Case Study:

Supporting offshore helicopter operations in the North Sea

2,000 MW is the total power capacity of the offshore wind farms that are making use of the DTN MetConsole® AWOS/ATIS technology to support their helicopter operations in the North Sea.

Offshore wind power

Offshore wind speeds are higher and steadier than on land, meaning offshore wind energy generation is more stable and higher per amount of capacity installed. The costs of offshore wind power have been decreasing rapidly in recent years, boosting the deployment of this type of wind farm. Currently, the total global power capacity installed is around 19 GW — half of that is deployed in the North Sea.

DTN

A recent study found that during inclement weather helicopters provide more reliable access than surface vessels

What they were up against.

Offshore wind farms are constructed in bodies of water, usually in the ocean on the continental shelf. Locating wind turbines offshore exposes the units to high humidity, salt water, and salt water spray which negatively affect their service life. This makes O&M activities key to ensuring the proper performance of the wind farm.

Newly built offshore wind farms are being located further offshore, and helicopters have become a more economical form of transportation to and from installations. Furthermore, a recent study found that during inclement weather helicopters provide more reliable access than boats (87 percent probability of access using helicopters, while surface vessels only had a 51 percent access probability).

Updated real-time weather information is critical for helicopter operations, these offshore installations are unmanned, so the pilot needs to receive the information automatically and must have means to activate the helideck lighting if needed.

What we did to help.

DTN has designed and supplied Automatic Weather Observing Systems to support helicopter operations in several offshore wind farms in the North Sea.

DTN has delivered MetConsole AWOS/ATIS solutions for:

- Gemini Offshore Wind Farm: located 55 Km off the coast of the Netherlands, with a total power capacity of 600 MW.
- Gode Wind 1 & 2: located 42 Km off the coast of Germany, with a total power capacity of 582 MW.
- Veja Mate Offshore Wind Farm: located 95 Km off the coast of Germany, with a total power capacity of 402 MW.
- Merkur Offshore: located 45 Km off the coast of Germany, with a total power capacity of 396 MW.

The MetConsole AWOS/ATIS solution provided by DTN collects real-time weather data from a set of instruments installed on the substation structure, performs the data processing and data quality validation and generates observation reports that are converted to voice and automatically broadcast through a VHF radio frequency. Pilots approaching the wind farms can remotely activate the broadcasting of the information as well as the helideck lighting by using the PTT (Push To Talk) of their VHF radio transmitters.

What the impact was.

2,500,000 households were supplied with clean energy and over 4,000,000 tons of CO_2 emissions eliminated per year are the benefits brought to the environment by the offshore wind energy projects where DTN has provided the weather observation solutions needed to support their daily operations.

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