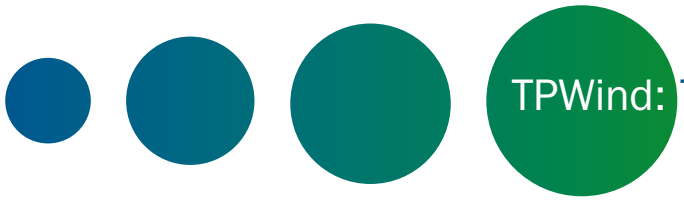
TPWind:
The Way Forward

MARCH 2009

European Wind Energy Technology Platform



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Contents

Acknowledgments

The TPWind secretariat would like to thank all those who contributed to drafting and producing this report. In particular, we wish to gratefully acknowledge the TPWind Group chairpersons and vice-chairpersons, the TPWind Steering Committee members and the TPWind Executive Committee members.

Foreword

Two years have passed since the European Commission granted its support to the European Wind Energy Technology Platform (TPWind), through a project financed by the Sixth Framework Programme.

In those two years, the development of the wind energy sector and its Platform has been impressive, thanks to the commitment of its members, who joined TPWind on a purely voluntary basis, and to community support. Without such a strong cooperation between European Institutions, national authorities and the industry, made of the men and women on the field who make wind power a reality every day, nothing of what we achieved so far would have been possible.

Looking back to the early days of TPWind, when imagining and grasping its full potential was not entirely possible, it is inspiring and encouraging now to see how the Platform has contributed to the unity, the awareness and the success of the wind energy sector.

TPWind published its first key deliverable, the Strategic Research Agenda/Market Deployment Strategy (SRA/MDS), in July 2008, less than a year after its first General Assembly.

This document identifies and prioritises the R&D needs of the sector, outlines a common roadmap for their achievement and provides a strategic analysis of wind energy research.

The SRA/MDS represents the first ever scoping study of the entire sector at a European level.

Following its publication, TPWind gathered on October 2008 for its third General Assembly, during which 46 concrete projects for implementing the SRA/MDS were identified.

This brochure, which focuses on the results of the Assembly, provides a first description of these actions. The Platform intends to develop and implement them throughout the next decade and beyond, in order to transform its R&D goals into reality and contribute to the achievement of the EU's 20% binding target for renewable energy production by 2020.

This goal has been recently set by the 20% Directive, a piece of legislation representing a key contribution in the fight to mitigate climate change and a confirmation of the EU's global leadership and support for wind power and other renewables.

I wish to thank TPWind members for their dedication and hard work, which made the development of such ambitious plans possible.

TPWind is now a well-structured network, which contributes to making wind energy a European success story every day.

And yet, even if at this very moment the Platform is celebrating its first successes, its job is far from being complete.

Now that the SRA/MDS has been published and concrete actions for its implementation have been identified, TPWind has to turn towards its next and more challenging objective: that of transforming its plans into reality and creating the conditions for the actual launch of its projects.

In order to achieve this goal, a firm commitment by the industry but also the EU and Member States will be essential.

The European Commission's Strategic Energy Technology Plan (SET-Plan) has announced the launch of the European Wind Initiative (EWI), which should become a key instrument for the support of wind energy in the years to come. TPWind is cooperating with the Commission in the development of the EWI and is keen in having it officially launched before the end of 2009.

The success of the Platform and its long term impact on the wind energy sector will ultimately depend on the results achieved in the implementation of its plans and projects.

For this reason, TPWind will double its efforts and widen its scope in order to become a reference point for wind energy operators, lead the way forward and establish itself as a true European flagship.

The road lying ahead of us is still long and full of challenges and hopes, but that is what makes our journey more exciting.

Henning Kruse

TPWind Chairman

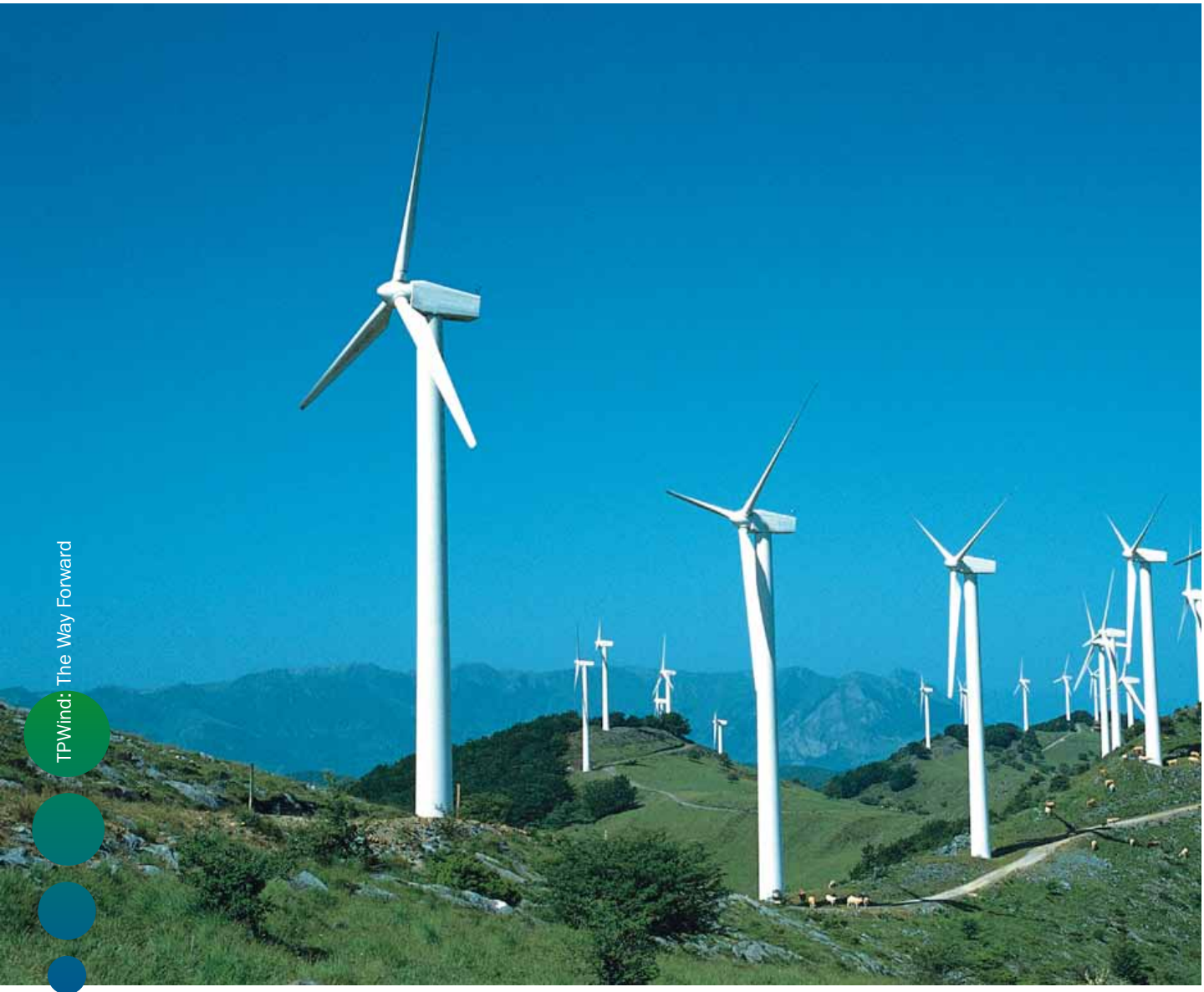


Photo: Acciona

TPWind supports the EU objectives

Formally launched in 2006 under the auspices of the European Commission, the European Wind Energy Technology Platform (TPWind) is a network and a research and development (R&D) forum made up of wind energy experts and stakeholders.

TPWind received official support from the European Commission in 2007 through the "Windsec" project (financed by the sixth Framework Programme).

Once formally established and structured, TPWind was able to focus on the development its R&D agenda, i.e. its first key deliverable. The first two General Assemblies of the Platform ("Setting Pathways Together", held on 13-14 November 2007 and "Shaping the Vision", held on 12-13 February 2008) focused on this objective.

The final version of this agenda, known as the "Strategic Research Agenda" (SRA) was published in July 2008. Part of the SRA was given over to a "Market Deployment Strategy" (MDS) - originally planned as two distinct documents, the SRA and MDS were eventually merged together because of their multiple interconnections.

The document was presented during the third General Assembly (GA), which was held in Brussels on 8-9 October 2008.

The third GA, which gathered together more than 100 wind energy experts from the public and private sector, marked the beginning of a new phase in the activities of TPWind: the implementation of the finalised SRA. This is the most challenging and important part of TPWind's work, as its ultimate success and impact on the wind energy sector will depend on its recommendations being effectively put into place.

During the last GA, organised in the format of a brainstorming session, TPWind members identified a number of concrete projects for implementing the SRA / MDS.

This represents a key step for the Platform, especially because it coincides with the approval of the 20% Directive, which sets Member States binding targets for the first time. The overall targets are as follows:

- Reducing the EU's greenhouse gas emissions by 20% compared with 1990 levels (by 30% if international agreement is reached)
- Increasing the share of renewables in EU's overall energy mix to 20%
- Making energy savings of 20%

The implementation of the new Renewable Energy Directive, approved on 9 December 2008, will cause more than one-third of EU's electricity to come from renewables in 2020, with wind energy set to become the biggest contributor.

An efficient network based on high quality feedbacks from the sector

The third GA was an opportunity to assess the overall performance of the Platform so far.

All TPWind Working Groups, which represent the operational organs of the Platform, focusing on several R&D strategic areas, were asked to evaluate TPWind's most important achievements and initiatives and to provide feedback and suggestions on how to improve its impact and its effectiveness.

The first and most important result of this consultation was that TPWind members appear to be unanimously satisfied with the quality of the SRA / MDS. The document is considered to be complete and well structured (even if its Annex A could be made even more complete with a section dealing with MDS studies and policy actions).

Further to that, members also agreed on the fact that the network established by TPWind is delivering results and its Secretariat is developing valuable relationships with the European Commission (EC) and other relevant stakeholders.

The impact of the Platform will therefore increase in the future, especially now that the implementation phase has begun, the 20/20/20 package has been approved and investments in renewables are being considered as a potential way out from the current financial crisis. All the conditions for achieving TPWind's final goals are in place.

A number of areas were identified to further improve TPWind's impact, namely the following:

- TPWind will improve its communication: emails will be sent to members more regularly in order to update them on any relevant development (contacts with the EC and Member States, implementation of projects, organisation of events and so on). Updating TPWind's website is indeed not enough to ensure that every member receives all the relevant information in time
- TPWind will send its newsletters on a regular basis and respect the relevant scheduling
- The Platform's website will be improved. First of all, more technical information and data on the wind energy sector (including statistics, success stories, potential sources of funding and project management best practices) will be published. Secondly, it will become a working platform for TPWind members (to this purpose, an ad-hoc document sharing tool should be added to the internal website)
- The external visibility of TPWind will be improved. For this reason, the Secretariat will organise or participate in more events and publish more articles in specialised media
- Cooperation between and within Working Groups will be improved. To this purpose, additional WG meetings will be organised in between GAs and more time will be devoted to individual WG sessions during the GAs
- In general, TPWind will engage in more external cooperation activities, especially with other ETPs (SmartGrid and ESTEP in particular) and TSOs
- TPWind will develop stronger relationships with the European Commission and Member States
- Finally, the Platform will focus more on offshore R&D and try to involve EC officials in the WGs, like other ETPs are already doing

The Secretariat is now working on the implementation of such improvements to make TPWind the most efficient European Technology Platform.

These will be included in the action plan on the future of TPWind that is being developed at the moment to guide its growth in the coming years. This should make sure that the Platform will be increasingly effective in meeting the needs of its members and of the wind energy sector.

Outcomes of the 3rd GA

The following table summarises the projects identified by TPWind members at the third GA.

Every project is to be implemented before the end of 2015 and is linked to a section and subsection of the SRA / MDS.

Wind conditions

Photo: APPA

SRA / MDS section	Sub-section	Project number and title
Wind conditions		
Wind conditions	Siting in complex terrains	**1. New data sets and models for wind energy physics** The purpose of the project is to generate unique data sets to evaluate and develop new models for wind energy related physics. This goal is in line with the 3% vision established by the SRA (i.e. to improve current techniques so that predictions with an uncertainty of less than 3% can be made for wind conditions of any wind farm, regardless of the selected site). The governing principle of the project is the interaction between modelling and experiments. It should be noted that the measurement campaigns will last three years so as to cover seasonal variations and other effects related to large scale phenomena.
Wind conditions	Offshore meteorology	
Wind conditions	Wakes	
Wind conditions	Extreme wind speeds	
Wind conditions	Wind profiles at great heights	
Wind conditions	Short-term prediction	

Wind power systems

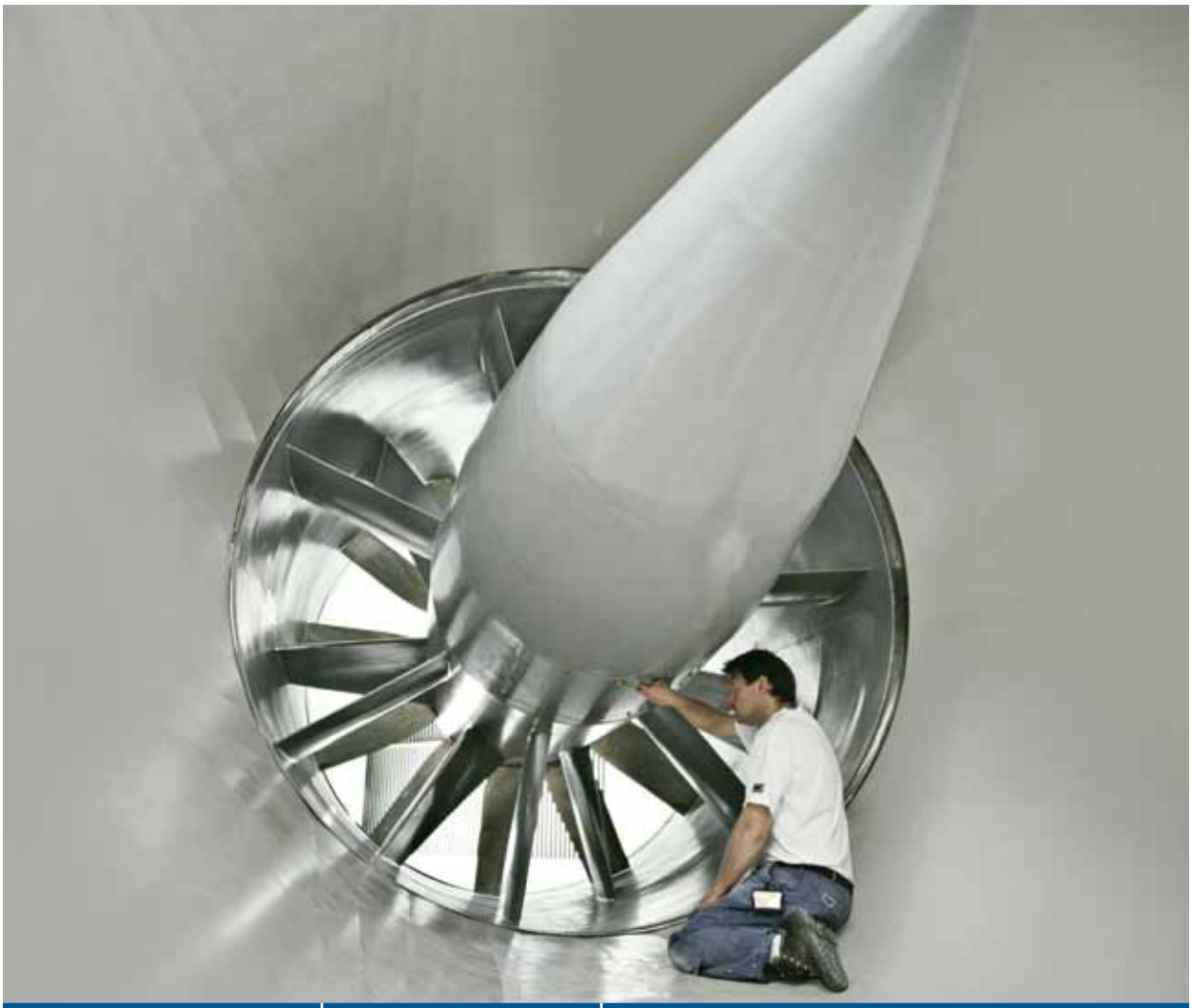


Photo: LM

SRA / MDS section	Sub-section	Project number and title
Wind power systems		
Wind power systems	Wind turbine as a flow device	**2. Aerodynamic devices for modelling and designing** Aerodynamic flow devices will be developed including hybrid-CFD (computational fluid dynamics) methods for modeling and designing. These will be used to ensure full optimisation and validation of every relevant aspect, hence leading to: • More energy production • Lower noise • Lower loads
Wind power systems	Wind turbine as a mechanical structure/ materials	**3. Wider base of materials** A wider base of materials properties will be documented over a wider base of variables (e.g. low temperature) and make them available to the industry.

Wind power systems

SRA / MDS section	Sub-section	Project number and title
Wind power systems		
Wind power systems	Wind turbine as a mechanical structure/ materials	**4. Interaction of materials properties** The interaction of material properties with design and manufacturing technology will be studied.
Wind power systems	Wind turbine as a mechanical structure/ materials	**5. Test facilities** Full-scale test facilities for all loads and environmental conditions will be established.
Wind power systems	Wind turbine as an electricity plant	**6. Optimizing design methodologies** An integrated Wind Turbine Generator (WTG) system will be developed in order to optimise design methodologies used for components (gearboxes, generators, converters, switch gears and transformers) and system (grid compatibility and added value). The limited availability of certain materials will be taken into consideration (copper, magnets, and superconductors).
Wind power systems	Wind turbine as an electricity plant	**7. Superconducting wire** The aim of the project is to specify the required wire properties for enabling commercial applications of superconductors in the wind energy sector. The development of ad-hoc HV (high voltage) insulation materials will also be taken into consideration in the project.
Wind power systems	Wind turbine as a control system	**8. Sensors** The aim of the project is to develop new sensors and related technologies for monitoring the functioning of wind turbine generators (condition monitoring). Every relevant parameter will be taken into consideration, including for example the flow around the rotor (to measure the flow, special tools like LIDAR – Light Detection and Ranging – will be used).
Wind power systems	Wind turbine as a control system	**9. Algorithms** Past, current and future algorithms for the monitoring and management of wind turbine generators and wind farms will be studied and developed.

Wind power systems

SRA / MDS section	Sub-section	Project number and title
Wind power systems		
Wind power systems	Wind turbine as a control system	**10. Actuation** New aerodynamic actuator devices for dedicated rotor control strategies will be developed and tested.
Wind power systems	Innovative concepts and integrated designs	**11. Integrated design methodologies** New design methodologies, tools and systems for accommodating complexity and standardise communication protocols will be developed.
Wind power systems	Operation and maintenance	**12. Avoiding the need for maintenance** Maintenance-free components that will allow wind energy operators to reduce O&M costs will be developed.
Wind power systems	Operation and maintenance	**13. Condition monitoring** New and existing condition monitoring systems and sensors will be developed with a two-fold objective: make monitoring more efficient and effective and facilitate the interpretation of data.

Wind energy integration

Photo: Vestas

SRA / MDS section	Sub-section	Project number and title
Wind energy integration		
Wind energy integration	Wind power plant capabilities	**14. Grid codes** The goal of the project is to develop an effective and reliable method for verifying compliance with grid code requirements. More in details, the project will aim to: · Establish a standard generic wind farm model · Harmonise Grid Codes · Demonstrate the benefits of generic models and harmonisation
Wind energy integration	Grid planning and operation	**15. Acceptance of OH lines** The aim of the project is to increase public acceptance of overhead (OH) lines, in view of the fact that there is an increasing opposition to them, which is causing delays the development of new connections. In order to reach this objective, the project will: · Optimise the EM field · Optimise the configuration of towers depending on specific landscapes · Optimise low sag cables (e.g. carbon composite core) to increase the transmission capacity · Launch a public consultation process · Involve ad-hoc experts such as psychologists and designers
Wind energy integration	Grid planning and operation	**16. Smart Power Line Technology** A new “smart power line” technology capable of carrying more capacity will be developed.

Wind energy integration

SRA / MDS section	Sub-section	Project number and title
Wind energy integration		
Wind energy integration	Grid planning and operation	**17. Offshore transmission** Offshore transmission meshed grids will be developed. Wind farms normally feed into meshed distribution grids, rather than transmission grids (like conventional power plants). This project aims to develop ad-hoc offshore grids, which will be used to control offshore wind farms. To this purpose, both technology and topology issues will be taken into consideration, together with the potential application of solutions such as FATCS (Flexible AC Transmission Systems) and HVDC (High Voltage Direct Current). Finally, any other relevant Influence Factor (which determine the effects of a wind farm to a specific grid node) will be analysed as well.
Wind energy integration	Grid planning and operation	**18. Operation and interoperability of networks** The aim of the project is to improve the operation and interoperability of networks. To this end, the following aspects will be taken into consideration: • Integration of TSOs and DSOs requirements • Better understanding and utilisation of wind power plants capabilities • Frequency control • SCADA (Supervisory Control and Data Acquisition) and forecasting systems • Models and simulation tools • Information and communication tools
Wind energy integration	Energy and power management	**19. Modelling tools** New modelling tools for unit commitment and energy efficient dispatch for UCTE-size systems will be developed. To this aim, the following issues will be taken into consideration: • Methods for making wind power competitive in the market • Optimal scheduling taking into account cross-border exchange • Development of consistent market mechanisms all over Europe • Use of database on system information for modelling purposes • Identification and removal of technical obstacles for market participation • Assessment of technical flexibility of generation, network and loads • Conditions for ensuring security of supply (reliability) Market operators (i.e. producers, utilities and consumers) and their behaviour will represent the main focus of the project.

Offshore deployment and operations

Photo: Stiftung Offshore Windenergie

SRA / MDS section	Sub-section	Project number and title
Offshore deployment and operations		
Offshore deployment and operations	Safety	**20. Standardisation and harmonisation across the EU** The purpose of the project is to create the conditions for achieving the standardisation and harmonisation of safety policies across the EU. To this aim, the project partnership will list all the rules and regulations currently in force, while the TPWind Mirror Group will push for the adoption of one single European standard on safety. The most important safety concerns appear to be the following: • Safety of operational personnel (working on WTGs) • Safety of marine operations (required to develop and operate offshore wind farms).
Offshore deployment and operations	Safety	**21. Identification of training centres (low priority)** The goal of the project is to list all the relevant EU training facilities and identify their specific competencies. At the same time, project partners will also identify the training needs of the wind energy industry in order to create the conditions for the development of new European centres capable of filling the current gaps. It should be noted that to improve the training of operational personnel, WTG manufacturers should provide more information on their machines, which are currently hard to obtain.

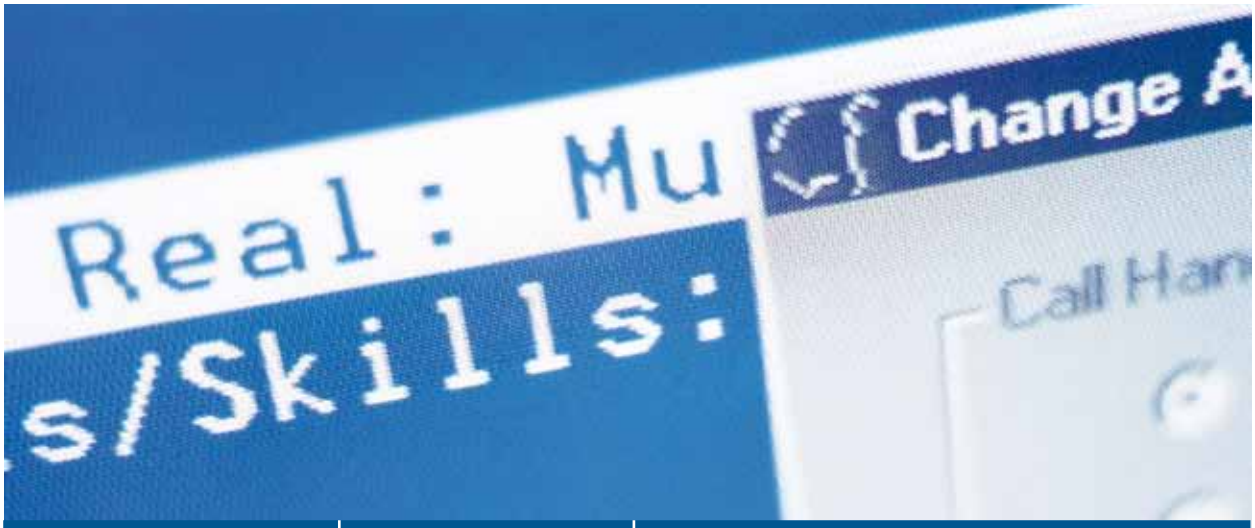
Offshore deployment and operations

SRA / MDS section	Sub-section	Project number and title
Offshore deployment and operations		
Offshore deployment and operations	Environment	**22. Make environmental data public** The aim of the project is twofold: • To standardise Environmental Impact Assessments (EIA) and environmental data by coming up with a common format • To make environmental data public This will lead to the implementation of the principle of publicly available environmental data (on soils, waves, winds, currents, birds, seals and so on), which will facilitate the development of new wind farms.
Offshore deployment and operations	Environment	**23. Geotechnical data** The acquisition and application of geotechnical data will be improved. This data can represent a significant cost at the early stage of the project and so the objective of the study will be to develop a process for acquiring the data in stages, allowing the cost to be minimised but ensuring there is sufficient data to allow the project to continue.
Offshore deployment and operations	Substructures	**24. Re-engineering offshore substructures** Current offshore substructures will be re-engineered on the basis of the data collected and experiences gained by offshore wind farms so far. This will lead to improved design methods, upgraded standards and enhanced designs (which will be based on data measured on existing WTGs). Ideally, three "Reengineering offshore substructures" projects should be implemented to make sure that all lessons learned by current offshore wind farms will be identified and used to improve the current situation. This project is expected to have a key impact on the current debate on the use of concrete or steel in the installation of offshore WTGs.
Offshore deployment and operations	Substructures	**25. Manufacturing automation** The manufacturing process of substructures will be automated. As a result, the whole production process will be optimised and will lead to cheaper manufacturing and improved logistics. Thanks to this project, the industry should be able to deliver enough structures to reach 10,000 units in 2020.

Offshore deployment and operations

SRA / MDS section	Sub-section	Project number and title
Offshore deployment and operations		
Offshore deployment and operations	Assembly, installation, decommissioning	**26. Improved vessels** The purpose of the project is to create the conditions for the development of new vessels capable of meeting the needs of the offshore wind energy sector (i.e. increasing the installation weather window). To this end, a new funding scheme backed by the "European Investment Bank" (EIB) should be launched. This instrument will provide financial support to manufacturers capable of developing a new generation of vessels, and should be structured in cooperation with the TPWind Mirror Group (which is composed of representatives of EU Member States) and Finance Working Group (which deals with R&D financing). In parallel, project partners should also define the design requirements for new vessels and identify deep water ports with the required infrastructures to service offshore projects.
Offshore deployment and operations	Turbines	**27. New offshore WTGs (medium priority)** Data and lessons learned from existing offshore wind farms will be gathered in order to identify areas for improvement and the ideal characteristics of future offshore WTGs. The project will focus on the following issues: • Redundancy • Reliability of WTGs (which is particularly important in offshore wind farms, where human intervention should be as limited as possible) • Resistance to corrosion • Condition monitoring systems • Risk-based maintenance • Helihoist option in offshore WTG design • Possibility of designing bigger turbines
Offshore deployment and operations	Operation and maintenance	**28. Better access methods** Access requirements for offshore WTGs will be defined in a consistent way, so as to improve access methods for operational personnel and if possible to increase the weather window for O&M (for example through the use of helicopters). To this end, project partners will gather data on different solutions and will then test them on offshore wind farms for at least 1 – 3 months, also in adverse weather conditions.

MDS studies



SRA / MDS section	Sub-section	Project number and title
MDS studies		
Enabling market deployment	Removing electricity market barriers	**29. Recommendations for electricity market rules (medium priority)** The aim of the project is to assess the current state-of-play of the electricity markets and develop relevant recommendations for policy makers. The project will be made up of the following steps: · Evaluation of ancillary services provided by wind energy operators and development of relevant market regulation recommendations · Assessment of the potential impact of derivative markets (Green Certificates, GO and Carbon Credits) · Evaluation of existing forecasting systems, and definition of optimal ones
Enabling market deployment	Creating a level-playing field	**30. Economics of wind energy in future EU electricity markets** The future development of the wind energy sector will be studied according to a number of different scenarios. To this purpose, different assumptions will be made on the evolution in the prices of oil, CO_2 emissions and raw materials so as to determine how these factors will impact on the wind energy sector. Further to that, the development of different sites will be analyzed under different circumstances (offshore and onshore; high, medium and low quality), in order to provide a comprehensive picture of the wind energy sector in the future. Finally, comparisons with other conventional and renewable technologies will be included in the study, so as to determine the sensitivity of the wind energy sector and to primary energy and CO_2 costs escalation and volatility (in terms of profitability and cost of energy – COE).

MDS studies

SRA / MDS section	Sub-section	Project number and title
MDS studies		
Enabling market deployment	Creating a level-playing field	**31. Fair and efficient remuneration for wind energy** The goal of the project is to study fair and efficient remuneration schemes for the wind energy sector. The final recommendations will be then transferred to TP-Wind WG6 ("Wind Policy & Environment"), which will take relevant actions. In order to reach this objective, the following areas will be analysed: · Targets set for wind energy (13% of market penetration in 2020 and 23% in 2030) · Specific conditions of different markets (onshore and offshore; high, medium and low quality sites) · Positive externalities of wind power (which should be taken into account when calculating the real cost of energy) · Conclusions of the study on the economics of wind energy in future electricity markets (see project n. 29 for further details)
Reducing costs	Operating costs	**32. Wind power Operation & Maintenance costs (medium priority)** The goal of the project is to list and assess all Operation & Management costs of wind energy operators in order to identify potential areas of improvement. The following data will be collected and analysed: · Data on technical costs: relevant figures and information will be collected thanks to the cooperation (on a voluntary basis) with representatives of the industry · Data on non technical costs: relevant figures will be identified thanks to a comprehensive evaluation of these costs in Member States (site lease, insurances, taxes, grid use charges and so on). Through this study recommendations on how to reduce O&M costs for the wind energy sector will be developed. This will also allow the industry and Member States authorities to develop relevant benchmarks, useful to monitor the development of the sector.
Reducing costs	Costs of capital	**33. Industrial Forum within TPWind** An Industrial Forum within TPWind will be established, where WTGs and component manufacturers can meet and share their expertise and views on: · Market transformation (from demand driven to offer driven) · Bottlenecks and how to overcome them

MDS studies

SRA / MDS section	Sub-section	Project number and title
MDS studies		
Reducing costs	Costs of capital	Thanks to this initiative, the members of the Forum (the participation will be on a purely voluntary basis) will be in the position to: • Develop common proposals to enhance cooperation (e.g. sharing common components) • Suggest new IEC or ISO standards An ad-hoc Secretariat should be established to manage the Forum.
Integrating wind into the natural environment	(no subheading)	**34. EIA review and guidelines** EIA procedures and guidelines will be reviewed and new ones will be developed. The partners will aim to: • Develop wind specific EIA requirements and guidelines • Ensure optimum reporting on wind related issues
Integrating wind into the natural environment	(no subheading)	**35. Environmental impact of wind farms** The environmental impact of wind farms, from both a local and global point of view, will be assessed (cumulative effects will also be taken into consideration). Further to that, the project aims to develop guidelines to assess the cumulative impacts of wind farms.
Integrating wind into the natural environment	(no subheading)	**36. Impact on radar** Ad-hoc solutions and tools for measuring the impact of wind farms on radar and address both technical and political issues will be developed. Further to that, a detailed analysis of different types of radar technologies will be developed, so as to provide a comprehensive picture of the current situation (the IEA is dealing with these issues at the moment).
Integrating wind into the natural environment	(no subheading)	**37. Predicting, reducing and monitoring noise and shadow flicker (medium priority)** The goal of the project is to develop tools and methods for predicting, reducing and monitoring noise and shadow flicker generated by wind farms. The project will also take into consideration the effects of light emissions from WTGs (which have to be equipped with aircraft warning lights).

MDS studies

SRA / MDS section	Sub-section	Project number and title
MDS studies		
Integrating wind into the natural environment	(no subheading)	**38. Environmental impact of electricity generation and consumption (especially offshore) (medium priority)** The environmental impact of electricity generation and consumption will be determined. The action will focus primarily on offshore wind, since it will also evaluate the global benefit of offshore generation in comparison to other methods (including more conventional ones).
Integrating wind into the natural environment	(no subheading)	**39. Centralised database on environmental baseline (medium priority)** The goal of the project is to develop a centralised database on environmental baseline, which is defined as the effects of past and ongoing human induced and natural factors on species, their habitats and ecosystems within the action area. The project will focus on the following issues: · Development of a web portal providing a link to relevant EIA studies across Europe. As a matter of fact, there are several sources of information at the moment, which need to be brought together and integrated. National focal points should be responsible for providing studies · Development of guidelines on post-operational monitoring (post-operational evaluation of the entire scope of EIA) and establishment of a central source of post-operational data
Integrating wind into the natural environment	(no subheading)	**40. Monitoring data (low priority)** Existing information on the impact of WTGs on birds, bats and underwater life will be collected and new ones will be generated. Further to that, the project aims to develop new tools for monitoring these phenomena
Ensuring public support	(no subheading)	**41. Motivation of public opinion** The reasons for public opinion and people's concerns regarding wind projects will be investigated. In order to reach this objective, the project aims to: · Review case studies · Assess public opinion before and after the implementation of relevant wind projects · Review existing myths / concerns regarding wind energy

MDS studies

SRA / MDS section	Sub-section	Project number and title
MDS studies		
Ensuring public support	(no subheading)	**42. Benefits for local communities** The aim of the project is to review and assess the whole range of mechanisms developed in Europe to transform the global benefits of wind energy into more tangible ones for local communities. Further to that, the partners will review current best practices guidance on effective consultation processes and the manner in which this guidance is disseminated.
Human resources	(no subheading)	**43. Education and training** Existing training courses will be adapted and new ones will be developed in order to provide the wind energy sector with the human resources required to meet the 2020 / 2030 targets.

MDS policy actions

Photo: Acciona

SRA / MDS section	Sub-section	Project number and title
MDS policy actions		
Enabling market deployment	Creating a level-playing field	**44. Impact of the economic crisis on wind energy** The goal of the project is to study the consequences of the current economic and financial crisis on the development of the wind energy sector. The following issues will be taken into consideration: · Current level of R&D financing · Cost of capital (debt and equity) and consequences on project financing · Industrial strategies: impact on the development of new manufacturing facilities Following this analysis, the project will identify solutions and strategies to mitigate the impacts of the crisis. The following is a non-exhaustive list of possible countermeasures (additional lines of action will be explored during the project): · Mobilising public financing (e.g. EIB, l public banks at national level) · Developing a favourable and stable regulatory framework to reduce risks and facilitate investments

MDS policy actions

SRA / MDS section MDS policy actions	Sub-section	Project number and title
Enabling market deployment	Adapting the grid infrastructure	**45. Wind energy impact on electricity markets** The goal of the project is to assess the impact of wind energy on electricity markets, grid management and investments. The action will build on the experience gained through the EWIS project (European Wind Integration Study) and will widen its scope to analyse both onshore and offshore grids and to take into consideration Member States' need to comply with the 2020 targets of the 20% Directive (a first analysis of the potential consequences of a 23% target for wind energy for 2030 will be included in the study too). The outputs of the project will be a comprehensive costs / benefits assessment of wind energy, a series of technical and economic recommendations for supporting its development and an action plan.
Integrating wind into the natural environment	(no subheading)	**46. Common criteria for priority zones (medium priority)** A methodology and common criteria to identify priority zones for wind exploitation will be developed.

TPWind members, divided into six working groups (WG) plus a Mirror Group (composed of representatives of Member States) and a Finance Working Group, identified 46 projects in total, which can be categorised and summarised on the basis of their focus and level of priority:

Type of project / Level of priority	Research and development	MDS studies and policy actions	TOTAL
High	26	11	37
Medium	1	6	7
Low	1	1	2
Total	28	18	46

The balance between R&D and economic / political projects demonstrates the capacity of TPWind to cover all relevant issues for the development of the wind energy sector and confirms its ability to involve all relevant stakeholders.

Next steps

The third General Assembly proved very successful in identifying the projects required to implement the SRA / MDS, effectively marking the beginning of a new stage in the development of the European Wind Energy Technology Platform, the "Implementation of the SRA". However, much still needs to be done in order to transform the plans into a reality.

For this reason, the next TPWind GAs will concentrate on defining detailed action plans for the projects suggested.

The fourth GA, to be held in May 2009, will assess the progress made on the detailed implementation plans by the various WGs during the first half of the year.

On the other hand, the fifth GA, which will take place in October / November 2009, will have the main goals of finalising the action plans, presenting the relevant sources of funding and creating the conditions for the projects to be launched smoothly.

Thanks the proposed approach, TPWind will be able to ensure all the projects are efficiently implemented and to respect their level of priority.

If the proposed strategy is adopted, the implementation phase will be completed by the end of 2015 at latest and TPWind will have achieved its final objective: of shaping the development of the EU wind energy sector and having a long lasting impact on its structure.

Implementation of TPWind's projects is essential, especially in view of the Lisbon's strategy for growth and of the EU's recently approved 20% Directive, and the Platform has already started along the path towards this goal.

Photo: Enron

European Wind Energy Technology Platform

About TPWind

The European Technology Platform for Wind Energy (TPWind) is the indispensable forum for the crystallisation of policy and technology research and development pathways for the wind energy sector; as well as a new opportunity for informal collaboration among Member States, including those less developed in wind energy terms.

TPWind Secretariat
Renewable Energy House
Rue d'Arlon 63-65
1040 Brussels – Belgium
secretariat@windplatform.eu

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SIXTH FRAMEWORK PROGRAMME