Editorial

Over the past three years, partners in Denmark, Germany, Norway and the UK have been working collaboratively to pave the way for new research and an understanding of how the cost of offshore wind servicing can be driven down through research, innovation and cross-regional cooperation.

Since completing our first task of mapping the supply chains, competencies and challenges across our four regions, we have defined strategies for the offshore wind industry and created a Joint Action Plan. This takes the form of a road map to transform these strategies into action. In intensive consultation with the industry, key challenges were summarised in the ECOWindS Innovation Catalogue defining the priority areas in the short to medium term. Finally, we looked into the challenges of training personnel and creating an innovative learning platform for specific offshore servicing operations.

Throughout the project we have learned from the experience of our industrial stakeholders in frequent and extensive consultation, and at events and workshops. In this newsletter, you will find more detailed information on these processes and the results accomplished.

We hope that this newsletter will illustrate the following three key messages:

• the value of offshore wind servicing (OWS) in the evolving European offshore wind market;
• the importance of European collaboration among industry, research and authorities;
• the ongoing opportunities for innovation to support continued reduction in the levelised cost of offshore wind energy.

Hans A. Pedersen
Project Overview

What is ECOWindS?

ECOWindS (European Clusters for Offshore Wind Servicing) is an EU-funded project that has been jointly initiated by the offshore wind clusters of South Denmark, East of England, North-West Germany, and the offshore cluster Møre in Norway.

Its objective is to increase the innovation capacity of the European offshore wind servicing (OWS) sector by establishing cross-regional cooperation and intensifying the relationship between research and the offshore wind industry.

OWS is defined as a distinct subsector within the value chain of wind energy production and supply and encompasses the processes of assembly, installation, and operation and maintenance of offshore wind turbines.

While the participating European offshore clusters are characterised by complementary strengths, they all face common challenges and bottlenecks that could best be dealt with within a cross-regional collaborative framework. Regional OWS research agendas and smart specialisation strategies have been developed and integrated into a Joint Action Plan, enabling intensified intraregional and interregional cooperation – driven by research and innovation – to ensure more focused and efficient research and development. Measures to strengthen skills competences and capacities have also been taken ensuring a coordinated effort to secure a workforce and researchers that respond to the qualification needs of the OWS sector.

ECOWindS’ Objectives

ECOWindS’ central objective is to pave the way for new research and gain knowledge of how the costs of offshore wind energy can be driven down, resulting in lower and more competitive prices. In achieving this ECOWindS will also contribute to the growth of many small and medium sized companies and strengthen European competitiveness in the market for offshore wind.
Stakeholders from the triple helix (industry, research and government) will be involved in all phases of the project to ensure a broad integration of expertise and the implementation of the resulting ECOWindS action plan.

**Overall Project Goals:**
- Increased competitiveness of the OWS sector in Europe in general and the ECOWindS regions in particular;
- reduction of the OWS sector’s contribution to the cost of offshore wind energy production;
- regional growth and job creation.

**ECOWindS Partners:**
- Offshoreenergy.dk, DK (coordinator)
- DTU Technical University of Denmark, DK
- Aalborg University Denmark, DK
- germanwind GmbH, DE
- WAB e.V., DE
- Nautilus Associates Ltd, UK
- Orbis Energy (Nwes Property Services Ltd), UK
- Ålesund Kunnskapspark AS, NO
- Ålesund University College, NO
- Offshore Renewable Energy CATAPULT, UK (Associated partner)

**Project duration:** November 2012 – October 2015

ECOWindS is funded by the EU in the FP7 Framework Programme.

For more information visit [www.ecowinds.eu](http://www.ecowinds.eu)

The website will be up and running for the next two years.
Regional Mapping

Defining Offshore Wind Servicing

The ECOWindS project focuses on the Offshore Wind Serving Sector (OWS); a sub-sector of the full value chain of Offshore Wind Energy. OWS includes the activities of assembly, installation, operation and maintenance (O&M) of offshore wind farms.

Defining Regional Characteristics

The North Sea currently has the densest collection of offshore wind farms and development sites globally, making this an important geography for offshore wind sector. Industry clusters based on OWS are emerging in regions around the North Sea to benefit from the opportunities in servicing wind farms in the area.

The ECOWindS Project involves partners representing four North Sea regions, each established as ‘Research Driven Clusters’ (RDCs) housing companies and research organisations with expertise in marine engineering disciplines well suited to servicing the OWS market:

- South Denmark
- East of England
- North West Germany
- The Møre region in West Norway

OWS is a key industry that is crucial in the financial and technical sustainability of the rapidly expanding Offshore Wind industry. Earlier studies have indicated that over the life cycle of an offshore farm OWS can be up to 46% of the life cycle cost of the farm including up-front investment and installation, while the O&M cost is estimated to be of the order of 25–28% of the total levelised cost of energy. Hence, reducing the cost of OWS is a major challenge for the wind industry.

To establish the characteristic expertise, industry strengths and capacity for innovation within these regions ECOWindS partners first began the process of ‘regional mapping’. This was conducted on the basis of a comprehensive analytical framework; a self-assessment tool, allowing for comparable information to be gathered in each cluster. The analysis, based on a classical SWOT analysis, mapped characteristics such as technological, economic, political, legal, environmental, and educational aspects, and characteristics indicating the Innovation capacity of the clusters. The following Figure details the comprehensive assessment of the regional mapping.
The regional mapping involved data collection and analysis by review of statistics, literature and expert interviews. Stakeholders representing the triple helix (representatives from administration, industry, science sectors) participated in mapping consultation workshops which were conducted in each of the four clusters.

South Denmark is an offshore wind pioneer and covers the full industrial supply chain; including world leading Original Equipment Manufacturers of offshore wind turbines. The cluster benefits from a strong RTD & innovation environment as well as from relevant infrastructure (Harbour, test sites etc.).
The offshore wind cluster in **East of England** has extensive experience in installation, operation and maintenance of offshore wind parks. It is located in close proximity to the English offshore market as the largest installed offshore wind capacity worldwide is located off its coasts.

**North West Germany** is the centre of offshore wind sector in Germany. Due to environmental conditions, the cluster has established itself as farshore pioneer and covers the full offshore wind value chain. The industry benefits from a strong science sector and cross-sectoral expertise. The German offshore wind market is expected to be the largest in Europe.

Norway does not have a home market for offshore wind; however the **Region Møre in West Norway** is a world class maritime and offshore cluster. It offers excellent expertise in advanced maritime operations and many transferrable competencies and technologies.

The regional mapping allowed a comparison of cluster characteristics at cross-cluster level to be carried out, identifying similarities as well as complementarities between the clusters. The regional mapping also created a sound basis for the development of the Joint Action Plan in later stages of the project, which will bring the European OWS sector forward.

An additional impact of the work done in Regional Mapping is that other research driven clusters can now benefit from the analytical framework, which is a transferable tool suitable for mapping and self-assessment in the context of cluster development and innovation.

The full details, published reports and regional mapping results can be found on the ECOWindS website [www.ecowinds.eu](http://www.ecowinds.eu).

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**Developing a smart specialisation strategy for European Offshore Wind Servicing**

A central objective of the ECOWindS project was to establish regional and cross-regional strategies for Offshore Wind Servicing (OWS). These strategies, developed through a process of smart specialisation, set strategic objectives and research priorities, understood as OWS needs as identified in earlier phases of the work.

The process of smart specialisation involved the following tasks:

1. To formulate strategic objectives that should be aimed at by research priorities
2. To brainstorm on research options
3. To appraise these options against a set of criteria
4. To select a set of research priorities
5. To assess the strategic possibilities for international cooperation

**Formulating Strategic Objectives**

Each partner region or Research Driven Cluster (RDC) held a strategic orientation workshop, the objective of which was to formulate a list of strategic objectives; based on the individual cluster capabilities and intended to meet the needs of the OWS sector in the cluster and nationally.

Over 70 Strategic Objectives identified through the stakeholder consultation which were analyses and compared across the regions.

The result of this analysis was the identification of a number of themes amongst the objectives from the clusters.
The themes covered by the objectives were:

- Knowledge sharing and exchange of best practice
- Business collaboration
- Standardisation and industrialisation
- Political support and Industry regulation
- Qualifications and skilled workforce
- Strengthening the market position
- Innovation and R&D
- Infrastructure
- Funding
- Data management

The below table summarises the themes identified through the strategic objectives in each RDC. By presenting the themes in this way it is easy to see where the focus of each RDC lies and also to perform a cross RDC comparison.

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<thead>
<tr>
<th>Strategic Objective Themes</th>
<th>DE</th>
<th>DK</th>
<th>NO</th>
<th>UK</th>
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<td>Knowledge sharing and exchange of best practice</td>
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<td>Business collaboration</td>
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<td>Innovation and R&amp;D</td>
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Strategic Themes by RDC

It shows that the developed clusters within Germany, Denmark and the UK have identified strategic objects that cover almost all of the themes, and between the three clusters all of the themes are well represented.

The slightly different orientation between Germany, Denmark and the UK might be explained by the fact that the UK has less manufacturing and RDI of wind farm components and larger installed capacity. Thus the UKs focus is extended data management, which represents OWS in a mature, optimizing stage, and is not present in other clusters.

Norway, as the less mature cluster, focused on the themes of Innovation and Business Collaboration. Based on their level of market development these are the two key themes that will best assist the Norwegian market to grow.

Whilst the other themes may be of importance to the Norwegian cluster, they are not the key concern at their current stage of market development, and were not identified by stakeholders during their workshop. If this exercise was carried out again in the future when the Norwegian market is more developed we would expect to see a similar spread across the strategic themes as has been identified by the other RDCs.

Smart Specialisation Strategy and Toolkit

Once the strategy had been set the next stage was the development of a set of delivery measures, these were developed with stakeholder input firstly via a process of brainstorming and then refined and reviewed.

The revised list was then prioritised based on:

- The value of the strategic objective
- The effectiveness of the proposed action in achieving the strategic objective/goal
- The importance of the proposed action for the development of the sector
- The impact of the proposed action on the capacity for innovation
- The feasibility of the proposed action
- And the value of the proposed action from the perspective of all stakeholder groups (industry, research and policy)

The chart on next page shows the top 10 ECOWindS delivery options following their prioritisation by the project partners (with input from regional stakeholders) separated by RDC which gives an interesting comparison of how the different measures were viewed by each cluster.

In addition to the strategy a Smart Specialisation Toolkit was also developed, this acts as guidance document to allow other RDCs who are looking to make more direct comparison with the ECOWindS clusters.
**International Cooperation Strategy**

To build upon the Strategic Objectives and associated delivery measures an International Cooperation Strategy was developed that identifies potential high growth OWS markets to be explored. The strategy includes an overview of each market and an indication as to the current level of development as well as a list of indicative actions that could be used to build relations and collaborative working.

The International Cooperation Strategy, Smart Specialisation Toolkit and Strategy Report along with all published reports can be found on the ECOWindS website [www.ecowinds.eu](http://www.ecowinds.eu)

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**Joint Action Plan**

The Joint Action Plan (JAP) is a roadmap designed to support the development of the Offshore Wind Service (OWS) sector. Its purpose is to present an international, cross-regional, agenda for research, development and innovation specifically for OWS industry in Denmark, Germany, Norway, the UK and elsewhere in Europe.

The recommendations within the JAP provide an agenda for collaboration in the development of new and improved OWS business models, technologies and other OWS business models, technologies and other concepts in support of offshore wind cost reduction targets. The JAP is a complement to other research agendas on wind power presented or under development by other organisations by approaching the challenges of offshore wind from the service perspective (e.g. EERA and TPWind).
Development of the Joint Action Plan

The ECOWindS JAP is built upon the evidence of industry priorities identified in earlier phases of the project; the mapping of regional characteristics and strategy development for the sector.

From this foundation the JAP was established through a consultation workshop with stakeholders from the four research driven clusters (RDC), comprising representatives from R&D, education, policy makers and the offshore wind industry. Based on the results of the workshop the actions were developed and finalised through further consultation with the stakeholders of the OWS industry, with more than 50 stakeholders involved in the process.

Encouraging Sector Development and Cost Reduction

The central storyline of the JAP is that through development of inter-regional partnerships, OWS related businesses gain complementary capabilities and are able to deliver new and improved services for the operators. At the same time the networking that creates closer business relations enables quicker and more candid feedback within the whole offshore wind ecosystem that enables standardisation of components, processes and practices, which lays foundations for the continuous improvement of the OWS service delivery.

The final JAP consists of 8 proposed actions, which can be divided into four parallel work streams which support each other;

1. Collaboration, communication and knowledge exchange
2. Goal-driven RDI and infrastructure development
3. Standardisation and industrialisation
4. Skills and qualifications

The actions themselves can be viewed as projects or programmes that make up a portfolio for OWS development.

The JAP Roadmap illustrates the sequence of the proposed actions and their relations to the goals of the industry. Each work stream contributes to one or more sub goals set for the JAP, which together take OWS and offshore wind closer to the overall target of lowering levelised cost of energy 40 % by 2020. The first work stream (coordination) creates a basis for concerted action and serves to build the collaborative relations and consortia needed for effective goal-driven RDI that in itself contributes to the goal of establishing RDI to develop cost-reducing innovations.
The European Clusters for Offshore Wind Servicing – Newsletter

The third work stream (standardisation) builds on the previous ones and contributes both to technical standardisation and harmonisation of skills and qualifications. Last but not least, the fourth work stream (skills and qualifications) directly contributes to skilled and qualified work force for OWS.

**Implementation of the Joint Action Plan**

A key to successful implementation of the ECOWindS JAP and the actions within it is that they aim to bridge national interests together, to enable cross border collaboration starting particularly around the North Sea and extending overseas as the industry grows. The rationale is to leverage the best capabilities to enable mutual learning across European regions. Further, international scope of the projects enables attracting a wider base of funding, as well as a greater impact.

The eight actions recommended by the ECOWindS JAP are:

- Establish a long lasting joint initiative for knowledge sharing and innovation between regions.
- Develop a value proposition for OWS as an industry in itself.
- Develop an OWS specific mission-orientated research, development and innovation programme.
- Drive for international OWS specific standards.
- Develop OWS specific skills and training programs across regions.
- Develop an OWS industry database.
- Establish OWS specific test sites and research infrastructure.
- Drive regulatory harmonisation on occupational Health & Safety.

To summarise the key messages of the JAP and to pave the way to a successful future of OWS, we round up the discussion by reinforcing some of the key points;

Rally around the vision for stronger offshore wind services – ensuring the sub-sector becomes a recognised industry in itself in which industrialisation and purposeful R&D lead to standardisation, interoperability between components, and efficient installation and O&M services.
Leverage the close ties and proximity of actors around the North Sea for purposeful RDI – ensuring industry and research organisations collaborate to benefit from the sharing of complementary capabilities and expertise, and facilitating more candid feedback within the whole offshore wind ecosystem.

Pay attention to building the actions and follow through to implementation – the ECOWindS consortium and the JAP are laying the foundations of each action and facilitating appropriate consortia for their implementation. Inter-regional partners must be involved to leverage the best capabilities to enable mutual learning across European regions. Further, international scope of the projects enables attracting a wider base of funding, as well as an impact.

The full Joint Action Plan and all other published documents are available on ECOWindS website:

www.ecowinds.eu

Cross-cluster Workforce Competences and Capacities

Offshore wind is still a relatively new technology when compared to more traditional sources of energy generations. Offshore wind was originally based on the same technologies that was used for onshore wind farms but due to the challenges and complexities associated with working offshore the two industries are now substantially different.

Offshore wind has been through and is still undergoing a period of innovation and learning to achieve greater overall effectiveness and allow it to be more cost comparable with other forms of energy generation. It is during this process that offshore wind is looking for innovative solutions from other sectors (i.e. aerospace, maritime, Oil & Gas, etc.) to allow it to meet the challenges it faces.

A key aim of the ECOWindS project is to contribute to improved qualification capacities in the RDCs to secure a capable workforce that meets and responds to the needs of the OWS sector. Achieving this will improve the efficiency and reliability of offshore wind servicing operations, reduce costs, and contribute to increased competitiveness of the industry. In addition there will be an increase in the provision of high quality training schemes and facilities to support the development of the growing workforce that is required by the industry as it develops.

An Overall goal of the ECOWindS project is to increase competitiveness of the Offshore Wind Servicing (OWS) sector, by reducing the OWS contribution to the cost of offshore wind energy production. The projects aim is also to encourage growth of the industry and job creation in the ECOWindS regions and within the industry overall.

Mapping of Training Availability

The competences of each of the participating clusters have been mapped along with the training infrastructure and experience that each cluster has. By undertaking this mapping it is possible to see what areas need to be addressed in each RDC as well as cross cluster. Training across RDCs needs to be standardised, so that personnel can reuse certificates and diplomas when crossing national borders.
Strengthening of the training will secure access of skilled personnel and will be an arena for innovation initiatives in the industry.

ECOWindS sets out to create a training and learning platform that is based on creating a virtual simulation based training tool. This has been achieved by firstly researching the requirement for such a training simulator, and then creating the outline for the simulator for further development and use beyond the end of the ECOWindS project.

**Development of a Simulation Training Tool**

Industry, educators and training providers can harvest experience gained in the offshore Oil & Gas production in the North-sea and transfer elements to the Offshore Wind Industry. The ECOWindS project has created the foundations of a training and learning platform that utilises virtual simulation.

The key benefits of using training by simulation in a virtual environment are:

- Simulator training is flexible and safe
- Simulator training is better structured and more efficient as opposed to learning on the job
- Simulator can be used to try out and study difficult or extraordinary operations, in single mode (single person training on skills) or in team mode.
- Simulation of operations under different weather conditions
- Emergency training, due to malfunction of accidents.
- Try things you never would do in reality
- Preplanning of operation, briefing and debriefing.
- Secure contracts due to customer confidence, risk level and time of operation.
- Well trained crews work more efficient and have fewer accidents.

*Wind simulator substructure mounting*
In order to create a simulation training tool the key operations in Offshore Wind Servicing had to be defined so we could plan what the training simulator would need to cover.

There are a number of key activity areas in OWS, not all can be covered by a simulator, as such the focus was kept to areas that were repeatable and had high occurrences, these were:

- Vessel operations
- Lifting Operations

Once the activity areas had been defined the next stage was to elaborate on and describe the training platform including mapping the core characteristics such as:

- Realistic scenarios
- Realistic look, feel and behaviours
- Presence of other participants and ability to link simulators
- Projection system with wide field of view to create full immersion
- Flexible scenarios tailored to the level of the trainees
- Short familiarisation process
- Full replay functionality for debriefing
- Adjustable for different levels, beginner level, advanced training, emergency level
- Use of high precision mathematical models

In conjunction with the Offshore Simulation Centre in Ålesund we have developed the first stages of the ECOWindS training tool that allows for real-time simulation of marine and OWS operations.

The detailed description of the ECOWindS simulation training tool and all other published documents are available on ECOWindS website: www.ecowinds.eu

Potential future training simulations (Source: OSC)
Developing a Research & Innovation Catalogue for Offshore Wind Servicing

Need for Research and Innovation in Offshore Wind

It is well documented that offshore wind as a technology crucially needs to reduce its costs of energy to compete with other technologies and provide an efficient and sustainable form of energy generation for the future. Research and innovation across the value chain is key to enabling cost reduction in this developing industry. How much and how quickly offshore wind is developed may depend on how good research and innovation activities are at reducing costs in the sector.

Supply and demand research can facilitate the development of new ideas, concepts and designs that can be mapped against functional delivery stakeholders. It supports industry, research communities and policy makers in understanding the innovation and research priorities of a particular industry and in taking the next steps in delivering against these priorities.

Innovation Ideas Generation

An output of the previous ECOWindS work was the creation of Innovation Strategies for each of the participating RDCs consisting of strategic objectives and associated delivery measures, these then fed into the development of an overall ECOWindS strategy.

Based on this the next stage was to develop a list of innovation concepts based on the objectives and the activity areas of the value chain, this was achieved by firstly assessing the technological solutions currently available (supply) in the RDCs and compare with demands across the clusters and outside (in line with the International Cooperation Strategy).

Once this was completed the next phase was to assess the areas where demand for (technological) solutions were not met by supply, delivering a strategic gap analysis and identifying areas of the OWS which could be strengthened by new technologies or systems.

As shown in the chart below innovation is required at a technology and a system level to reduce costs and ensure that offshore wind energy is a viable industry in the future.

![Diagram showing potential impact of innovation on levelised costs of an example offshore wind site](chart)

**Potential impact of innovation on levelised costs of an example offshore wind site**
(Source: TINA Offshore Wind Power Summary Report)

This process was supported by the identification of areas where research and innovation ideas can best be realised through cooperation with partners within and outside Europe and the RDCs in accordance with the internationalisation plan.

The areas identified in the gap analysis and the technology needs assessment were then reviewed and verified by industry, education and administration representatives to form a list of potential innovation ideas.

The draft list was then further refined via a Technological Advisory Group. The Technological Advisory Group consisted of a selection of industry...
experts from each of the RDCs who have an in-depth knowledge of actively working on offshore wind farms. The purpose of this was to assess the viability of the proposed innovation ideas and check they aligned with the needs of industry. It would be this revised list of ideas that were then used to form the ECOWindS Innovation Catalogue.

**ECOWindS Innovation Catalogue**

The final output of the ECOWindS project is an innovation catalogue. The catalogue details a series of innovation concepts that have reviewed and refined by industry stakeholders.

Below is an example of one of the draft innovation ideas linked to onshore and offshore transportation along with comments from stakeholders:

**Development & testing of standardised & improved systems for the transportation of components**

- To reduce costs and improve efficiencies of logistics, both onshore and offshore, this project will develop and test standardised and improved component transportation tools/solution, and bring these to commercial use
- The project will include innovations such as standard lashing systems to fix core structures/components to the vessel deck to substitute welding as a means of securing components during offshore transport

**Stakeholder Comments:** At the moment solutions are pretty bespoke; bespoke lifting plans, specialist equipment for specialist turbines, etc. There is room for standardisation. Transport solutions could be improved to reduce imperfections on components like blades – lashing designs improved to prevent damage to paintwork, and avoiding welding to deck which can be a problem.

At the port there are a lot of requirements to consider; those of the port, the vessel, and the component supplier, getting everyone to follow one method could be challenging. Also getting the commercially sensitive designs and technical details for future components (which are ever changing) to design the transport and lifting solutions too could be difficult. NDAs would be required. You would also have to factor in a lot of different variables – location, set-up, sea conditions, facilities, etc. This could result in cost reduction, particularly for larger farms, if it can reduce jack-up requirements.

If you get buy-in, improvements could be achieved quickly and easily – this is essentially a logistics and modelling issue that could end up with 5 different options, but non-the-less a more standardised efficient approach.

It should be very industry led, but could also involve research bodies particularly accreditation/standardisation bodies or experts in modelling loads, stresses, etc.

In addition to the innovation ideas the catalogue has also mapped the potential funding sources as well as project partners, this is to ensure that the innovation ideas presented in the catalogue are in a position where they provide the outline of new projects and could be taken forward and developed with relative ease.

The full catalogue will be available for public download from June 2016.

**The detailed gap analysis and technology needs assessment and all other published documents are available on ECOWindS website:** [www.ecowinds.eu](http://www.ecowinds.eu)

**The Innovation Catalogue will be available from June 2016**
The ECOWindS Final Conference

More than 100 participants from across Europe gathered to discuss and exchange information on the road map to reduce costs in offshore wind servicing.

The ECOWindS Final Conference took place on 29th September at OrbisEnergy in Lowestoft, UK, the results of three years of work on how to reduce the cost of offshore wind servicing was presented to more than 100 participants. Speakers from ECOWindS as well as leading industry and research organisations presented at the event which focused on the continuing need for innovation within the offshore wind serving industry and how this requirement is supported by the ECOWindS Joint Action Plan.

“Our main goal has been to create a Joint Action Plan that can close the gap between where the industry is today and where it would like to be. We have worked in close cooperation with the industry. During the project, a Technical Advisory Group of industry experts reviewed the more than 150 ideas for cost reduction that we presented to them. These ideas have been narrowed down to 32 detailed concepts”, said Hans A. Pedersen, the Project Manager for ECOWindS.

Cooperation and Action

The ECOWindS Final Conference attracted a wide cross section of key industry and research representatives, among these was Dr Helmut Klug, Business Development Manager at DNV-GL in Germany, who has worked in the energy industry for 25 years and specialised in offshore wind, participated in the panel debate as part of the ECOWindS Final Conference. He stated that his company spends € 26 million a year on innovation. “I just passed the information I got from ECOWindS to our Strategic Projects team leader who takes care of the strategic road check in Germany – he will have a look into the conclusions of the project”, said Helmut Klug, mentioning that he considered maintenance to be the area with the greatest potential for cost reduction. “In DNV-GL we published a cost reduction manifesto last year. Our main conclusions were that in order to reduce costs it is very important to do it right by mitigating risk and increasing certainty and to do it better by improving the efficiency of existing processes. Thirdly it is important to do it differently by innovation in the future”, he added.

“We have supported the ECOWindS project from the start with a letter of intent and have been very focused on the outcome. The Joint Action Plan presented at the final conference pinpoints the major obstacles within offshore wind servicing and defines a number of areas with a big potential for cost reduction. These conclusions are of great value for us in our work to support the offshore industry in the region of Southern Denmark. We will now study the plan thoroughly.”

Anders T. Braestrup, Business Developer, Region of Southern Denmark, Denmark
Also in attendance was John Best, Head of Sustainable Energy at James Fisher and Sons PLC who through his former job as CEO at EEEGR (the East of England Energy Group) helped to promote the need for the project in 2012. “It was really good to see continuity of countries and importantly the people in key organisations from business, academia and local authority, working together to a common goal. Having been involved in the projects POWER and POWER Cluster and now see-

“I have worked as a photographer specialising in offshore photography for 34 years. Before going offshore I explain to my customers that they always have to add on extra time, so if an assignment is supposed to take 10 days ‘on paper’ it is necessary to estimate up to 20 days of work because of waiting time, safety briefings, security checks, etc. It was very useful for me to hear Siemens explain that their offshore crews are capable of actually working only 565 hours out of 1674 working hours. That rectifies my estimate, which is valuable when talking to customers.”

Alan O’Neill, CHPV Offshore Energy Media Services, England

make these cost savings will be strongly influ-
enced through the design and construction phases of developing offshore wind farms in preparation for robust and reliable operation in the future”, he stated.

“I am participating in the ECOWindS final conference because it is important for us as a research institute to see what the wind industry needs to be able to help them get things done. I do not find the conclusions of the ECOWindS very surprising, but it is positive that the project group has worked systematically, structured the information, and now has a Joint Action Plan. Now the challenge is to make companies collaborate even though they have their own business setups with related knowledge and data.”

M.Sc. Sebastian Pfaffel, Fraunhofer IWES, Germany

The Conference facilitated good opportunities for exchange and networking

The ECOWindS project has officially come to an end but the work continues. The final report will be published in November 2015 and the partners involved have agreed to carry on the work by taking the necessary steps to execute the Joint Action Plan, thereby moving the offshore wind industry closer to an overall target of lowering LCoE by 40 percent by 2020.
Project Outlook

Following on from the successful ECOWindS Final Conference and the completion of the project there are several key outcomes resulting from ECOWindS:

- Connections have been built that facilitate future collaboration amongst the partners and stakeholders involved in the project.
- The hypothesis that Offshore Wind Servicing is a viable area for R&I has been validated. It has also been widely agreed that the areas covered by OWS (Installation, Assembly, Operations and Maintenance) is an area with a great potential for cost reduction.
- Specific areas for innovation have been taken on board by key organisations and incorporated into their future strategies, e.g. DNV-GL in Germany and The Crown Estate and the Offshore Renewable Energy Catapult in the UK.
- Strategies developed within the ECOWindS project have been adopted in the partner regions.

With the development of Joint Action Plan and the Catalogue of Innovation Ideas the ECOWindS project has set the foundation for Offshore Wind Servicing to be recognised as an industry in its own right and highlighted how important this industry is to overall cost reduction within offshore wind.

It is now the responsibility of the Offshore Wind Servicing Industry, their research partners and relevant administration to pursue the projects recommendations within the Joint Action Plan, the Innovation Catalogue and other central outputs. The ECOWindS partners and their stakeholders are committed to work to facilitate these actions beyond the end of the project to develop collaborative research and innovation projects and sector development actions. We look forward to continuing to work with our stakeholders throughout the industry to promote cost reduction and create a strong and well connected Offshore Wind Servicing Sector.
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