NOWIcob – strategic O&M decision support tool

Innovation description

Strategic decision support tool based on a discrete-event Monte Carlo simulation model for maintenance activities and related logistics throughout the operational phase of offshore wind farms. Developed by SINTEF Energy Research through NOWITECH and spin-off projects (FAROFF, LEANWIND, support project for industry partner).

Examples of applications:

- Calculating wind farm availability
- Estimating O&M costs
- Decision support tool for O&M vessel fleet selection
- Analysing O&M and logistics strategies
- Cost-benefit analysis of O&M innovations
- Studying sensitivities and drivers of offshore wind O&M

References

- Hofmann, M.; Sperstad, I. B. (2013). NOWIcob – A tool for reducing the maintenance costs of offshore wind farms. Energy Procedia, vol. 35, 2013, pp. 177–186.
- Dinwoodie, I.; Endrerud, O.-E. V.; Hofmann, M.; Martin, R.; Sperstad, I. B. (2015): Reference Cases for Verification of Operation and Maintenance Simulation Models for Offshore Wind Farms. Wind Engineering, vol. 39, pp. 1–14.

Impact

- Cost savings through optimized strategies and better decisions.
- Reducing risks in wind farm investment decisions.
- Four NOWITECH industry partners have been given user licenses for the tool and SINTEF Energy Research has provided separate analysis services based on the tool.
- NOWIcob has been used by the NOWITECH industry partners Statkraft and Statoil for analyses in connection with developing the next generation wind farms (e.g. Dudgeon and Dogger Bank).
- SINTEF Energy Research has been using the model in a model comparison collaboration with University of Strathclyde, EDF, and University of Stavanger / Shoreline. The work has resulted in published reference cases for the verification and validation of strategic O&M decision support tools (Dinwoodie et al. 2015). These reference cases have already been used for benchmarking a number of other tools.

Further development

The tool is currently being further developed in collaboration with the EU FP7 project LEANWIND.