



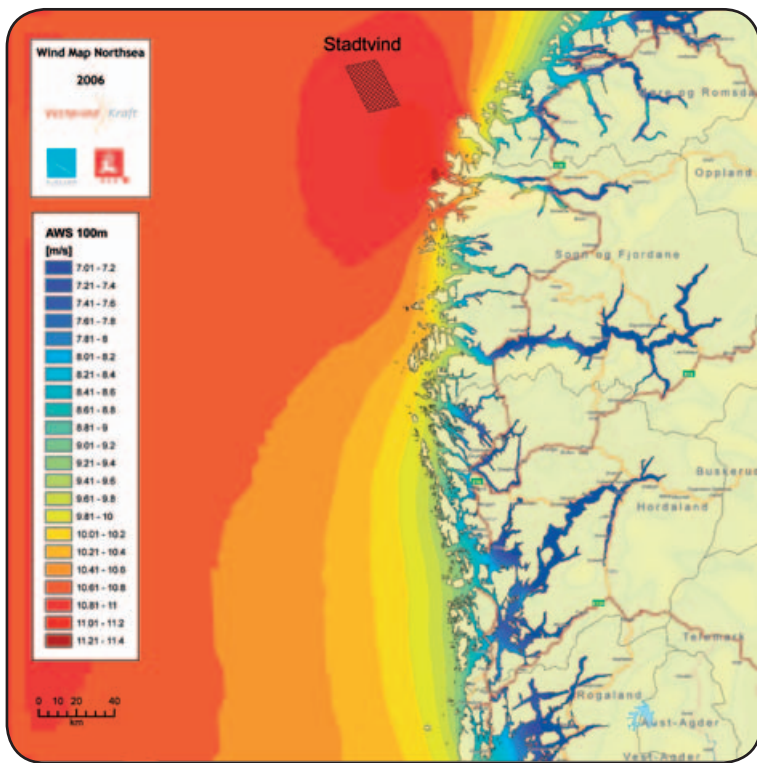
# Test Area Stadt

– for floating wind turbines

Stadvind – 1080 MW offshore wind farm



Location close to the Fure test position.



**Stadtvind is located** on the border between the North Sea and the Norwegian Sea. The area off the coast of Stadlandet has exceptionally good and stable wind conditions with an average annual wind speed of 11 m/s. The area is also ideal for wave power production.

## Test Area Stadt

**To support the development** of floating offshore wind turbines, a 20 MW test infrastructure providing a variety of test options is now being established by Vestavind Kraft. This infrastructure contains a 5 MW test position at Fure, a 5 MW test position at Kvalheimsvika and a 10 MW test area at Bukketjuvane. These three locations represent different exposure to wind and waves. Fure is the most sheltered area, Kvalheimsvika represents a typical unsheltered coastal location, whilst the Bukketjuvane area is a fully exposed, maximum-challenge location comparable to the large Stadtvind wind farm.

**It is essential** for the large Stadtvind project that the wind turbines to be selected are tested to prove their abilities and quality in a harsh environment comparable to the Stadtvind field. The Stadt area will therefore provide the most realistic test environment, being well-known to seafarers as the windiest area in Norway with extreme wave conditions at times.



- The test areas have been established in accordance with the fishermen's interests, and the areas are not in conflict with sea traffic
- Suitable exposure to wind and waves and suitable depth
- Test period limited in time (2-5 years)
- Removal of all installations after end of test period
- Concession approval expected from NVE (the Norwegian Water Resources and Energy Directorate) in October 2009

**The grid connection** will be via sea cable from Bukketjuvane to Fure and further to the existing grid at Grytingane in Selje. The test position in Kvalheimsvika will be connected via 5 km sea cable to the existing onshore 22 kV grid.

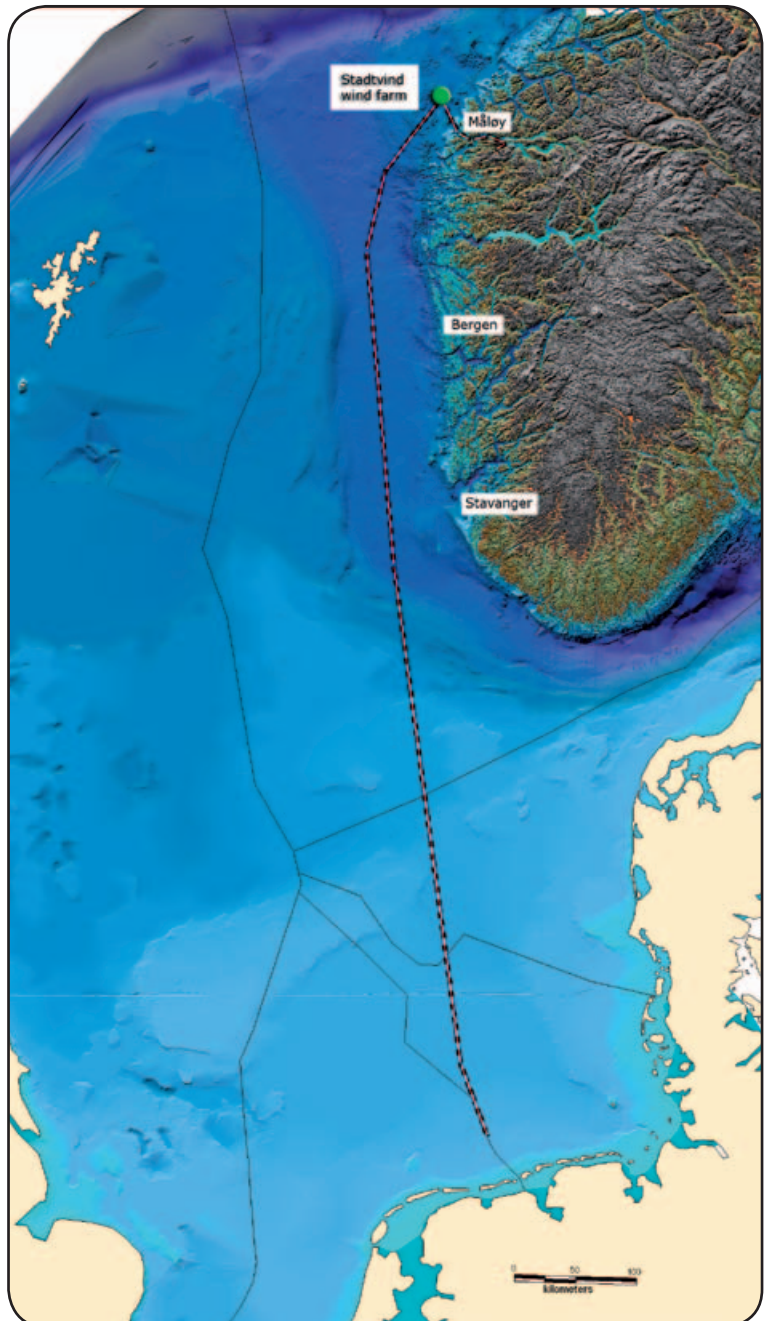


The Kråkenes lighthouse near Kvalheimsvika.

## Stadvind – offshore wind farm

**Stadvind is an offshore wind farm** currently under planning based on floating wind turbines at 160 – 200 m water depth. The wind farm is located 25 nautical miles (46 km) off the northwest coast of Norway, close to Måløy and Stadlandet, and covers an area of 416 km<sup>2</sup>.

- Stable wind conditions and suitable depth for floating wind turbines
- Total installed capacity of 1080 MW: 216 wind turbines with 5 MW effect. Divided into 6 x 180 MW modules.
- Twin cable connection to shore and national 420 kV grid and/or to Continental Europe
- Optimised layout with six 180 MW modules saves cable cost and reduces wake loss
- Good harbour and yard facilities close to the wind farm with well-qualified staff
- Areas well-suited for assembly before towing out to site, and local suppliers capable of important deliveries
- Plan for development submitted to NVE in October 2007



Navigation simulator at Maritime School of Måløy.



View towards Bukketjuvane and Fure seen from the Mehuken wind farm.

## The maritime industry in the region around Måløy

The town of **Måløy** in **Vågsøy** municipality has busy and excellent harbour facilities with a total of 15,000 ship and boat landings per year. Three of the largest 10 fishery enterprises in Norway are located in Måløy, and for many years the maritime cluster has been significant. Small and larger shipyards offer solutions to every aspect of the industry in all materials: ship consultancies and designers with a worldwide reputation; ship owners and operation managements within fishery, offshore and commercial trading; a branch office of Det norske Veritas. Stadt Towing Tank and the composite specialist EasyForm are examples of unique high-tech companies located in this region.

Both the **test areas** and **Stadtvind** offshore wind farm are well located with respect to access by boat from Selje and Måløy. These are communities with a long tradition of serving the merchant and fishing fleets. The area has several dedicated industrial areas available for development, assembly and shipment of wind turbines, including a deepwater quay. **Vågsøy** is home to five shipyards, and the company **Båtbygg** has one of the largest and most used dry-docks in the country. The yard also has a large hall where ships may enter for service and maintenance under cover.



Photo: Stig Sjålen



Photo: Nordfjord Hamn

**Vestavind** Kraft

**Vestavind Kraft AS' main business area** is to develop, own and operate wind farms. The owners of Vestavind Kraft AS are the major hydro power companies on the west coast of Norway in the area from Tafford Kraftproduksjon in the north to Haugaland Kraft in the south. In addition to these two companies, Sogn og Fjordane Energi Produksjon, Sunnfjord Energi, Sognekraft, BKK Produksjon and Sunnhordland Kraftlag are also owners.

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