation and development effort", says Isabel

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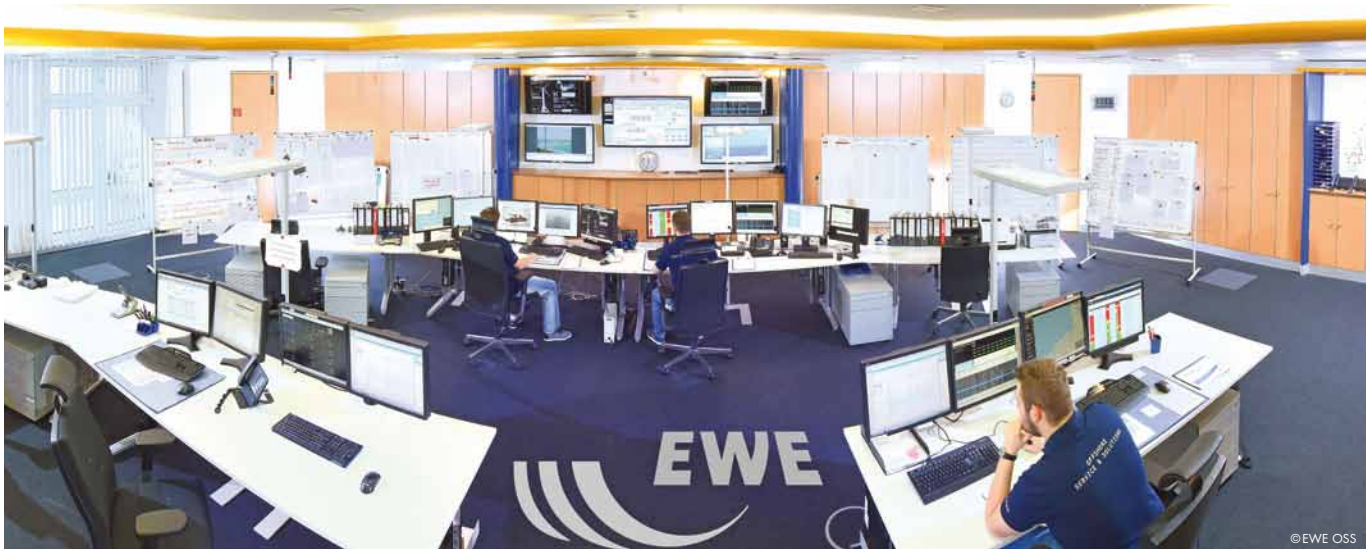

For the staff in EWE's control centre in Oldenburg it's a matter of keeping an eye on everything and being on top of everything that is happening at the offshore wind farm.

Koprek from the operational management department at EWE OSS, and adds "GreenGate AG is very dynamic and is interested in further development of their tool. Together we have developed both a people tracking system and the PTW system, and will also continue this collaboration in the future."

The result is that the GreenGate solution offers the customer comprehensive, independent configuration possibilities. Customers can even access the systems database directly. "That is not something to be taken for granted", notes Koprek. And that is precisely the exceptional advantage of the software for Mleziva, who works with GS-Service on a daily basis: ships, helicopters and personnel, along with their specifications and qualifications, only have to be entered once before they are available for scheduling in one standard software for all integrated wind farms. "Instead of having to continually update one database for each wind farm, we now have everything combined in one place", says Mleziva.

Always precisely informed

The database includes the draught of each ship and also how many men are permitted on each individual service ship. All employees are managed in the database along with their respective qualifications, and the software also reminds the user when which certificate has to be refreshed. External service providers can edit their employees' data themselves via an interface. "An employee can only sail out and set foot on the turbine when all the relevant qualifications are validated in the database", says Zapp. That makes deployment planning not only easier, but also safer.

For Mleziva today's shift ends with him – after the people tracking has reported the transfer of a five-man team from the service vessel to Turbine R5 on the Riffgat wind farm – dragging and dropping the corresponding employees onto the turbine in GS-Service. Only when all five service employees have logged out of the turbine and Mleziva's colleague from the next shift has placed them back on a ship does the operations manager gives the OK for them to head back to harbour.

GS-Service software from GreenGate is adaptable for different sectors.

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