

Press Release

More accurate North Sea wind information cuts cost of offshore wind energy

Delft, the Netherlands – 3 November 2017

ECN, KNMI and Whiffle are working on a new atlas featuring accurate information about North Sea winds for use in wind energy applications. Clarity with regard to the average amount of wind and how often wind speeds reach extreme levels will enable a more accurate estimate of how much wind energy you can generate and how robust wind turbines need to be made to prevent damage or failure. Greater certainty about the potential performance of your wind farm also makes it possible to secure cheaper loans from investors. This reduces the cost of offshore wind energy, a key target set by the Dutch government.

ECN, KNMI (the Royal Netherlands Meteorological Institute) and Whiffle (a Delft University of Technology spin-off) are combining their expertise in the DOWA (Dutch Offshore Wind Atlas) project that was launched in June 2017 and will last until December 2019. Although all of the parties have knowledge of wind conditions and wind energy, each will contribute their own specific expertise. KNMI will bring its specialist wind climate knowledge and particularly the calculation of mean wind speeds and extremes with the help of weather models, Whiffle has developed software that can calculate local wind information at a very high resolution and ECN has specific knowledge of the wind conditions affecting wind turbines and wind farms.

As part of the DOWA project, the existing KNMI North Sea Wind (KNW) atlas cataloguing wind information up to an altitude of 200 m will be extended to include information from 2014 until now, enabling the dataset to be used to predict wind energy production in wind farms now in the planning phase. In addition, a new atlas will be compiled, known as the Dutch Offshore Wind Atlas (DOWA). Based on improved models and methods, it uses accurate wind measurements from aircraft and satellites that have not been used before. The new atlas will more effectively chart changes in the wind within a 24-hour period (day/night) and provide wind information from layers of air at a higher altitude (600m). In addition, the Whiffle software makes it possible to extrapolate extremely accurate wind information from the information in the DOWA. The DOWA project will also focus on the wind in the lee of an individual wind turbine or complete wind farm. Especially for the DOWA project, ECN has purchased LiDAR (Light Detection and Ranging) equipment that makes it possible to use laser to scan wind fields at an altitude of several kilometres. As wind turbines increase in size, wind measurements at greater altitudes are becoming increasingly important.

The DOWA-project has been commissioned by the Dutch national government. The aim is for the information in the updated KNW atlas and the new DOWA to be available for use in tenders for new offshore wind farms off the southern Holland coast (Scheveningen) and the coast further north (Egmond).

Remco Verzijlbergh, director of operations of Whiffle:

“We are very pleased to contribute to the DOWA project and further develop our high-resolution weather model. Whiffle has developed a unique breakthrough in the application of Large Eddy Simulation (LES) for operational weather forecasting based on high performance computing systems. With the research and development planned over the coming period the skill of our long term and day ahead forecast is expected to improve considerably.”

About Whiffle

Whiffle B.V. has been operational since 2016 and was started as a spin out of the Delft University of Technology. With its roots in science, the company has continued cutting edge R&D to further develop the Large Eddy Simulation (LES) models and a unique implementation on high performance computing systems. This resulted in the world's first LES based operational weather model that can perform highly accurate and high-resolution weather forecasts. Application areas of Whiffle's model include wind and solar power projects, dispersion of air pollution, aviation and agriculture.

Whiffle B.V.

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