

Case Study

Gullen Range Wind Farm Project





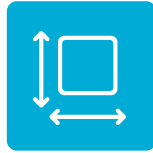
**Industry**  
Wind energy



**Chartering**  
9 full-charter  
ocean vessels



**Volume**  
210,000 FRT



**Biggest items**  
Blades of 50 m in  
length



**Cargo  
highlights**  
788 oversized  
loads



**Discharge operations at Port  
Kembla, Australia**

## Case Study: Gullen Range Wind Farm Project

**For one of the world’s leading wind turbine manufacturers, deugro China and Australia moved 73 wind turbines from various loading ports in China to the construction site in New South Wales, Australia. Nine ocean-going vessels had to be chartered to ship the 210,000 freight tons of wind turbine generator (WTG) equipment, including 788 oversized components. The biggest items were the blades with a length of 50 meters.**

The wind farm, located in Bannister, New South Wales (NSW), Australia, consists of 73 turbines and produces 165.5 megawatts of renewable power. On an average day, it produces enough energy to power more than of 70,000 homes.

Over three years after deugro Australia conducted the first road survey and project feasibility study, deugro signed the logistics contract with one of the world’s leading wind turbine manufacturers.

One of deugro's advantages in winning the contract was its experience, its early involvement and in-depth knowledge of the logistics requirements, as well as a customized logistics concept, which considered the client's budget, the technical requirements of the cargo, the project schedule, the requirements on site and the local regulations and restrictions. For the design of the logistics concept, many different factors were taken into consideration simultaneously. These included an optimal stowage and utilization of vessel space to minimize the number of ocean voyages, a consideration of the capacity and limitations of the unloading ports and terminals, as well as the determination of access routes to the construction site, including the required permits and turnaround times.

Because of the project's complexity and the huge amount of heavy and oversized cargo, deugro involved the transport engineers from dteq, a company of the deugro

group—from the early drawing review phase to the detail planning and method statement issuance to the on-site supervision and delivery. In close coordination with deugro, dteq carried out a variety of analyses, technical studies, simulations and calculations. The evaluations included route surveys, packing and lifting studies, procedure instructions and transport drawings, as well as risk assessments and damage prevention.

With the support of dteq's transport engineers, deugro designed a safe and cost-effective transport and logistics model for the project and supported the client by calculating reliable freight budgets.

Part of deugro's offer was a dedicated project team from start to finish. Involved in the project from the beginning, from budget pricing to feasibility studies, this project team was an integral part of the project, taking over supervision at the ports of loading



**Personal unloading supervision and coordination by the local deugro teams at Port Kembla, Australia**





**Oversized cargo units on their over 200 km road trip from Port Kembla to the construction site in Bannister, NSW**

and discharge, on-site activities, and meetings. The team included a project manager, a project lead coordinator, a project supervisor at the port of discharge for load in and out, a project supervisor on site at the wind farm, a project interface manager in China and Australia, and a specialist for administration and finance.

### **Loading operation**

After a comprehensive pre-project set-up, including a rigorous carrier and vendor selection process, the loading operations started under deugro China's personal coordination and supervision. This means that deugro needed to charter a total of nine vessels for the ocean transport of the 210,000 freight tons of cargo.

Because the individual WTG components were manufactured at different Chinese production sites, they were delivered on

trailers to the ports of Taicang and Tianjin. These two ports caused additional pressure to be put on the delivery schedule,, providing further risk exposure to potential port congestion and the possibility of not receiving the cargo components alongside the vessel within the agreed laycan periods. To ensure smooth and safe operations according to the schedule, deugro's project team was in constant and close communication with all parties involved.

Prior to each voyage, all cargo units were pre-inspected by the deugro Australia and deugro China project teams. The cargo condition and integrity had to be checked, including adherence to Australia's strict quarantine regulations prior to loading to minimize the risk of potential quarantine holds, which would have had an impact on the construction schedule.

On average, the loading and seafastening operations at both ports were completed within six days, with a further average of 18 days for the ocean voyage to Port Kembla, Australia.

## Onshore services in Australia

Upon arrival of the vessels at Port Kembla and under the personal supervision of the Australian deugro teams, the components were directly discharged by vessel cranes onto trailers and moved to an 18,000-square-meter temporary storage area within the port, which was arranged for and managed by deugro Australia.

The discharge of the large cargo quantities from China, the consolidation and inspection at the temporary storage facility, and the preparation of the components for on-carriage to the construction site, in accordance with the site's delivery sequences and schedule, were critical for the safe and timely project execution.

Therefore, prior to the start of the project, deugro conducted a feasibility study for the two port terminals at Port Kembla, evaluating key aspects such as storage space, availability, type of material handling equipment, accessibility to main highway networks, permit requirements for final delivery to the site, as well as QHSES procedures and any similar experience in handling projects of this magnitude.

At the same time, potential issues such as travel restrictions, escorts and permit requirements were

taken into consideration from the start with regard to onward transportation to the construction site, with the aim to minimize additional pressure placed on the construction schedule. This feasibility study helped to ensure that the most appropriate infrastructure was used for the project. A similar process and due diligence were applied in the selection of both the heavy haulage contractor for on-carriage and the crane company for unloading the components on site.

The on-carriage operations followed a precise schedule in accordance with the specified delivery sequences and were executed in close coordination and communication with the construction site, the truck drivers and the local authorities.

Once safely secured on the trailers, the cargo units started their over 200-kilometer trip from Port Kembla to the construction site in Bannister, NSW, accompanied by police escort vehicles and National Transport Services (NTS) security vehicles.

To ensure a safe and efficient transport of the mostly oversized and heavy WTG components, while minimizing the duration of road use and delays for other road users, various traffic control measures and road upgrade works were implemented, including altering road alignments and widening corners.

Due to restrictions from the local authorities, the deliveries of the blades and tower sections had to be limited to seven per day; and to avoid the mourning peak hour of traffic, these transports



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### Project challenges

- Safe and timely coordination and transportation of 788 oversized loads according to the construction site's requirements
- Interface management at various load and discharge ports, including the job site
- Strict quarantine regulations for imports to Australia

had to pass through the town of Goulburn, which was on the route to the construction site, between six and seven o'clock in the morning. Additional oversized loads of smaller components were transported around midday, with the maximum number limited to seven movements per day.

participants, the transports were carried out safely and according to schedule.

After the safe arrival at the construction site, and along with the management of around 788 oversized loads with blades of 50 meters in length, deugro successfully coordinated the unloading of the trucks at the Goulbourn wind farm site in New South Wales.

Thanks to the excellent cooperation of deugro's project teams with the client and the subcontractors, another project for the production of sustainable energy could be completed successfully and safely.

## » Nearly 800 oversized loads were successfully managed and delivered according to the construction site's requirements. «

Due to the detailed project preparation and close communication with all



**Personal supervision and coordination by the local deugro teams at the construction site**