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Knowledge Centre for Wind Turbine Components - A centre for research, innovation, documentation and demonstration of components for wind turbines

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KNOWLEDGE CENTRE FOR WIND TURBINE COMPONENTS

- A CENTRE FOR RESEARCH, INNOVATION, DOCUMENTATION AND DEMONSTRATION OF COMPONENTS FOR WIND TURBINES

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The Danish wind industry has taken preliminary steps to establish a knowledge centre for research, innovation, documentation and demonstration of wind turbine components. Danish component suppliers and research facilities have worked together to define the necessary elements of such a centre.

Reliability remains a challenge for the wind industry. Although individual components undergo thorough tests, it is still a mystery what happens when 10,000 components are assembled and exposed to the strains and vibrations of a turning turbine. The centre aims to clarify this problem by collecting and analysing data and help component suppliers to perform the right tests.

Denmark houses a large number of companies that supply components to the wind industry. Several of these have expressed a need to develop new methods of testing. They all sell products that have been tested according to various standards, but they still cannot predict e.g. accurate life time assessment of their product when it is placed in a wind turbine. The component suppliers do not have the data or the resources to develop new test methods and carry out necessary tests themselves. They have therefore proposed to establish a knowledge centre where all available data on turbine performances can be gathered and processed and where experts can develop new test methods. The target group includes component suppliers, wind turbine manufacturers and owners (power companies).

At the time of writing, research and industry representatives are working on a project financed by the Danish Energy Authority to define the structure and contents of such a centre. The project will be concluded in October 2007. There is an overall agreement in the industry of a need of such a centre and component suppliers, manufacturers and power companies are represented in the project steering committee. Several elements are still undecided but the main functions of the centre are in place:

1. The centre will be the core of improved collaboration in the sector:
 - In the value chain (suppliers, manufacturers and owners (power companies))
 - Between component suppliers and research/test institutions
2. The centre must gather new knowledge of components and the systems around them through tests and research
3. The centre must deliver consultancy assistance to component suppliers.
4. The centre must participate in developing standard descriptions of component properties and the loads they are subjected to
5. The centre must participate in developing methods to document properties and loads (e.g. by developing new test methods)
6. The centre must carry out state-of- the-art tests of the function and reliability of components in the drive train system or in smaller cluster systems
7. The centre must gather knowledge of wind turbine components: What goes wrong and why?

Ownership and location is still not decided but several models are being considered. The centre is projected to employ 20 people.
