European Wind Energy Technology Platform (TPWind)

The Working Groups of TPWind

Work Program Proposal

Working Group 1 - Wind Energy Resource

Prepared by the TPWind Secretariat

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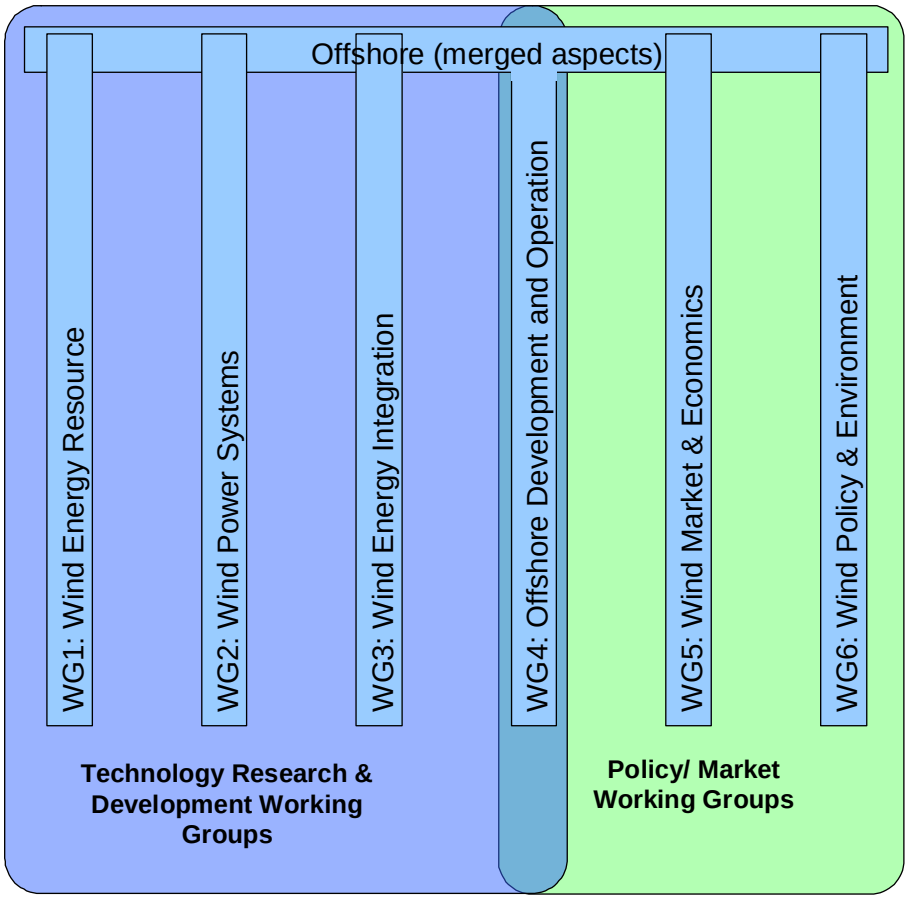
Introduction

As endorsed during the Second Steering Committee meeting of the European Wind Energy Technology Platform (Milan, May 9th 2007) the Working Groups of the Platform are:

- WG1: Wind Energy Resource,
- WG2: Wind Power Systems,
- WG3: Wind Energy Integration,
- WG4: Offshore Development and Operation,
- WG5: Wind Market and Economics,
- WG6: Wind Policy and Environment.

Moreover, it has been decided that each Working Group is dealing both on onshore and offshore aspects. The WG4 is focused on offshore-specific aspects.

In the following, a short description of the foreseen topics covered by each Working Group is provided, enabling to select the right experts for each Working Group.



WG1: Wind Energy Resource (E. Petersen)

This Working Group has to focus on developing the state-of-art for all areas for which the working group is responsible to enable the full deployment of wind energy. Particular emphasis shall be put on offshore and extreme climate resources. Key areas in this thematic may include: *Advanced siting and wind characterization models. Wind resource mapping, advanced wind power forecasting techniques. Advanced measurements techniques including remote sensing.*

Wind resources mapping:

Wind atlases have to be updated and especially all of EU-27 mapped through a new European Wind Atlas, High-resolution offshore wind atlases must be provided. For both onshore and offshore, remote sensing techniques (satellite and lidar) are of great interest.

Advanced sitting techniques:

At project scale, reliable and accurate models are needed. The combined use of micro-scale and meso-scale models (numerical wind atlas) shall be further developed using CFD (RANS and LES) in combination with linear and statistical models. It is expected that future developments in data collection will rely heavily on state-of-the-art satellite applications and telecommunication technology, processing and transfer. Dedicated databases combining satellite / meteo. models / measurements (Lidar) and corresponding models are needed.

At wind-farm scale, the effects of wakes have to be evaluated. Remote sensing sensors (Lidar) and models have to be adapted to small-scale turbulence monitoring and modelling.

Advanced wind/power forecasting techniques:

Global forecasting meteorological models, running on super-fine spatial and temporal grids and supported with spread-around remote sensing observations to increase accuracy, will drive the future wind and power forecasting tools. An integrated IT environment of sensors and models will provide information and alarms to the power system operators