



## Off-shore Renewable Energy Conversion platforms - Coordination Action

### Project info n. 1

A common approach for the exploitation of wind, wave and other ocean energy resources has the potential to accelerate the offshore market development and to reduce the overall cost for the energetic exploitation of the oceans and seas.

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Co-ordinator:



Funding scheme:



[www.orecca.eu](http://www.orecca.eu)



*Foster the combined use of offshore wind and ocean energy*

# New frontiers in the exploitation of renewable energy

Offshore wind energy and ocean energy together could technically provide all of Europe's future electricity demand. However, more likely the future EU energy systems, aiming at almost 100% from renewable sources in the long term, will consist of a mix from hydropower, on- and offshore wind energy, biomass, solar energy and ocean energy. How this future energy mix will be distributed among these resources will be depending on many factors. Some of the most important ones are the availability of the resource and its distribution across Europe, the cost at which it can be exploited, the environmental and social constraints and finally the pace at which markets can be developed.

Around 2.5 GW of offshore wind turbines are already installed throughout Europe, mainly in a distance less than 20 km from the shore and in water depths of less than 20 m. For the capacity added in 2010 the average offshore wind farms distance and depth rose respectively to 40 km and 40 m. These numbers will increase even further in the coming years.

Moving offshore presents particular challenges to the wind energy industry but also many advantages. The higher wind resources at offshore sites and the greater persistence of winds in power generating classes, coupled with avoidance of many land use conflicts, means that offshore wind is set to develop in a significant way.

Similar benefits apply to the ocean energy sector: deep offshore sites, which require floating or fully submerged structures, offer far better wave energy resources and cause no visual intrusion. However, many first generation technologies have been designed for shoreline or near shore installations, where devices can be installed at significantly lower cost and grid connection and access are easier.



**ORECCA** is a Coordination and Support Activity type project which started in March 2010 funded under the FP7 Energy programme by the EC DG Research.

With a duration of only 18 months it brings together **28 partners from Europe, the US and Canada** with the objective of creating a **framework for knowledge sharing** and of developing a **research and technology roadmap** for activities in the context of offshore renewable energy (RE).

ORECCA aims to **overcome the knowledge fragmentation** existing in Europe and stimulate the key experts to **provide useful inputs to industries, research organizations and policy makers** on the necessary next steps to foster the development of the ocean energy sector in a sustainable and environmentally friendly way.



Photo: © EMEC  
OpenHydro tidal system raised for inspection

ORECCA Project Co-ordination:  
Jochen Bard, Fraunhofer IWES  
jochen.bard@iwes.fraunhofer.de

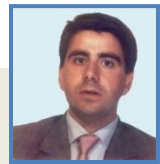
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In contrast to the wind energy sector, present wave energy technology shows a wide variety of systems, at different stages of development, competing against each other, and the development from the concept to the commercial stage is a difficult, time consuming and expensive process. The high costs of constructing, deploying, maintaining and testing large prototypes, under sometimes very harsh environmental conditions, has hindered the development of wave energy systems, in most cases possible only with substantial public support.

It is the concept of the ORECCA project to combine resource information from wind and other ocean energy sectors – in particular wave energy – and to review and benchmark existing technologies in the oil and gas sector, the offshore wind sector and the wave and tidal energy sector. The main objective of the project is therefore the identification of siting synergies, with respect to shared areas and grid connection etc., and technological synergies, with respect to structural integration. A **common approach for the exploitation of wind, wave and other ocean energy resources has the potential to accelerate the offshore market development** and to reduce the overall cost for the energetic exploitation of the oceans and seas.

In order to involve the wider marine renewables community, ORECCA offers a number of options. **Two experts' workshops** are being organised throughout the project: the objectives of both workshops are to **share the project results** and to **receive feedback, identify interests, concerns and proposed priorities** by the participants involved in developing the offshore RE sector in Europe. These will feed into the ORECCA roadmap. The ORECCA website hosts two forums, which allow registered users to discuss news as well as the topics of the project. The **Technical Forum** will be the virtual place for discussing the state of the art and the main technical challenges in offshore renewable energy conversion platforms and technologies. The **Environmental and Regulatory Forum** will be the virtual space for discussing the main environmental and regulatory issues related to the testing and deployment of offshore technologies. In addition, a **discussion group** has been established in Linked-in, where registered users can discuss all kinds of related topics and news. The details for the registration can be found on the ORECCA website.

*Statement by Raul Manzanar, Acciona,  
coordinator of the Marina Platform project*



The approach and objectives of ORECCA are complemented by the Marina Platform research project. Whereas ORECCA looks into a technology and market perspective based on the resources, MARINA Platform goes further into the technology development, methodology assessment and guidelines, looking towards possible combined solutions.

In European waters, there is a huge combined offshore wind, wave and tidal resource - enough to satisfy the electricity demand in the whole of Europe. It is however largely untapped and deserves to be utilized. Furthermore, there's still a lack of understanding of the combined resource opportunities of e.g. wind and waves, especially in deep water. Today's commercially available technology therefore can only use one of these resources at a time. Potential technical synergies and cost reduction opportunities have not yet been realized.

In order to develop this market **we need fresh thinking and new ideas** in particular for combined technologies that could make concepts move from the drawing desk to real applications.

[www.marina-platform.info](http://www.marina-platform.info)