

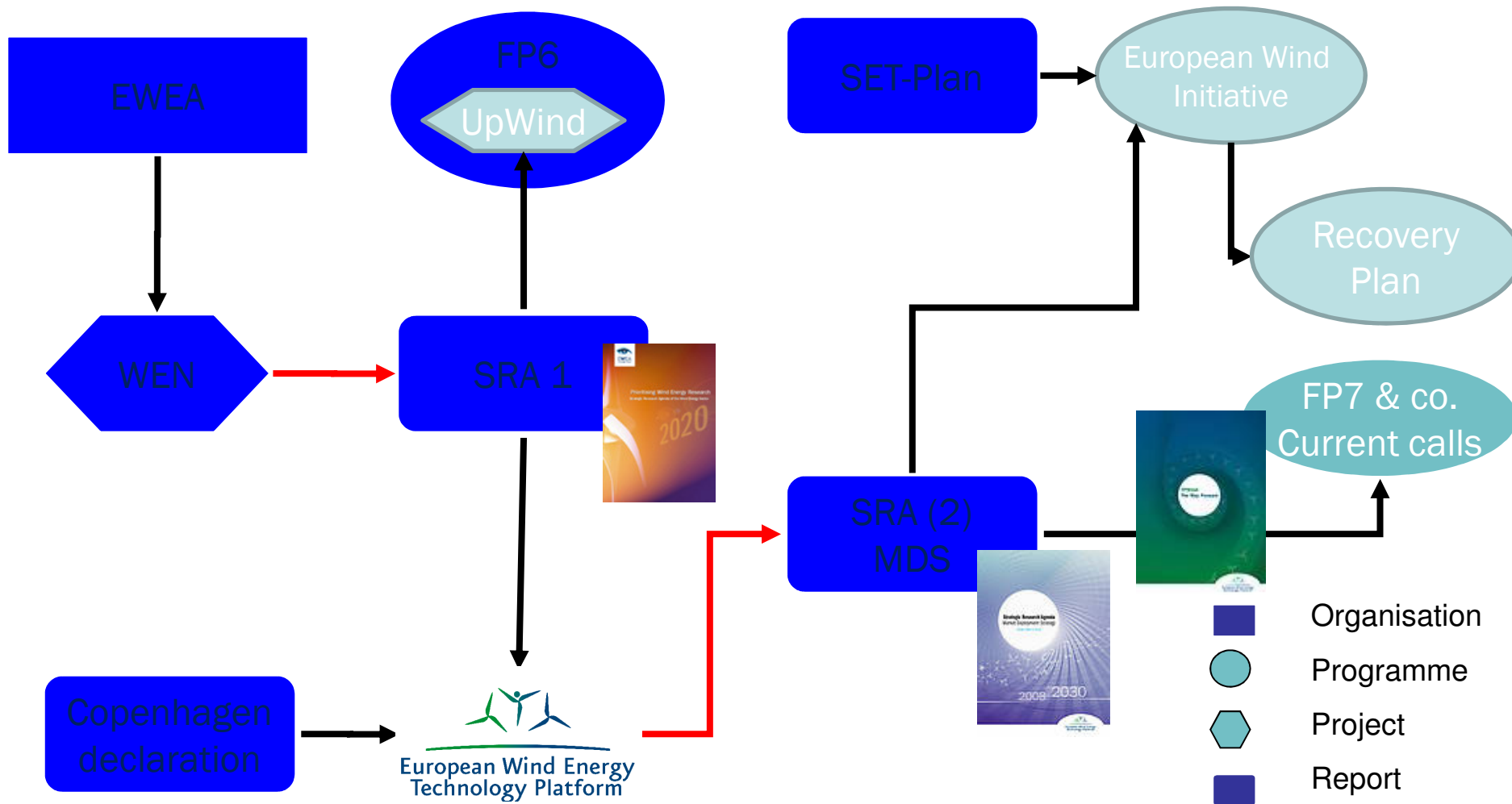


European Wind Energy  
Technology Platform

## Strategic projects



# Progresses and deliverables



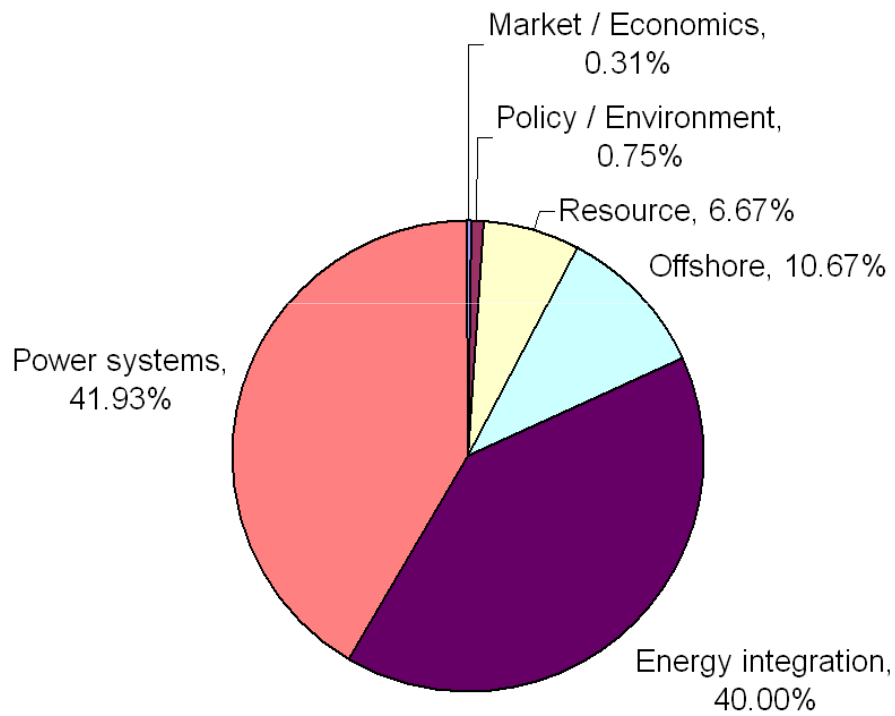


## 15 priority projects – a step by step implementation

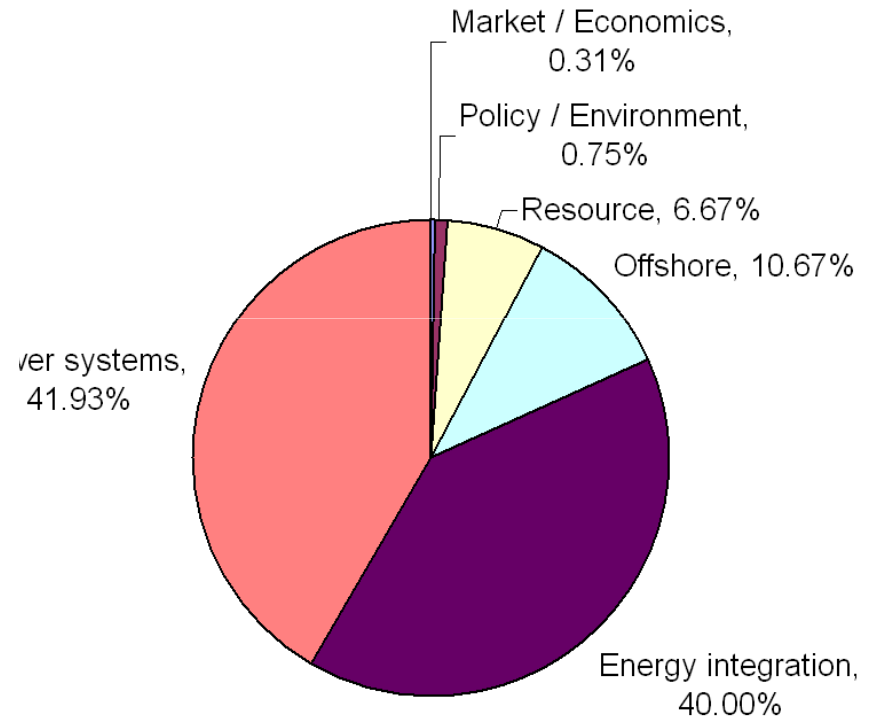
Topic	Budget low (€ million)	Budget high (€ million)
Resource	100	175
Power systems	629	629
Energy integration	600	1,000
Offshore	160	160
Market / economics	4.6	4.6
Policy /environment	11.2	11.2
Total	1,500	2,000



# Budget prioritisation



Low: €1,500 million



High: €2,000 million



## Wind energy resource

- ❑ Generation of a series of unique data sets to evaluate and develop new models for wind energy related physics (public database) - European Scientific Experimental wind database (TESEW)
  - Generate unique data sets to evaluate and develop new models for wind energy related physics. Different sites, conditions and measurements.
  
- ❑ A New European Wind Atlas (Numerical) – A new planning tool with high temporal and spatial resolution to ensure effective combination with other RE technologies (i.e. solar, hydro, biomass etc)
  - Use existing data in order to create wind resource information on 2 km scale for the whole of Europe including high temporal resolution



## Wind Power Systems

- ❑ Development and integration of drive trains: mechanical transmission, generator and power electronics (both theoretical and sub-system validation)
  - To improve drive train dynamics modelling and full scale tests for verification, with emphasis on gearbox transmissions for high and medium speed generator systems
  - To develop electro-magnetic lay outs for low- or medium-speed generators with the purpose of tower head weight reduction and cost reduction
  - To increase the efficiency of converters



# Wind Energy Integration

- ❑ Offshore grid R&D roadmap - an umbrella Programme linking the recovery plan (EEPR), the TWENTIES project and other initiatives.
  - To develop offshore transmission grids;
  - To ensure future offshore grids that will combine wind farms grid connection, cross border trade, wide area balancing, Security of supply (n-1), other offshore generation (gas, wave..).
  
- ❑ Modelling tools
  - To develop new modelling tools for unit commitment and energy efficient dispatch;
  - To give recommendations on energy and power management in power systems with high penetrations of wind power;
  - To study different system (Hydro – non-hydro; different energy mixes at different scales, Different ways of managing systems with high penetration levels.



## Offshore Deployment and Operations

- ❑ Improved efficiency and cost reduction in fabrication and offshore installation
  - Engineer the next generation of offshore structures
  - Developed and test automated fabrication processes
  - Test and demonstrate the new technologies
  - Prototype the new technologies in a demonstration plant
  - Develop and test improved logistical systems
  - Review and assess the performance of existing vessels and installation equipment
  - Design and develop better and more efficient installation vessels





## Offshore Deployment and Operations

- ❑ Offshore safety and environmental improvement
  - A clear understanding of the safety regimes across Europe; a common set of operational standards for internationally mobile workforce consistent with the the national legislations
  - A common safety and environmental training standards for the offshore wind industry and to identify all of the training facilities in the EU and their specific competencies
  - Review the current Environmental Impact Assessment processes as applied across the EU and to harmonise the process by development of common standards and formats
  - Enabling dissemination of environmental data gathered during the Environmental Impact Assessment process, through the development of a central repository
  - To improve the acquisition and application of geotechnical data



# Offshore Deployment and Operations

- ❑ Offshore turbine design, operations and maintenance
  - Determine the key deficiencies of current offshore wind operations
  - Propose modifications to existing designs and encourage new ones which address the deficiencies
  - Assess current maintenance strategies applied in the industry
  - Develop and test new maintenance strategies for offshore wind farms
  - Adapt and develop condition monitoring systems to conform with the new O&M strategies
  - Review the continuum of offshore access options, from helicopters through small boats to jackups
  - Design and develop improved access systems and vessels
  - Demonstration of at least two new access systems and vessels



## Wind Market & Economics

- ❑ Recommendations for electricity market rules
  - assess the current state-of-play in the electricity markets and develop relevant recommendations for policy makers.
    - Evaluation of ancillary services and development of recommendations;
    - Assessment of the potential impact of derivative markets (Green Certificates, GO and Carbon Credits);
    - Assessment of the impact of forecasting systems, evaluation of existing ones and definition of optimal ones.
  
- ❑ Analysis and improvement of wind energy economics within electricity markets and sustainable energy regulation in Europe
  - To study the future development of the wind energy sector in a number of different scenarios.
  - To study fair and efficient remuneration schemes for the wind energy sector.
  - To analyze incentives for renewable technologies in European markets.



## Wind Market & Economics

- ❑ Optimum deployment of EU wind power
  - assess all Operation & Management costs of wind energy operators, so as to identify potential areas of improvement
  - study on the potential opportunity of exports, joint-ventures, turbine technology
  
- ❑ Industrial Forum within TPWind
  - establish an Industrial Forum within TPWind, where WTGs and components manufacturers can meet and share their expertise and views on:
    - Market transformation (from demand driven to offer driven);
    - Bottlenecks and how to overcome them



## Wind Policy & Environment

- ❑ Environmental impact of wind farms & review of EIA guidelines
  - To assess the environmental impact of wind farms, and guidelines for the cumulative impacts of wind farms;
  - Review EIA procedures and guidelines and develop new ones in order to ensure optimum reporting on wind related issues;
  - Develop a centralised database on environmental baseline, which is defined as the effects of past and ongoing human induced and natural factors having an impact on the status of species, their habitat and ecosystem within the action area.
  
- ❑ Common criteria for priority zones - a new methodology for spatial and cultural planning based on:
  - A non-traditional strategic environmental assessment, resulting in less conflicting area;
  - An investigation of different spatial combinations of functions and cultural meanings.
  
- ❑ Benefits for local communities
  - review and assess the whole range of mechanisms developed in Europe for transforming the global benefits of wind energy into more tangible ones for local communities

Thank you for your attention!



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Technology Platform

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