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BRANCH ENERGY SYSTEM TECHNOLOGY, KASSEL

PRESS RELEASE

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Tackling remaining cost drivers in wind energy

Scientists at Fraunhofer IWES in Kassel aim to contribute to further cost reductions in wind energy use. They will present results of a large scale expert survey on future cost reduction potential, a simulation model on the failure characteristics of wind turbines and recommended practices for reliability data including an own seminar at the Wind Europe Summit 2016 in Hamburg, the world's largest wind energy event.

Cost reduction potential for electricity generation costs of wind energy was identified in a large-scale expert survey led by the Lawrence Berkeley Labs in California in collaboration with Fraunhofer IWES, within the framework of Research Group 26 of the International Energy Agency (IEA) Wind section. Volker Berkhout of IWES will show the results in the presentation "Forecasting Wind Energy Costs and Cost Drivers – The Views of the World's Leading Experts".

Industry experts expect an additional 24% reduction in onshore costs and 30% in offshore costs by 2030 as compared to 2014. The greatest contribution to the reduction in costs is due to higher yields from larger and improved rotors and lower investment costs for wind farms on land. Declining capital expenditures as well as lower financing costs are expected to be the main cost reduction driver offshore.

"Our work paves the way for a reduction in the cost of wind energy and a further increase in operational reliability. The wind industry worldwide will benefit from recommendations for the standardized collection of maintenance data," said Berthold Hahn, head of the Department of Wind Farm Planning and Operations at Fraunhofer IWES.

In the future, simulation tools will be incredibly important in choosing optimal maintenance strategies and allocation of resources, for example the number of ships or technicians for an offshore wind farm, and will reduce operating and maintenance costs. A better description of wind turbines' failure characteristics is needed in order to enable the planning of preventive maintenance strategies. Stefan Faulstich of IWES reports on a developed prediction model in his contribution "Modelling the failure behaviour of wind turbines", which takes the various relevant factors into account.

Systematically gathering reliability-relevant data is a fundamental basis of such modeling. At an industry seminar linked to the WindEurope Summit 2016 in Hamburg, IWES will discuss new recommendations for the recording of operating data and their utilization in optimizing operation and maintenance with representatives of the industry. The scientists have been leading the IEA Wind Research Group (Task 33 "Reliability Data") for four years and have developed the above-mentioned recommendations together

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with experts from a total of 11 countries (Recommended Practices for Data Collection and Reliability Assessment for O&M Optimization of Wind Turbines).

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One important finding is that while subsequent data users pursue individual goals with their evaluations, datasets that are targeted to relevant guidelines allow for almost any type of evaluation. However, operators are still required to adapt the guidelines to their own tasks.

In addition to the seminar, Berthold Hahn of IWES will present the work group's most important results to the wind conference audience in the lecture "Recommended practices for data collection, reliability assessment and O&M optimisation".

Expert contact:

Dipl.-Ing. Berthold Hahn, Head of Wind Park Planning and Operation
 Fraunhofer IWES | Energy System Technology
 E-Mail: berthold.hahn@iwes.fraunhofer.de
 Phone: +49-561-7294-229

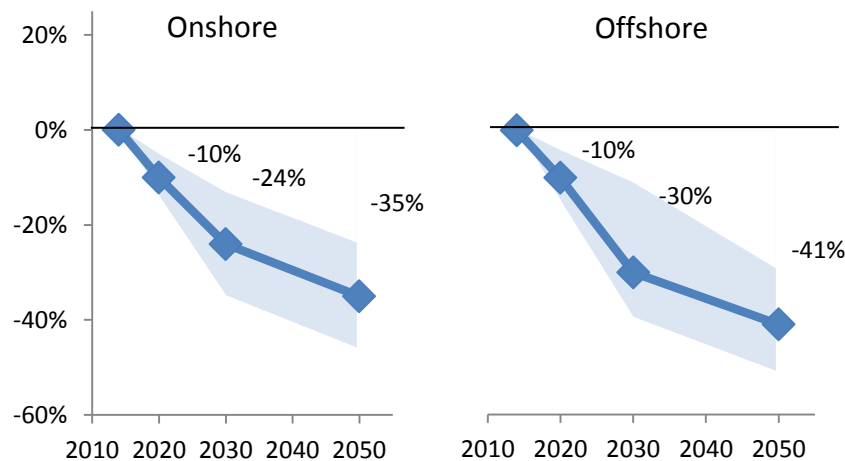
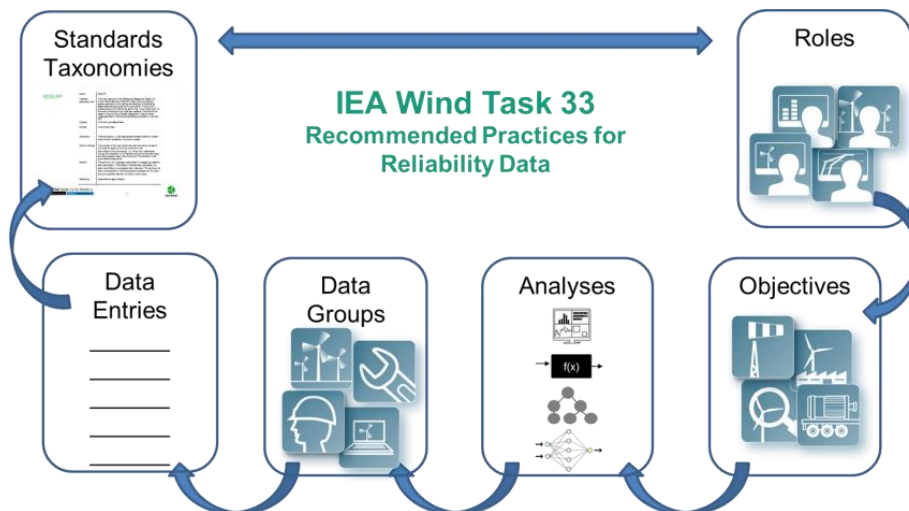


Figure 1: Expected reductions in electricity generation costs of wind energy 2020, 2030 and 2050; median of the "Best Guess" scenario from the expert survey conducted by the Lawrence Berkeley National Laboratory in collaboration with the IEA Wind Task 26 on the costs of wind energy

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Figure 2: Which data to collect and evaluate depends on the individual situation and assignment. The "Recommended Practices" from the International Energy Agency Wind section (IEA Wind), to be published at the end of the year, will give clear indications.

More information:

IEA Wind Task 26: Cost of Wind Energy, Ergebnisse und Materialien zur Expertenbefragung:

http://www.ieawind.org/task_26_public/task26_results.html

IEA Wind Task 33: Reliability Data: Standardizing data collection, for wind turbine reliability and O&M analyses, http://www.ieawind.org/task_33.html

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