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News

Innovation and Industry

Renewable energies | Wind Energy

Launch of the european project HIPERWIND : Advanced computer models can reduce the cost of electricity from offshore wind.

Better understanding of the complex physics influencing large offshore wind farms can deliver significant cost savings to wind farm owners and thereby reduce our green electricity bill. Using advanced digital solutions, a European research consortium aims to achieve at least 9% reduction in the cost of energy from offshore wind.

Saving €100 million for every new installed GW of wind power

The European Union has set an ambitious target of 300 GW installed capacity of offshore wind power in the EU by 2050. The solutions developed in the HIPERWIND project are expected to reduce the cost of every new installed wind power plant by at least €100 million per GW, contributing to green electricity for all citizens.

The HIPERWIND Consortium stands for highly advanced probabilistic design and enhanced reliability methods for high-value, cost-efficient offshore wind. The HIPERWIND project brings together a strong consortium combining universities and research organisations with industrial end-users.

The partners are DTU (DK), EDF (FR), Electric Power Research Institute, Europe (IE), IFP Energies nouvelles (FR), l'Université de Bergen (NO), DNV GL (NO), and ETH-Zürich (CH).

Reducing uncertainties is the key to reduce costs

Uncertainty costs money, and the constant upscaling of wind turbines and wind farms are challenging the accuracy in the methods and models used to design and operate wind farms. By developing more accurate methods and computational models, the HIPERWIND consortium will reduce uncertainties across the lifecycle of a wind farm.

Anand Natarajan, DTU Wind Energy comment "An offshore wind farm is a very large production unit that operates under dynamic conditions exposed to changing natural elements at sea. If we are able to predict more accurately the effects of these external conditions from the large wind farm scales down to the component interactions in a wind turbine, within a wind farm, then we can reduce the cost of the electricity to help drive the green transition".

Cheaper financing of offshore wind farms

For offshore wind farm developers, accurate estimates of annual energy production and the required operation and maintenance are crucial in order to be competitive in the market..

> Matteo Capaldo from French energy developer EDF explains: "When EDF negotiates the financing for a new offshore wind farm, investors will ask us how certain we are of our estimates for wind farm production and operational costs. If the uncertainty is high, then the price of financing it will go up. That is why HIPERWIND is such an important project for us. It allows us to provide more accurate estimates and thereby reduce the cost of financing future offshore wind farms."

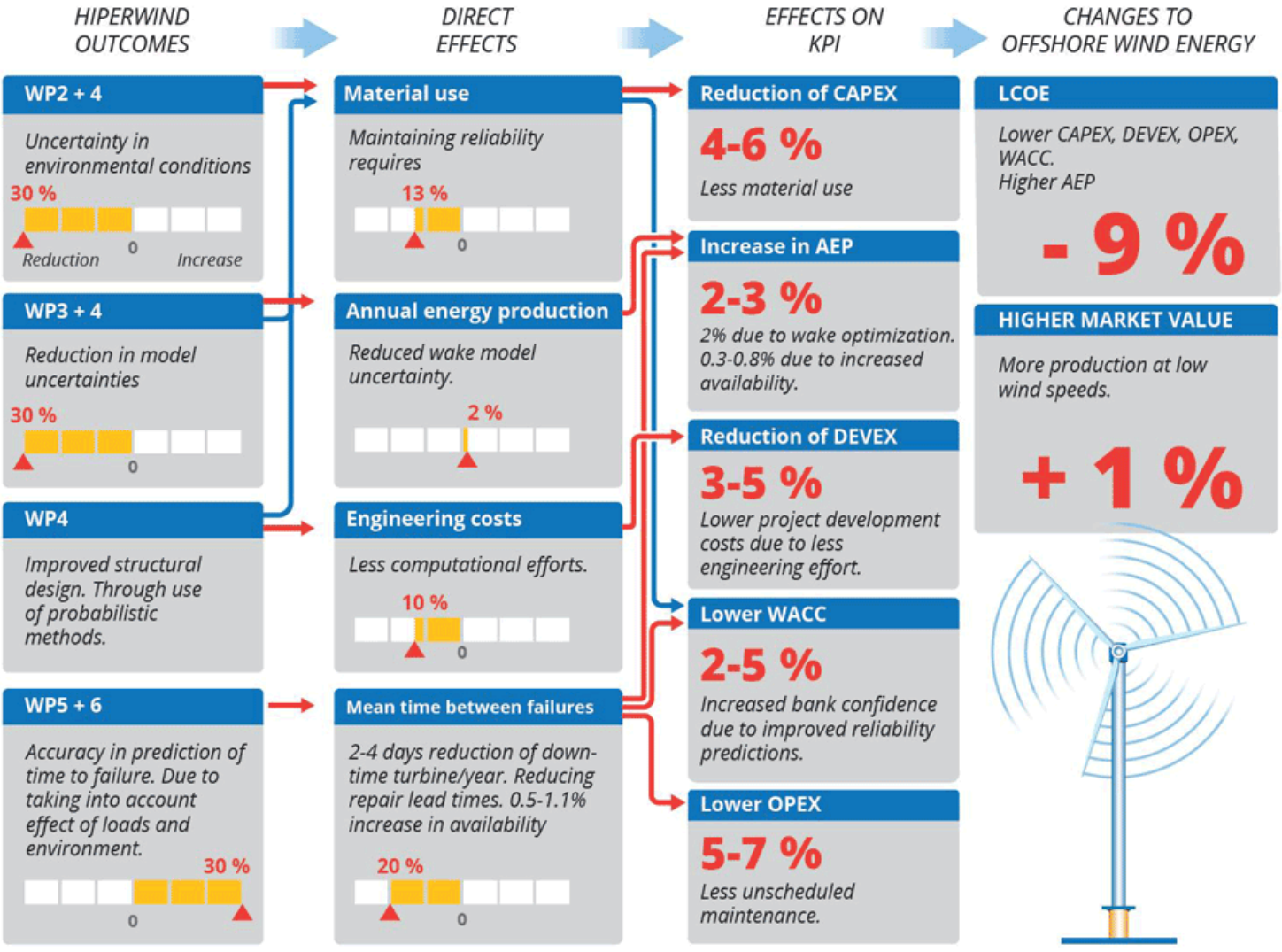
Building a modeling chain for improved impact

In HIPERWIND, researchers will develop an integrated model chain, which links the so-called met-ocean models and their inputs to the wind turbine reliability. Met-ocean stands for meteorological and oceanic models. These are sophisticated computer models that describe and calculate the effect of external conditions that wind farms operate in, from the level of weather systems over large geographic areas, and down to the wind flow affecting a specific turbine at a specific time. Realistic modeling of the met-ocean conditions are essential to ensure the reliability and sustained operation of wind farms.

4 million euro from the EU' Research and Innovation Programme Horizon 2020

The HIPERWIND project has received funding from the European Union's Research and Innovation Programme Horizon 2020 under Grant Agreement No 101006689. The project will run for 3.5 years.

HIPERWIND's contribution to lower the cost of energy from offshore wind



To find out more
> www.hiperwind.eu

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