EERA-DTOC: Design tools for offshore clusters

Giebel, Gregor; Madsen, Peter Hauge; Hasager, Charlotte Bay; Lange, Bernhard; Cabezon, Daniel; Schepers, Gerard; Iuga, Dorina

Publication date:
2012

Document Version
Publisher's PDF, also known as Version of record

Link back to DTU Orbit

Citation (APA):
Abstract

The European Energy Research Alliance (EERA) in collaboration with valuable industry partners addresses the call proposing an integrated and validated design tool combining the state-of-the-art wake, yield and electrical models available in the consortium, as a plug-in architecture with possibility for third party models to extend and enhance predictions.

The concept of the EERA-DTOC project is to combine this expertise in a common integrated software tool for the optimized design of offshore wind farms and wind farm clusters acting as wind power plants. Since there is a small amount of data about the behavior of wind farm wake, especially far-field wake, a small campaign has been organized to collect lidar data and high-resolution satellite images in order to decrease uncertainties around wind farm wake predictions. The new data are expected to enable better tuning, and eventually better modeling of the far-field of wind farm wakes.

Product Vision

A robust, efficient, easy to use and flexible tool created to facilitate the optimised design of individual and clusters of offshore wind farms.

A keystroke of this optimisation is the precise prediction of the future long term wind farm energy yield and its associated uncertainty.

Work Packages

The EERA-DTOC (Design Tools for Offshore Wind Farm Cluster) project is formed in seven work packages (WP): WP1 - Wake modelling: The objective is to improve model design of wind turbines according to an enhanced understanding of wind turbine wakes.

WP2 - Interconnection optimization and power plant systems: The main focus of this WP is to develop a design tool and procedure for the optimisation of the electrical design of offshore wind farm clusters including the provision of power plant support services by the cluster.

WP3 - Energy yield prediction of wind farm clusters: The objective is to deliver an accurate value of the expected net energy yield from clusters of wind farms and also the uncertainty of the expected value by integrating the results from WP1 and WP2.

WP4 - Integration and development of software: The WP4 includes an integrating existing design tools for offshore wind farms so as to develop the integral offshore cluster design tool.

WP5 - Experiments. Validate, demonstrate design tool: The focus here will be on validating the integrated offshore wind farm design tool and on demonstrating that the integrated offshore wind farm design tool is important to the industry. A highlight are the wake measurements foreseen at the BARD 1 offshore wind power plant.

WP6 - Dissemination and exploitation activities: This WP aims at promoting the project visibility by creating an own identity, which means that the project is targeted at dissemination of the EERA-DTOC project results and its design tool for wind farm clusters interconnectors among different stakeholders, such as project developers and planners, transmission system operators, consultants and research institutes.

WP7 - Management: DTU Wind Energy (former Risø DTU) is responsible for management and administration of the project in accordance with the contract.

Announcement

Please join the EERA-DTOC side event on Tuesday, 1600-1730 in Room 20.

www.EERA-DTOC.eu

EWEA 2012, Copenhagen, Denmark: Europe’s Premier Wind Energy Event