



WindScanner - Research Infrastructure Center for Wind Energy and Turbulence Research

Madsen, Peter Hauge; Mikkelsen, Torben

Publication date:
2010

[Link back to DTU Orbit](#)

Citation (APA):

Madsen, P. H., & Mikkelsen, T. (2010). *WindScanner - Research Infrastructure Center for Wind Energy and Turbulence Research*. Abstract from Eneri 2010 - Infrastructures for Energy Research, Brussels, Belgium.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Windscanner.eu – the RI Center for Wind Energy and Turbulence Research

Peter Hauge Madsen
Head of the Wind Energy Division at Risø DTU

The Windscanner, new Research Infrastructure (RI) in the form of a European Centre for Wind Energy Research in Atmospheric Turbulent Flow, has been proposed under the auspices of the European Energy Research Alliance (EERA) for wind energy. EERA has submitted a proposal for a wind scanner facility to be included in the ESFRI Roadmap 2010. It introduces a unique new experimental research methodology for full-scale measurements of the detailed 3D structure of wind flow around wind turbines and other static or rotating objects.

The primary goal of the new wind scanning experimental facility is to gain further fundamental understanding of the basic aerodynamics and structural fluid dynamics for a wind energy system in the real environment.

The facility is a unique, distributed research infrastructure that will provide fundamentally new knowledge about the wind and will lead to more efficient, stronger and lighter wind turbines. Exploiting recent advances in laser wind measurement techniques, mobile 3-D remote sensing wind scanners will be deployed by seven large energy research institutes across Europe. This will provide an important catalysis to the future cooperation and integration of the European wind energy research infrastructures.

The field-deployable windscanners will be based at EU partners distributed throughout Europe. Built from sets of portable laser Doppler wind profilers, the windscanners can sense the 3D wind vector field at distant points at rates up to 500 Hz. This will enable measurements of 3D wind fields around large individual wind turbine rotors or within or behind wind turbine arrays and parks, both on and offshore.

The presentation will describe the Windscanner objectives and technology as well as the proposed organizational framework for the development and implementation for this new European research infrastructure.