

NEWSLETTER NR. 0

NEWSLETTER WavEC – edition JULY/AUGUST 2009

EDITORIAL

The Wave Energy Centre (WavEC) presents this first experimental edition, which is to become a bi-mensual newsletter focused on ocean energy developments worldwide. Aiming to strengthen Portugal's role in this sector, we believe this newsletter will be an excellent source aiming to deliver information on a global scale, as well as disseminating the activities and projects ongoing at WavEC.

From the published articles we would like to highlight:

- The overwhelming number of news articles from UK sources, which reflects the scale of the ongoing activity there as well as the effort to promote these activities and technologies;
- The large amount of public funding being aimed at developing this industry all over the world, particularly in the UK but with strong examples in the USA [36] and New Zealand [41]. The UK will place 22 million pounds of public funding to promote renewable ocean energy, particularly towards the development and testing of UK pre-commercial devices [11]. Further, the Southwest Regional Development Agency established a partnership with the universities of Plymouth and Exeter which will involve attributing 10,3 million pounds, from European sources (ERDF) to recruit a staff of 15 academics and 60 researchers. Part of the funding will also be allocated to purchase equipment for the Peninsula Research Institute for Marine Renewable Energy (PRIMaRE) [11]. The creation of the Portuguese Offshore Energy Institute (OEI) is a similar initiative;
- The intention of the British government to change the existing tariff system by introducing feed-in tariffs to incentivize energy production from renewable sources [8]. This is a significant shift in British policy, applying a more direct, hand-on approach to stimulate renewable energy growth, which has been the policy outlined for Portugal over the past few years. Furthermore, the concession of offshore wind parks will be extended from the established 22 years to 50 years [31];
- In Portugal, as we await the signing of the concession contract for the Pilot Zone by National Grid Entity (REN) and the resulting access regulations and creation of infrastructure, the UK companies in the sector continue to praise the Portuguese market, considering it “by far the best in Europe” [1]. We hope not to loose this image. However it does seem clear that it is in the UK, and other countries which are quite new to this sector, that the fastest progress is being made;
- The continued progress of technology, namely in the UK: see article on the Oyster device [16], [23]; Anaconda [20]; Wave Treader [19] and news on the creation of infrastructure for the first offshore energy parks in the English South West, WaveHub [10], namely the consent of the grid connection to a point at 50m depth and 16km offshore. We would also like to highlight the recent data acquisition module, built to support the development of new

wind offshore parks [27], as well as the installation of the first wind turbines in the Alpha Ventus park [29]. Offshore wind parks are being commissioned at a growing rate all over the globe particularly in Europe [22], [25], the USA [39] and China [42];

- The overhaul of old industries across Europe, particularly shipyards, as they prepare to accommodate ocean energy devices [24]. In Portugal this change has begun with the Mondego Naval shipyard [1] and with the Martifer led Navalria shipyard;

- The legislative process in the USA should be closely observed. Following the incentives by the Obama administration for the development of offshore wind (including the successive permits for 5 offshore wind parks in New Jersey and Delaware), the state of Massachusetts may obstruct some projects due to the launch of a new plan (“Massachusetts Ocean Plan”), where some environmental constraints are present [39]. In Portugal, to avoid a similar pattern, particular attention should be paid to the implementation of the Maritime Spatial Planning;

- In the USA (Oregon) an evaluation is under-way to determine the infrastructure required for the development of offshore wave energy – an important procedure to inform developers and the ocean energy industry in general [37].

- The “Renewable Energy Grid Initiative” is under way in the North and Baltic seas [14] to ensure new strategic connection points required to transport renewable energy from its point of generation to the large consumption areas. Proposals have been submitted to extend the grid to the South East UK and Ireland, and the North of Spain and Southern France. Portugal is absent from these negotiations and not being anticipated for grid coverage. This could be an opportunity to consider proposing an extension to cover Galiza and the Portuguese West coast.

From the activities being carried out by WavEC we highlight the Pico project [69] both due to the financial effort undertaken by WavEC (due to the lack of external funding to support the ongoing work) and also the importance it has had, contributing to the overall understanding of the OWC technology and placing WavEC in a distinctive position through the experience of directly monitoring a wave energy device. We would also like to underline the Aqua-RET project [75], which resulted in the creation of content to disseminate renewable ocean energy and hydropower to the general public. Another dissemination project which we believe is crucial for the development of the sector in Portugal, is the former “New Activities at WavEC” [73], which will promote an integrated strategy of dissemination aimed at following up on incoming national legislation. However, it should be noted that this project is pending financial approval by our associates.

We would also like to stress the dynamic nature that this sector has had in Portugal, although this newsletter cannot encompass all that is happening. Besides Pelamis, which is on stand-by, the meetings carried out with our associates [74] allowed us to conclude that five of them intend to launch their projects in 2011. Furthermore, we took note of the plans of Eneólica and FDO, who are not yet WavEC associated, as well as those of Peniche City Hall [3], [71].

We hope that this 0 edition is both to your liking and also very useful.

António Sarmiento
Director of the Wave Energy Centre

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1. NEWS

Portugal

Relevant News

- [1] [Orecon signs deal with Mondego Shipyard](#) (Jornal de Negócios, 05/08/09)
- [2] [Renewable receives €300 million in funding from the USA](#) (Expresso, 29/07/09)
EDP
- [3] [Peniche: 3 M € approved to study wave energy](#) (Diário Digital, 14/07/09; Diário de Notícias, 14/07/09; Expresso, 14/07/09)

Other News

- [4] [EDP joins Sonangol](#) (Diário Económico, 30/07/2009; Oje, 31/07/2009)
- [5] [Co-operation: South Africa and Botswana interested in Portuguese renewable energies](#) (Expresso, 27/07/09)
- [6] [“Emove corporation” Project wins EDP Richard Branson Prize](#) (Expresso, 22/07/09)
- [7] [International Energy Agency considers that the world is heading towards an energetic catastrophe](#) (TSF, 03/07/2009)

Europe

High priority News

- [8] [UK: Britain to Launch Innovative Feed-in Tariff Program in 2010](#) (RenewableEnergyWorld, 30/07/2009)
- [9] [UK: Funding for Marine Energy](#) (Hydro International, 20/07/2009)
- [10] [UK: Wave Hub Gets Go-ahead](#) (RenewableEnergyWorld, 17/07/2009)
- [11] [UK: South West announces £10m boost for regional wave hub](#) (BusinessGreen, 03/07/2009)
- [12] [UK: Low carbon strategy pumps cash into offshore wind and marine power](#) (BusinessGreen, 15/07/2009)
- [13] [Ireland: Offshore energy needs](#) (WAVEPLAM, ed. 07/2009)
- [14] [UK: European Renewable Grid Initiative Launched](#) (RenewableEnergyWorld, 07/07/2009)
- [15] [UK: CleanTech Revolution: The £70 billion race is on](#) (The Carbon Trust, 02/07/2009)

Relevant News

- [16] [UK: Crucial phase of Oyster installation completed at EMEC](#) (12/08/2009)
- [17] [UK: UK Announces Long-term Carbon Reduction and Renewables Strategies](#) (RenewableEnergyWorld, 16/07/2009)
- [18] [France: Les océans revisités par le Grenelle de la mer](#) (Le Figaro, 11/07/2009)
- [19] [UK: Mather hails wind and wave power device](#) (News Scotsman, 15/08/2009)
- [20] [UK: Wave energy converter tested](#) (Hydro International, ed. 07/2009)
- [21] [France: Hélène Pelosse: une Française pour L´agence des énergies renouvelables](#) (Le Figaro, 01/07/2009)

Other News

- [22] [Germany: Offshore Wind Farm project sets sail](#) (National Post, 01/08/2009)

- [23] [UK: Harnessing wave power with new “Oyster” machine](#) (Science Daily, 30/07/2009)
- [24] [UK: Britain’s Old Industries See Renewable Boost](#) (RenewableEnergyWorld, 28/07/2009)
- [25] [Belgian: Global offshore wind industry in full sail](#) (BusinessGreen, 28/07/2009)
- [26] [UK: We can only do so much to Go Green – we need decision-makers to set the targets and apply the pressure](#) (Evening Chronicle, 28/07/2009)
- [27] [UK: Natural Power Launch OceanPod Data Collector](#) (RenewableEnergyWorld, 20/07/2009)
- [28] [UK: Wind farm consortium applies for £1bn London Array loan](#) (BusinessGreen, 17/07/2009)
- [29] [Germany: EWE, E.ON and Vattenfall have constructed the first wind turbine for alpha ventus](#) (E.ON AG, 15/07/2009)
- [30] [UK: Tidal generator becomes the UK’s first marine energy project to qualify for subsidy mechanism](#) (BusinessGreen, 08/07/2009)
- [31] [UK: Crown Estate to extend existing offshore wind leases to 50 years](#) (BusinessGreen, 07/07/2009)
- [32] [UK: Collaboration to Assist Ocean Energy Developers](#) (Hydro International, ed. 07/2009)
- [33] [EC: Climate Change and Ocean Energy](#) (WAVEPLAM, ed. 07/2009)
- [34] [EC: Methodology for site selection](#) (WAVEPLAM, ed. 07/2009)
- [35] [Ireland: Ireland launches new submersible and subsea technologies](#) (Hydro International, 02/07/2009)

USA and Canada

Relevant News

- [36] [USA: US Government Continues To Fund Renewable Energy R&D](#) (RenewableEnergyWorld, 15/08/2009)
- [37] [USA: Oregon Wave Energy Trusts Awards Contract](#) (RenewableEnergyWorld, 27/07/2009)
- [38] [USA: United States joins the International Renewable Energy Agency \(IRENA\)](#) (US Department of Energy, 08/07/2009)
- [39] [USA: Massachusetts could block offshore wind farm](#) (Business Green, 06/07/2009)

Other News

- [40] [USA: US east coast considered for wind farm](#) (National Post, 30/07/2009)

Rest of the world

High priority News

- [41] [New Zealand: Marine Energy Funds open](#) (NZ’s Government, 31/07/2009)

Relevant News

- [42] [China: CLP’s Sai Kung wind farm gains approval](#) (South China Morning Post, 04/08/2009)

Other News

- [43] [New Zealand: Southland energy sources](#) (The Southland Times, 03/08/2009)
- [44] [Australia: Power surge](#) (Australian Business, 01/08/2009)
- [45] [Australia: Pioneer ventures to tap ocean power](#) (Australian Business, 01/08/2009)
- [46] [Australia: Wave energy developer Carnegie Corporation](#) (Herald Sun, 31/07/2009)
- [47] [USA: Researchers begin mapping Oregon coast floor](#) (The Seattle Times, 18/08/2009)

2. DOCUMENTATION

Relevant Documentation

- [48] [Marine Spatial Planning: Guide “Marine spatial planning: A step-by-step approach towards ecosystem-based management”](#) (ed. 07/2009)
- [49] [World Offshore Wind Market 2009-2013](#) (DWL, 05/08/2009)
- [50] [Power to Change: Australia’s wave energy future](#) (Carnegie Corporation, 06/2009)
- [51] [The UK Renewable Energy Strategy](#) (UK’s Government, 07/2009)
- [52] [The UK Low Carbon Transition Plan](#) (UK’s Government, 07/2009)
- [53] [The Sea Economy Hypercluster – one domain of strategic potential for the development of the Portuguese economy](#) (SaeR/ ACL, 02/2009)
- [54] [Ocean Energy in Ireland](#) (DCMNR, 08/2005)

Other Documentation

- [55] [The State of Renewable Energies in Europe](#) (8th Report - EurObserv’ER)
- [56] [Health and Safety Executive outlines solar and marine energy risks](#) (BusinessGreen, 27/07/2009)
- [57] [Portugal Energy Report](#) (Enerdata, ed. 06/2009)
- [58] [Marine Energy Road Map](#) (The Scottish Government, 26/08/2009)

3. EU ACTIVITIES (Commission, Council and Parliament)

High priority News

- [59] [FP7-OCEAN-2010 “The Ocean of Tomorrow” with €34 million available](#) (EC, 30/07/2009)
- [60] [FP7-ENERGY-2010-1: a general call with €54 million available](#) (EC, 30/07/2009)
- [61] [FP7-ENERGY-2010-2: a general call with €126,4 million available](#) (EC, 30/07/2009)
- [62] [Call FP7-INFRASTRUCTURES-2010-1 \(will be launched soon\)](#) (EC)
- [63] [New ETS funding source for demonstration projects](#) (EC)
- [64] [Guide for the elaboration of National Renewable Energy Action Plans](#) (EC, 30/06/2009)

Relevant News

- [65] [Council approves recovery plan projects in the field of energy](#) (EC, 07/07/2009)

Other News

[66] [Comissioner Joe Borg in Conference of Peripheral Maritime Regions, Faial, Azores](#) (EC, 06/07/2009)

[67] [SPEECH Maritime spatial planning: building on our commitment](#) (EC, 03/07/2009)

4. NATIONAL LEGISLATION

[68] [Resolution of the Assembly of the Republic nr. 60/2009. D.R. nr. 148, Serie I of 2009-08-03](#)

Assembly of the Republic

Examine thoroughly the activities of Assembly of the Republic in the areas of science and technology.

5. EVENTS

Organised by WAVEC

Seminar and B2B meetings “Powering the future – Marine energy opportunities”

5 November 2009, Centro Cultural de Belém (CCB), Lisbon, Portugal.

Other

Portugal

Seminar “Hypercluster of the Sea – What for future”

24 September 2009, Estoril.

Comemorative session of the World Maritime Day

24 September 2009, Lisbon.

Green Power Conferences

Ocean Power - Accelerating innovation in Ocean Energy technologies

02-03 November 2009, Lisbon.

4th Water Expo 2009 – Water management towards sustainability

03-05 November 2009, Oeiras.

IECON 2009 – The 35th Annual Conference of the IEEE Industrial Electronics Society

Session SS32: Electronics and Control Systems for Ocean Energy Converters

03-05 November 2009, Porto.

Europe

EWTEC 2009 - 8th European Wave and Tidal Energy

7-10 September 2009, Uppsala, Sweden.

Offshore Europe 2009

08-11 September 2009, Aberdeen, UK.

European Offshore Wind 2009

14-16 September 2009, Stockholm, Sweden.

Piracy and Offshore Security

15-16 September 2009, Portsmouth, UK.

Metocean Awareness Course

15-17 September 2009, London, UK.

Coasts, Marine Structures and Breakwaters

16-18 September 2009, Edinburgh, UK.

Coastal Altimetry Workshop

17-18 September 2009, Venice, Italy.

OceanObs 2009

21-25 September 2009, Venice, Italy.

Wave and Tidal Technology Symposium

22 September 2009, Liverpool, UK.

UUVS 2009

22-23 September 2009, Southampton, UK.

NEVA 2009

22-25 September 2009, St. Petersburg, Russia.

Energy Fresh Forum

23-24 September 2009, Moscow, Russia.

Workshop and concluding conference on key principles for maritime spatial planning

02 October 2009, Stockholm, Sweden.

Hydrography and Marine SDI Symposium

27 October 2009, Berkshire, UK.

Rest of the World

International Conference on Coastal Dynamics

07 - 11 September 2009, Tokyo, Japan.

SEAAOC

09-11 September 2009, Darwin, Australia.

GITA 2009

13-17 September 2009, Houston, USA.

2009 IV Ocean Renewable Energy Conference

15-16 September 2009, Oregon, USA.

Subsea Rio

15-07 September 2009, Rio de Janeiro, Brazil.

Ocean Energy for New England Conference

17 September 2009, Hyannis, USA.

Deepwater Asia-Pacific 2009

17-18 September 2009, Beijing, China.

New England Marine Renewable Energy Consortium (MREC)

15 October 2009, Fall River, USA.

Offshore Middle East

27-29 October 2009, Manama, Bahrain.

OREG 2009 Fall Symposium

28-29 October 2009, Ontario, Canada.

Hydro 09

10-12 November 2009, Cape Town, South Africa.

6. WAVEC'S ACTIVITIES

[69] The Pico OWC – a status outline

The wave energy pilot plant on the Island of Pico/Azores, based on the Oscillating Water Column Technology (OWC), was conceived in the nineties by researchers at IST (Instituto Superior Técnico, Lisbon), and built with the collaboration of the companies Profabril, PROET (EDP group), A.R.T. and Efacec by 1998. The total cost of the plant design and construction (including R&D) was approximately 4 M€, being equally shared by European Commission, the Portuguese state, EDP and EDA (Azores utility). After the initial commissioning of trials in 1999, accidents and lack of resources led to destruction, re-installation and ultimately degradation of the first grid-connected European wave energy pilot plant, without having operated over significant periods.

The 400kW plant was owned until 2003/04 by EDA, who transferred the responsibility to the newly created Wave Energy Centre (WavEC). Almost simultaneously, a recovery project involving Portuguese public funds (600k€) and private investment from WavEC associates in the same order of magnitude was initiated.

The plant was successfully refurbished and has operated on a regular basis since late 2006, however with strong limitations due to original design and installation errors. Nevertheless the conditions have consistently been improved, albeit the minimalist resources of WavEC, and with the technical collaboration of Kymaner it is now possible to run the OWC at its rated speed.

Ten years after conclusion of the original project, and after finally yielding a reasonably working wave power plant, it suits to make an appraisal of the experience gained. It can be taken as certain that the project suffered substantially from the lack of experience of the responsible entities (IST, EDP, EDA) and with the demanding maritime environment. Mainly the lack of contingency funds and budgeting plant maintenance after the public funded project led to irreversible difficulties. For a pilot plant of a new technology, in a demanding and not well-known environment, technical difficulties and unexpected challenges are normal and defensible, but they have to be considered in an early phase of planning.

Further, there was no sufficient understanding to which extent the choice and commitment of the suppliers for such a project are crucial in its success. In the case of Pico OWC, both the insufficient quality of some supplied services and components, as well as the non-existent identification of suppliers of key components with the project, as a show case for their own capacities, were chief factors in the difficulties that the project has encountered until today.

Nevertheless, the most noteworthy conclusion is that despite some still visible vulnerabilities of the plant, it has been possible to correct most of the technical problems and improve the equipments' function substantially over recent years, since some basic and regular maintenance has been implemented. In the meantime, the measured results indicate that the original (hydrodynamic and aerodynamic) design of the plant has been well succeeded.

The operational experience acquired by WavEC and Kymaner contributed to accumulating the essential know-how for the creation of a national competence centre for OWC technology, which is why WavEC continues to insist in maintaining and improving the conditions of Pico OWC. Consuming large parts of its own financial means, WavEC invested approximately 150k€ into the project, and yielded several noteworthy milestones, in particular its continuous operation longer than 24h (48h in spring), operation at full rated speed (up to 1500rpm) in September, and 100h continuous operation in early October.

Meanwhile, what are the future perspectives of the Pico OWC?

On the one hand, the further exploration of the existing equipment represents a unique case for wave energy, offering lessons to be learnt with equipment parts which have resisted the marine environment for over 10 years. Aside from being an important proof for OWC technology itself, these learning steps are fundamental for feeding into future design processes, including floating systems.

On the other hand, now that the owners have a reasonable command of this infrastructure, and at the same time several industrial players see OWC technology as one of the potential future players on the wave energy market, the time has come for utilizing the full potential of the Pico OWC: the building, was prepared from the beginning for a second full-sized turbo-generation set alongside the existing one. Due to the technical difficulties and the lack of funding, this space was left unused to date. Plans are under way to prepare a proposal for equipping the building a second air duct hosting a flexible turbine test bed, in order to enable variable air turbine testing at industrially relevant sizes (100-700kW). This undertaking would offer world-wide unique conditions for testing OWC turbo-generation groups, as it combines real-sea environment with a semi-controlled testing environment. The main obstacle for the near-future plans with the Pico OWC is the existence of physical damage (holes in uncritical parts of the structure and erosion of the foundation), which needs to be repaired in the short term, without which the structural integrity of the building cannot be guaranteed another few years. A total investment of approximately 1M€ is estimated, in order to create conditions for the envisaged test infrastructure, including improvements of the exterior (in particular control and transformer station). WavEC is presently scoping potential ways of financing this undertaking, including foreign private investment.

Whatever the outcome of the present orientation phase for the future use of the Pico OWC, the potential partners have the opportunity to associate themselves to the only wave power plant in Europe (or world-wide?) with industrially relevant rated power that has been operating for several years (even though not continuous), and has its best chapter still to come.

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[70] Co-operation between WavEC and MOERI

WavEC was invited by the Maritime & Ocean Engineering Research Institute (MOERI), a research institute affiliated to KORDI - Korea Ocean Research and Development Institute. This is a state institute set up to support South Korea's governmental policy to develop and preserve the oceans and maritime security. Research is carried out in naval and offshore technologies, and has a recognised tradition on research on wave energy. This institute has recently received financial support from the Korean government to project and build a wave energy plant in Jeju Island, similar to the Pico plant in the Azores, based on OWC (oscillate wave column) technology. The plant is scheduled to be installed in late 2011, and the hydrodynamic tank tests have already been completed using a scaled model. The plant will be installed offshore at 15 meters depth and will use two turbines with a global capacity of 500 kW.

In 2007, MOERI contacted WavEC in order to visit Pico, which eventually occurred, in the Summer of that year, by a team of three researchers. In December 2008, Frank Newman, at that time responsible for the Pico plant, visited MOERI to expose the practical know-how acquired with the plants operation. After the visit, WavEC was contracted to co-operate in the Jeju project, namely on technical advice based on the four years of operational experience with a real plant. This collaboration which proved be very fruitful for both organizations, was developed throughout 2009 and involved a broad exchange of information a discussion of the results achieved at the Pico plant and related conclusions. There was also support to the development of a numerical model to analyse the behaviour of this type of technology and a debate on future similar projects and their economic viability.

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[71] WavEC signs protocol with Peniche City Hall

WavEC and Peniche City Hall have signed a protocol, taking advantage of the "Project ECOS Network" and the "Cluster of the Knowledge and Economics of the Sea" that aims to explore opportunities to set up joint activities in these two areas.

Peniche City Hall is part of the ECOS Project: Energy and Sustainable Construction set up with 6 other Portuguese City Halls on the Westcoast, Alentejo and the Algarve, that will hopefully be monetarily supported by Polis XXI, a Policy for Cities.

Supported by ECOS, this application, strongly supported on environmental preservation and sustainability, is centred on a 4 year project with independent and common activities developed by the participants. Peniche City Hall presented four different projects – research; testing and energy production from renewable sources (namely wave energy); practical implementation of energy microgeneration solutions; and sustainable construction.

The Cluster for the Knowledge and Economics of the Sea aims to encourage the development of scientific and entrepreneurial activities related to the sea, in line with the orientations of the European Maritime Policy, the National Strategy for the Sea, and with the potential resources in the maritime domain.

One of the Peniche City Hall projects in ECOS is a Research and Production Centre for Wave Energy; the City Hall expressed its interest in WavEC participation.

The protocol was signed on August 3rd by one of WavEC's Directors, Luís Carrilho.

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[72] WaveRoller

The project to install and test a prototype of WaveRoller technology, from the Finnish company AW Energy (www.aw-energy.com/), is about to begin in Peniche. This project involves Portuguese partners WavEC, Eneólica (Lena Group), ENP (Peniche Shipyards) and Peniche City Hall, and is supported by EC funds. AW Energy, owner of WaveRoller technology, has already tested a small prototype in shallow waters, near Almagreira Beach, where it is foreseen the full scale, entirely submerged plant will be installed.

The Build up to the project has strengthened the relationship between WavEC and Peniche City Hall that led to the signature of the protocol mentioned above.

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[73] New activities at WavEC

Despite the existence of very positive aspects that enable Portugal to create a world-class wave energy cluster, there are still some factors that prevent the guarantee for success.

How can we make sure that all the current technological developments and that the regulatory advances are not limited by these constraints? Through the continuous lobbying over all stakeholders that are involved in wave energy, aiming to avoid the loss of another project that can be structural for our country.

With this in mind, we have outlined the following action steps: first, to pay close attention to everything regarding this sector that is happening in Portugal, in the EU and worldwide, in order to have the ability to intervene. Second, to create a network of permanent contacts with key-actors in this area. Last, to strengthen the promotion actions in the sector and, simultaneously, giving WavEC more public visibility.

Having achieved these conditions, WavEC will be ready for a systematic intervention in all the decision-making in Portugal and, eventually, at EU level. Particular attention will be placed on the actions with regulatory or economic impacts that will be launched in the Portugal or in the EU. Consequently, five main goals have been set: monitoring Public Policies in Portugal (A) and in the EU (B), the implementation of Communication Networks (C) for the Dissemination, Awareness and Debate (D) and the acquirement of National and Community Funds (E).

The Wave Energy Centre has therefore reinforced its intervention within policy & lobbying activities relevant to offshore energy. The structure of these activities is also shaped by the knowledge of the decision-making mechanisms, thus allowing the suggestion of strategic orientation and the promotion of specific interests in the offshore energy sector.

The ability to intervene is intrinsically dependant on a need to constantly update and improve the sources of information. The present newsletter is already a result of the

continuous monitoring of the information and the media (which meets the goals of the project).

Merely as a reference, over the past two months, WavEC has participated in the Seminar “Economic Activities in Maritime Space”; in the public discussion on the National Strategy for the Integrated Coastal Zone Management, having taken a position; in the celebration session of the European day of the Sea under the theme Marine Strategy Framework Directive; and in the presentation of the funding programs of the 7th Framework Program. Under the umbrella of public policies we must also mention the Maritime Spatial Management Plan and the National Plan for Renewable Energies (to track until 2010). Being a structural project for the offshore energy sector, the Wave Energy Centre has obtained the support of its associates as well as other companies interested in co-funding these activities.

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[74] Analysis of the questionnaire outcomes of WavEC’s associates

The WavEC elaborated a questionnaire for its associates in order to develop a more rigorous evaluation of their intentions as active players of the wave energy sector in Portugal and to understand the role of WavEC in the future.

The following eight sections were covered:

First section - [Technology](#)

Second section – [Pilot Zone](#)

Third section - [WavEC’s Role](#)

Forth section – [Studies and activities to be develop or promoted by WavEC](#)

Fifth section – [Contract-Programme and Fees](#)

Sixth section – [Human Resources to hire](#)

Seventh section – [Creation of a R&D network](#)

Eighth section – [Role of the associates in the creation of a cluster](#)

[Read more \(Portuguese\)](#)

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[75] Aqua-RET: Marine Renewable Energy e-learning tool

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[76] Bi-Annual Meeting of the Executive Comitee of the Implementing Agreement on Ocean Energy

[Read more \(Portuguese\)](#)

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[77] Workshop: Collaboration with FURG in Wave Energy

On the 17th of July 2009, the Wave Energy Centre organised a workshop at the Instituto Superior Técnico Congress Centre to mark the visit to Portugal of the Brazilian delegation

of FURG - Fundação Universidade Federal do Rio Grande (Federal University of Rio Grande Foundation).

The workshop aimed to present the wave energy activities that have been developed by Instituto Superior Técnico, LNEG and the Wave Energy Centre and discuss a possible collaboration between FURG and these three Portuguese institutions. One year ago FURG started a project with Petrobras called *E Ondas-Estudo de Tecnologias para a Conversão de Energia das Ondas do Mar em Energia Elétrica na Costa do Rio Grande do Sul* (Ewaves-Study of Technologies for the Conversion of Wave Energy into Electrical Energy at the Rio Grande do Sul Coast) for the evaluation of the technical, economic and environmental viability of the installation of a wave energy scheme at the coast of Rio Grande do Sul. In the scope of this project there has been some exchange of information.

The workshop started with a presentation of the FURG project by members of this institution. Professor António Sarmento gave a general perspective of the Wave Energy Centre and was followed by presentations of the WavEC team regarding the activities at the Pico Plant, WavEC's rendering of services, hydro-dynamic modeling and environmental research activities. The Instituto Superior Técnico wave energy research group presented diverse aspects regarding hydrodynamic modeling, energy extracting equipment, experimental tests and moorings. LNEG revealed its experience in the field of energy resource, modeling and control. The workshop concluded with a debate that will open several possibilities for a joint collaboration between these institutes in the future.

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Training

[78] Training of young researchers

On the last week of September the Wave Energy Centre organised a short course - "Wave Energy Realities" - on monitoring and data analysis of water oscillating column (OWC) plant types, at the Pico Plant in the Azores, for young researchers that take part in the European [wavetrain2](#) - Initial Training Network for Wave Energy Research Professionals project. This project, coordinated by the Wave Energy Centre, consists of a network of researchers involving 13 European institutes with experience in Research and Development of wave energy.

Around 20 researchers learnt to monitor the Pico Plant, collect data that is registered during its operation and process this information with the final purpose to evaluate the plants performance. The organization of these short courses is part of the work programme of the wavetrain2 project and is a task for several institutions participating in the project. The short courses that have taken place since the beginning of the project or that will take place are the following: 1) Introduction to wave energy theory, 2) Numerical Modelling course, 3) Experimental Tests and instrumentation, 4) Survival Course, 5) Energy Extraction equipment, 6) Grid Connection, 7) Offshore Operations and mooring aspects, 8) Project Management, 9) Socio-economic issues, 10) environmental impact and monitoring and 11) Entrepreneurship and internationalization.

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[79] One Wave Energy Adventure

"WavEC gives me the opportunity to increase my knowledge concerning hydrodynamics and to begin my Wave Energy Adventure" (Aurélien Sabatier, Aug. 2009)

Aurélien Sabatier is a student from École Centrale de Nantes (France). He stayed with us during 4 month in summer 2009. As a beginner in hydrodynamics, he has done an analysis of a deformable elastic device: the Anaconda. Now he is continuing his studies in École Centrale de Nantes, but he hopes he will be part of the Wave Energy adventure soon.

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Strategic orientations

[80] Offshore Energy Institute

Following the MoU signed between EDP, GALP, MARTIFER, EFACEC, University of Aveiro and Wave Energy Centre for the creation of the Offshore Energy Institute, an Installation Commission was created. It presented a preliminary report, to the entities mentioned above, by the end of July.

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1. NEWS

Portugal

[1] Orecon signs deal with Mondego Shipyard

Orecon assina acordo com Estaleiros Navais do Mondego (Jornal de Negócios, 05/08/09)

The British company Orecon signed a deal with Mondego Shipyard to build its first three wave energy devices. In this contract the Mondego Shipyard and Orecon will implement wave energy conversion technology with the installation of a wave energy converter (MRC system) with installed capacity of 1,5 MW for the Portuguese market. The construction of this first unit is expected to start at the beginning of February of 2010 and to be ready for installation in Spring 2011.

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[2] Renewable receives €300 million in funding from the USA

EDP Renováveis recebe € 300 milhões em ajudas dos EUA (Expresso, 29/07/09) EDP

EDP Renewables expects to receive between 375 (265,3 million euros) and 425 million dollars (300,7 million euros) of north America governmental support, under the promotion of renewable energy programme, approved this year by Barack Obama's Administration.

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[3] Peniche: €3M approved to study wave energy

Peniche: Aprovados 3M € para estudar energia das ondas (Diário Digital, 14/07/09; Diário de Notícias, 14/07/09; Expresso, 14/07/09)

The Peniche City Hall and several developer partners obtained funding of three millions euros to research the technology used in the pioneer wave energy production project at the coast of Almagreira beach. The objective of the promoters is to create at the Almagreira beach a big wave energy farm and enter into the commercial stage of the project with an installed power between 50 to 100 megawatts (MW).

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[4] EDP joins Sonangol

EDP liga-se à Sonangol (Diário Económico, 30/07/2009; Oje, 31/07/2009)

EDP and Sonangol signed yesterday the beginning of a joint venture that foresees the production of energy – conventional and renewable – in Angola. EDP – Energias de Portugal will analyse the market in Angola for the production of conventional electricity including natural gas and renewable as well. Partners of this project will be Sonangol Holdings, Banco Privado Atlântico and Finicapital.

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[5] Co-operation: South Africa and Botswana interested in Portuguese renewable energies

Cooperação: África do Sul e Botsuana interessados em energias renováveis portuguesas (Expresso, 27/07/09)

The governments of South Africa and Botswana have made a proposal to Portugal to start a co-operation in the fields of renewable energy, in particular wind and photovoltaic. In order to learn about the Portuguese experience these countries will send missions in the next months.

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[6] “Emove corporation” Project wins EDP Richard Branson Prize

Projecto “Emove corporation” vence Prémio EDP Richard Branson (Expresso, 22/07/09)

The Project "Emove Corporation", aiming to develop technology that transforms movement energy into electricity, was the winner of the EDP Richard Branson Prize. This innovation may be applicable to the wave energy sector with a huge exploration potential.

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[7] International Energy Agency considers that the world is heading towards an energetic catastrophe

Agência Internacional de Energia considera que o Mundo caminha para catástrofe energética (TSF, 03/07/2009)

The International Energy Agency considers that the world is heading towards an energetic catastrophe. The chief-economist of the organization claims that with the rising of the demands until 2030 the world will need a production equivalent to six Saudi Arabia's.

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Europe

[8] UK: Britain to Launch Innovative Feed-in Tariff Program in 2010 (RenewableEnergyWorld, 30/07/2009)

Miliband, an up-and-coming politician in the cabinet of besieged Prime Minister Gordon Brown, has done what was once unthinkable, put a British stamp of approval on feed-in tariffs as a policy mechanism for developing renewable energy.

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[9] UK: Funding for Marine Energy (Hydro International, 20/07/2009)

Wave energy developer Aquamarine Power welcomes the GBP60m package for marine renewable energy development announced on 15th July 2009 by the Department of Energy and Climate Change (DECC) under The UK Low Carbon Transition Plan. The package includes GBP9.5m for the Wave Hub in Cornwall; GBP10m for the New and Renewable Energy Centre (NaREC) in Northumberland; GBP10m South West Regional Support for deployment and R&D and GBP8m to the European Marine Energy Centre (EMEC) in Orkney. Critically, it includes a GBP22m Marine Renewables Proving Fund to support developers testing & developing pre-commercial prototypes.

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[10] UK: Wave Hub Gets Go-ahead (RenewableEnergyWorld, 17/07/2009)

Wave Hub, an offshore electrical 'socket' that has been designed to support the testing of arrays of marine wave generators has been given the official go-ahead by the South West Regional Development Agency (RDA), which is backing the development.

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[11] UK: South West announces £10m boost for regional wave hub (BusinessGreen, 03/07/2009)

The South West's plan to establish itself as one of the UK's leading clean-tech hubs received a major boost today with the news that more than £10m of development funding has been earmarked for investment in marine energy research. The investment will support the work of 15 academic staff and 60 researchers, while also financing new equipment, including wave and tidal measuring devices, wave-making facilities, subsea electrical equipment, collision avoidance and monitoring equipment and research into the environmental impact and benefits of marine renewable energy.

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[12] UK: Low carbon strategy pumps cash into offshore wind and marine power (BusinessGreen, 15/07/2009)

New investment focused on offshore wind and wave and tidal projects as the South West is named the UK's first Low Carbon Zone. The government has this morning released its long-awaited, low-carbon industrial strategy, pledging to increase financial support for offshore wind and marine energy sectors as part of a wide-ranging initiative designed to curb carbon emissions across UK industry.

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[13] Ireland: Offshore energy needs (WAVEPLAM, ed. 07/2009)

In recent years the protection of the marine environment has moved away from traditional concerns over pollution towards protection of ecosystems, habitats and species occurring in the offshore area. This is demonstrated through the number of legal instruments

currently applicable to environmental protection at a number of governance scales: from the international level right down to the national level. This article explores how these instruments are relevant to the ocean energy industry in Ireland, how they are administered and the practical implications they have for ocean energy development.

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[14] UK: European Renewable Grid Initiative Launched (RenewableEnergyWorld, 07/07/2009)

Non-governmental organisations (NGOs) and transmission system operators (TSOs) have joined forces to create The Renewables-Grid-Initiative (RGI), which demands a new mandate for energy regulators to enable the development of a European grid architecture capable of rapidly and efficiently transmitting renewable energies.

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[15] UK: CleanTech Revolution: The £70 billion race is on (The Carbon Trust, 02/07/2009)

The UK can profit from leading the world in the clean tech revolution, new analysis from the Carbon Trust reveals today, quantifying for the first time the economic benefits of investing in a range of clean technologies. By taking a bold new approach to commercialisation, the UK could generate up to £70 billion for the economy and almost 250,000 jobs in offshore wind and wave power alone. Offshore wind and wave can alone provide at least 15% of the total carbon savings required to meet our 2050 targets.

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[16] UK: Crucial phase of Oyster installation completed at EMEC (12/08/2009)

Oyster, the UK's first nearshore wave energy converter, moved another step closer to generating clean, green energy with today's announcement that Aquamarine Power has just completed the crucial first phase of its deployment at the European Marine Energy Centre (EMEC) at Billia Croo in Orkney.

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[17] UK: UK Announces Long-term Carbon Reduction and Renewables Strategies (RenewableEnergyWorld, 16/07/2009)

This week the UK announced its strategy for meeting carbon emissions targets including a massive increase in renewable energy. "We expect 40% of the electricity we use in 2020 to come from low carbon sources – 30% from renewables, the rest from nuclear (including new build) and clean coal. We need to all-but eliminate carbon from electricity by 2050," Ed Miliband, UK Energy Climate Change Secretary.

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[18] France: Les océans revisités par le Grenelle de la mer (Le Figaro, 11/07/2009)

Développement des énergies marines, élargissement des aires protégées, mise en place d'une filière française de démantèlement des navires, telles sont les premières mesures annoncées, vendredi, à l'issue du Grenelle de la mer.

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[19] UK: Mather hails wind and wave power device (News Scotsman, 15/08/2009)

ENERGY minister Jim Mather has hailed a new device which combines wave and wind power as "ground-breaking". Wave power company Green Ocean Energy has developed the Wave Treader, which is specially designed to be attached to the base of an offshore wind turbine in a bid to harness energy from both the wind and the waves.

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[20] UK: Wave energy converter tested (Hydro International, ed. 07/2009)

The UK's dependence on energy from non-renewable sources is being challenged by a new wave energy converter called Anaconda that mimics the action of a sea snake. Now in final proof of concept testing at QinetiQ's facilities, Anaconda is producing energy data at an estimated cost that is excitingly low and as such may offer a serious and cost effective alternative in the delivery of future clean energy supplies.

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[21] France: H  l  ne Pelosse: une Fran  aise pour L'agence des   nergies renouvelables (Le Figaro, 01/07/2009)

C'est une Fran  aise qui l'a emport   hier    Charm el-Cheikh face    trois autres candidats, espagnol, danois et grec. H  l  ne Pelosse, 39 ans, directrice adjointe du cabinet de Jean-Louis Borloo, ministre de l'  cologie, a   t     lue    la t  te de l'Institut international pour les   nergies renouvelables (IRENA).

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[22] Germany: Offshore Wind Farm project sets sail (National Post, 01/08/2009)

The first of 12 turbines in a major German offshore wind farm project was installed last month in the North Sea, the Alpha Ventus project says. The project, to cost \$370-million, would lead to the first offshore wind farm in German waters and eventually produce enough electricity for 50,000 homes. Companies involved in the project include the German energy giant E. ON, Vattenfall Europe, a subsidiary of the Swedish power group, and EWE, a service provider in the energy, network and information sectors.

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[23] UK: Harnessing wave power with new "Oyster" machine (Science Daily, 30/07/2009)

A giant new machine called 'Oyster' designed to harness the power of ocean waves and turn it into 'green' electricity is being installed on the seabed off the Atlantic shores of the Orkney Islands. In autumn 2009 it will undergo demonstration trials to prove whether its innovative technology could lead to a commercial source of renewable energy for use in seashores around the world.

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[24] UK: Britain's Old Industries See Renewable Boost (RenewableEnergyWorld, 28/07/2009)

Across the UK traditional industries are turning their hand to renewable energy, seeing the potential the booming sector offers for the future. Recent projects have included completing the steel foundations for 60 Vestas offshore wind turbines, which will be installed at Robin Rigg in Southern Scotland. They have also won the contract to provide "jackets" for an offshore transformer platform – to accompany an 80-turbine wind farm developed by German company Bard Engineering.

<http://www.renewableenergyworld.com/rea/news/article/2009/07/britains-old-industries-see-renewable-boost>[Read more](#) [Back to index EUROPE](#) [Back to EDITORIAL](#)

[25] Belgian: Global offshore wind industry in full sail (BusinessGreen, 28/07/2009)

The global offshore wind energy industry received a boost yesterday with news Belgian firm Belwind has completed financing the first phase of a 330MW offshore wind farm to be constructed in the North Sea. The company confirmed it has secured a €300m (£260m) loan from the European Investment Bank (EIB) that will allow it to begin work on 55 3MW turbines to be erected 46km off the coast of Belgium.

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[26] UK: We can only do so much to Go Green – we need decision-makers to set the targets and apply the pressure (Evening Chronicle, 28/07/2009)

THE Government has recently pledged to cut carbon emissions by 34% by 2022, and by 80% by 2050. These are big targets that will take major shifts to achieve. There is little doubt that gas and oil prices will escalate hugely well before 2020, and we will need much more effort to develop renewable energy. For this to work, we will need to have a big growth in offshore and onshore wind power.

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[27] UK: Natural Power Launch OceanPod Data Collector (RenewableEnergyWorld, 20/07/2009)

International renewable energy consultancy, Natural Power, have launched a new offshore data collection platform called OceanPod, the aim of which, is to improve the design, planning and environmental stages of windfarms offshore.

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[28] UK: Wind farm consortium applies for £1bn London Array loan (BusinessGreen, 17/07/2009)

The London Array consortium, which plans to build the world's largest offshore wind farm in the Thames Estuary, has applied for a £1bn loan from the European Investment Bank. The current consortium consists of Denmark's Dong Energy, which holds a 50 per cent stake, E.ON of Germany, which has a 30 per cent stake, and Abu Dhabi's Masdar investment group, which holds the remaining 20 per cent.

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[29] Germany: EWE, E.ON and Vattenfall have constructed the first wind turbine for alpha ventus (E.ON AG, 15/07/2009)

Germany has its first offshore wind turbine: the consortium of EWE, E.ON and Vattenfall, DOTI (Deutsche Offshore- Testfeld und Infrastruktur GmbH), has successfully completed construction today of the first of a total of 12 wind turbines for the alpha ventus offshore wind farm in the North Sea.

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[30] UK: Tidal generator becomes the UK's first marine energy project to qualify for subsidy mechanism (BusinessGreen, 08/07/2009)

The UK's fledgling marine energy industry has received a major vote of confidence this week with the news that Ofgem is to issue the first Renewable Obligation Certificates (ROC) to a working marine energy project.

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[31] UK: Crown Estate to extend existing offshore wind leases to 50 years (BusinessGreen, 07/07/2009)

The Crown Estate yesterday announced that it is willing to extend leases for offshore wind farm developers to up to 50 years, ending uncertainty over the future of some of the UK's older offshore wind developments.

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[32] UK: Collaboration to Assist Ocean Energy Developers (Hydro International, ed. 07/2009)

SMRU Ltd, part of the Scottish Oceans Institute based at St Andrews University, and the European Marine Energy Centre (EMEC) Ltd, Orkney, are working to develop hydroacoustic systems and methodologies for the detection and monitoring of marine mammals and diving birds and potential interactions with Ocean Renewable Energy devices.

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[33] EC: Climate Change and Ocean Energy (WAVEPLAM, ed. 07/2009)

The words evoke a desire for a common global unity and purpose of action. Yet the general public and political decision makers command a very hazy understanding of the issues and scientific facts surrounding the topic. Much of the blame for this lack of clarity can be attributed to the mixed signals emanating from the various vested interests involved.

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[34] EC: Methodology for site selection (WAVEPLAM, ed. 07/2009)

The current state of wave energy installations at sea is limited to test sites and demonstration projects, with one first incursion into a commercial project led by Pelamis on the Portuguese coast. It is expected that more demonstration and experimental sites as well as arrays and commercial parks will be installed in the near future off the coasts of European countries and all over the world.

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[35] Ireland: Ireland launches new submersible and subsea technologies (Hydro International, 02/07/2009)

The Mobile & Marine Robotics Research Centre at the University of Limerick performed trials and demonstrations of their new Remotely Operated Vehicle, ROVLATIS, along with new mission support technologies in Limerick Dock today. This underwater robot has been developed for ocean exploration and commercial operations in inshore waters and as far as the edge of the continental shelf at depths of 1,000m or more. At a cost of over €1 million, the submersible is the first of its kind designed, built and tested in Ireland.

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USA and Canada

[36] USA: US Government Continues To Fund Renewable Energy R&D (RenewableEnergyWorld, 15/08/2009)

Last month, the U.S. Department of Energy (DOE) made yet another round of funding announcements for renewable energy projects and initiatives again showing its ongoing commitment to the greening of the American economy.

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[37] USA: Oregon Wave Energy Trusts Awards Contract (RenewableEnergyWorld, 27/07/2009)

Oregon Wave Energy Trust recently awarded Advanced Research Corporation a contract to conduct a coastal wave energy infrastructure assessment. As the wave energy industry begins to transition from the research and development phase to a build-out phase, the underlying infrastructure required to support this transition needs to be examined and assessed.

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[38] USA: United States joins the International Renewable Energy Agency (IRENA) (US Department of Energy, 08/07/2009)

The United States officially joined the International Renewable Energy Agency (IRENA) on June 29, increasing the number of countries participating in the organization to 136. IRENA was initially founded on January 26 with 75 member nations, and its membership now includes most of Africa, the Middle East, and Europe, as well as Australia, Greenland, India, Japan, and parts of South America. The new agency will engage governments around the world in promoting a rapid transition toward the widespread and sustainable use of renewable energy on a global scale.

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[39] USA: Massachusetts could block offshore wind farm (Business Green, 06/07/2009)

The state of Massachusetts could be poised to block current proposals for a major offshore wind farm after the release of a new development plan which strictly defines what can be built in its oceans. A senior official said the new rules would prohibit a proposed offshore wind farm in its current form. Mandated by the State's Oceans Act of 2008, the plan would require developers of ocean-based projects to avoid areas that are considered ecologically important. The Act requires a plan to be put in place by the end of this year.

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[40] USA: US east coast considered for wind farm (National Post, 30/07/2009)

The Cape Cod resort area could become home to the first U.S. offshore wind farm. Developers have proposed wind farms off Massachusetts, Rhode Island, Delaware and New Jersey to meet the electricity needs of the East Coast.

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Rest of the World

[41] New Zealand: Marine Energy Funds open (NZ's Government, 31/07/2009)

The marine energy deployment fund has been set up through EECA to bring forward the development of marine energy in New Zealand, by supporting the deployment of generating devices. The upcoming round of the Marine Energy Deployment Fund offers \$2 million for pre-commercial wave and tidal stream energy devices deployed in New Zealand waters. Applications for round three of this fund open on Friday 31 July 2009 and will close on Monday 23 November 2009.

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[42] China: CLP's Sai Kung wind farm gains approval (South China Morning Post, 04/08/2009)

The environmental chief has approved CLP Power's proposed offshore wind farm near Sai Kung, and required it to consult fishermen, hikers and green groups on the turbine design. Director of Environmental Protection Anissa Wong Sean-yea issued an environmental permit to the company yesterday, but said it should set up a stakeholder liaison group within six months to consult parties on design, construction and operation. A company spokeswoman described the approval as an important milestone to realising renewable energy in Hong Kong.

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[43] New Zealand: Southland energy sources (The Southland Times, 03/08/2009)

Eric Roy (Invercargill MP) says he will push for development of several potential energy sources in Southland when Energy Minister Gerry Brownlee visits the region next week. Wave and tidal energy, gas in the Great South Basin and the benefits of building a silicon smelter in Southland would all be up for discussion, Mr Roy said. Mr Brownlee's visit to the region showed he was seriously considering development of Southland's energy resources, he said.

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[44] Australia: Power surge (Australian Business, 01/08/2009)

Given Australia's reputation as a nation of beach bums, it is ironic that wave energy is emerging as a significant employment opportunity. According to a report from conservation group WWF-Australia, ocean power stations have the potential to create 3210 jobs by 2020 and 14,380 by 2050.

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[45] Australia: Pioneer ventures to tap ocean power (Australian Business, 01/08/2009)

Timothy Finnigan, 40, wants to turn Australia's ocean wave and tidal energy into usable electricity. An ambitious venture for sure, but his company, BioPower Systems, backed by venture capital, already has two pilot programs under way to supply power to Flinders Island and King Island, as well as firm European interest.

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[46] Australia: Wave energy developer Carnegie Corporation (Herald Sun, 31/07/2009)

The wave energy developer Carnegie Corporation said yesterday the French Government would provide \$5.16 million to research its CETO technology off Reunion Island. Carnegie also gave an update on a number of other projects preparing to test its CETO power equipment as it prepares to consolidate its pipeline in September. They include sites near

Vancouver Island in Canada, Bermuda and County Galway in Ireland, where there is a feed-in tariff of \$378 a megawatt hour for wave and tidal power.

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[47] USA: Researchers begin mapping Oregon coast floor (The Seattle Times, 18/08/2009)

A survey of the ocean floor off the Oregon coast is getting under way to provide detailed undersea maps that will help protect marine habitat.

The mapping is critical to scientists trying to better understand the coastal environment along with commercial fishermen and government agencies who need more information for important decisions about siting marine reserves and wave energy buoys.

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2. PUBLICATIONS /STUDIES

[48] Marine Spatial Planning: Guide “Marine spatial planning: A step-by-step approach towards ecosystem-based management” (ed. 07/2009)

For the past three years, UNESCO's Intergovernmental Oceanographic Commission (IOC) and the Man and the Biosphere Programme (MAB) have been working on moving MSP beyond the conceptual level. The guide is primarily intended for professionals responsible for planning and management of marine areas and their resources. The guide provides a comprehensive overview of marine spatial planning (MSP) and focuses on describing a logical sequence of steps required to achieve desired goals and objectives for applying the ecosystem approach to managing marine areas.

"Marine spatial planning: A step-by-step approach towards ecosystem-based management", published in June 2009.

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[49] World Offshore Wind Market 2009-2013 (DWL, 05/08/2009)

The new edition of The World Offshore Wind Market Report by energy industry analysts Douglas-Westwood (DWL) examines the current and future prospects, technologies and markets for the offshore wind energy sector. It is the definitive report in the sector, used by investment banks, manufacturing and installation contractors, and departments of government.

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[50] Power to Change: Australia's wave energy future (Carnegie Corporation, 06/2009)

"Carnegie Corporation, a world-leading wave energy developer, has joined with WWF to push the benefits of the clean technology to the Aust Govt. A joint report on the industry in Aust, released last month, said "near-shore wave energy" could supply around four times Aust's current national power needs. Western Tas and NSW's southern and central coasts were also "optimal sites for wave energy plants", the report said. Wave energy projects could create up to 3,210 jobs by 2020 and 14,380 jobs by 2050, not only for white-collar workers but for metal workers, welders, builders, divers and maintenance workers."

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[51] The UK Renewable Energy Strategy (UK's Government, 07/2009)

This strategy sets out how we all have a role to play in promoting renewable energy, from individuals to communities to businesses. Alongside the Renewable Energy Strategy document, it was also published a suite of impact assessments and supporting analytical consultancy reports. The main consenting bodies for renewable energy and environmental statutory consultees have also published a joint statement setting out their collective commitment to achieve greater renewable energy deployment.

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[52] The UK Low Carbon Transition Plan (UK’s Government, 07/2009)

The UK Low Carbon Transition Plan plots out how the UK will meet the cut in emissions set out in the budget of 34% on 1990 levels by 2020. A 21% reduction has already been delivered – equivalent to cutting emissions entirely from four cities the size of London.

Transforming the country into a cleaner, greener and more prosperous place to live is at the heart of our economic plans for Building Britain’s Future and ensuring the UK is ready to take advantage of the opportunities ahead.

The Transition Plan is the most systematic response to climate change of any major developed economy, and sets the standard for others in the run up to crucial global climate talks in Copenhagen in December.

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[53] The Sea Economy Hypercluster – one domain of strategic potential for the development of the Portuguese economy (SaeR/ ACL, 02/2009)

The economic activities related to the sea, with resources, potential and innovation factors, present themselves as a system of articulated sectors. Their development, if respecting its common evolution pattern, can find conditions of sustainable and mutual growth.

Considering the strategy and the action plans proposed, the Sea Economy Hypercluster can significantly raise its contribution for National Product and Employment, by almost doubling the current values, considering the 1st quarter of the XXI century as a temporal horizon.

In this context, a national scheme should be considered, involving all the strategic actors related to the Sea Economy in Portugal, with the aim to structure and organize sea economy hypercluster activities in Portugal. It should contribute in terms of its direct activities, with around 4% to 5% of GDP and national Employment. It should also, considering direct and indirect effects, account about 10% to 12% of GDP and national Employment.

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[54] Ocean Energy in Ireland (DCMNR, 08/2005)

Ireland has a target of supplying 13.2% of its electricity consumption from renewable sources by 2010. The majority of this target is likely to be supplied from wind energy. It is likely that targets will increase in the longer term. This will require large deployments of other forms of renewable energy. Ocean energy, both wave and marine current tidal energy, may have a role to play in meeting longer term targets in Ireland. The resource, particularly the wave energy resource, is vast.

It is proposed to implement an ocean energy strategy to advance the speed at which ocean energy technologies are deployed in Ireland by increasing the capacity for research and development, both within academic institutions and commercial entities developing devices in Ireland. A structured and phased strategy of development supports may enable Ireland to utilize its ocean energy resource within a decade. The result could also see Ireland positioned with the potential to become a world leader in the manufacture and use of ocean energy systems.

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[55] The State of Renewable Energies in Europe (8th Report - EurObserv'ER)

The EurObserv'ER recently presented its 8th set of results with regard to "the State of Renewable Energies in Europe". The work offers a complete review of the development of new types of renewable energies, including air turbines, photovoltaic and biofuels as well as two future technologies, ie solar thermal energy and marine energy. Then the authors measure the progress achieved by the EU Member States with regard to the objectives set in the European Commission's White Paper and its Biomass Action Plan. Given that renewable energies already provided 7.5% of primary energy consumption in 2007 the report put forward is quite optimistic with regard to achieving the 12% goal in 2010.

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[56] Health and Safety Executive outlines solar and marine energy risks (BusinessGreen, 27/07/2009)

The Health and Safety Executive (HSE) published two major new reports assessing the long-term health and safety implications of growth in the solar and marine renewable energy sectors, paving the way for new legislation and policing mechanisms for the emerging industries. The reports warned that the two sectors could pose a risk to the health of workers and the public and as such they recommended that the HSE moves to ensure it has sufficient skills and resources in place to provide a comprehensive inspection regime for the fast-expanding industries.

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[57] Portugal Energy Report (Enerdata, ed. 06/2009)

This energy market report offers an incisive and reliable overview of the energy sector of the country. With a focus on oil, gas, coal and power markets, the report provides a complete picture of the country situation, dynamics, current issues and future prospects. With 2008 market data and continuous follow-up of markets news, this report brings clear and concise insights, to help tackle national energy challenges and opportunities.

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[58] Marine Energy Road Map (The Scottish Government, 26/08/2009)

This document has been produced by the reconvened industry-led FREDS Marine Energy Group (MEG) with feed-in from the Marine Energy Spatial Planning Group (MESPG). This Road Map reflects an up-to-date assessment of the status and potential of the marine energy industry in Scotland, alongside recommended actions to ensure its continuing growth. This new assessment is particularly timely given the increased pressures for the development of renewable energy flowing from the Climate Change (Scotland) Act 2009 and the new European Directive on Renewable Energy.

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[59] FP7-OCEAN-2010 “The Ocean of Tomorrow” with €34 million available (EC, 30/07/2009)

The European Commission has launched "The ocean of tomorrow" call for research proposals, which aims to understand how arctic and marine ecosystems respond to a combination of natural and human-induced factors. €34 million dedicated to

multidisciplinary research projects to reconcile maritime activities with the preservation of seas and oceans.

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[60] FP7-ENERGY-2010-1: a general call with €54 million available (EC, 30/07/2009)

A general call focusing on research with a long-term horizon. One of the most relevant topics (“2.3 – Wind”) is concerning the cross-sectoral approach to the development of very large offshore wind turbines. The deadline to submit proposals is 11th March 2010.

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[61] FP7-ENERGY-2010-2: a general call with €126,4 million available (EC, 30/07/2009)

A general call focusing on research with a short-term horizon and on demonstration projects. One of the most relevant topics (“2.3 – Wind”) is related to supporting the coordination of stakeholders’ activities in the field of wind energy. In this sense is also expected to development of stronger ties with the oil & gas, maritime and strong cooperation with grid sectors shall lead to the development of a shared strategy towards common European energy and climate change policy and energy market challenges (e.g. installation of offshore wind turbine generators; wind-grid integration, etc.). The deadline to submit proposals is 4th March 2010.

<http://cordis.europa.eu/fp7/dc/index.cfm?fuseaction=UserSite.CooperationDetailsC>
[allPage&call_id=264](#)[Read more](#)

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[62] Call FP7-INFRASTRUCTURES-2010-1 (will be launched soon) (EC)

This call in the Research Infrastructures Programme will, amongst others, call for energy related Research Infrastructure projects. There is one related topic “INFRA-2010-1.1.23: Research Infrastructures for offshore renewable energy devices: ocean-, current-, wave- and wind energy”. A project under this topic should aim at integrating the key research infrastructures in Europe for research on marine current power, tidal stream energy, tidal power, wave power, open questions concerning the transfer of energy, grid integration. Partners offering transnational access should include existing pilot and demonstration plants to be used as research infrastructures as well as laboratory scale installations like wave basins to large open sea test sites. This topic will support the European Strategic Technology plan (SET-Plan, COM (2007)123).

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[63] New ETS funding source for demonstration projects (EC)

There will be 2 calls, 1 (approx. 80 % of the budget, 240 MEuro) early 2010, a 2nd one early 2014 (the remaining 20%). The focus of the supported projects has to be on innovation close to commercial stage. No upstream technologies will be financed. The most important eligibility criteria is the CO2 avoidance. This will also be the main criteria for assessing the successful implementation of the project. The projects should be operational by 2015. The indicative budget for RES is 5 billion. The financing will be made available through the MS and geographical distribution is important but can be balanced in the 2nd call.

The list of ocean energy projects initially foreseen was the following:

- OWC - coastal based: 2 - 5 MW
- OWC - offshore floating devices: 5 - 10 MW
- underwater wind turbines type: 5 - 20 MW

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[64] Guide for the elaboration of National Renewable Energy Action Plans (EC, 30/06/2009)

On 30th June the European Commission adopted a decision establishing a model for national action plans with regard to renewable energies. This model aims to guide Member States in the elaboration of their national action plans and describes the strategy to adopt. Each Member State has to present a national action plan to the Commission for 30th June 2010 at the latest. The directive assigns restrictive national objectives to each State with the aim of reaching a 20% share of renewable energy sources in Europe's final energy consumption by 2020. The Commission's goal is not only to guarantee the complete nature of the national action plans but this should also lead to comparisons between them and with the reports that member States and the Commission are to establish with regard to the implementation of the directive 2009/28/CE.

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[65] Council approves recovery plan projects in the field of energy (EC, 07/07/2009)

The Council adopted a regulation establishing a programme to aid economic recovery by granting Community financial assistance to projects in the field of energy, approving all the European Parliament's first reading amendments. The regulation is part of the European economic recovery plan endorsed by the European Council in December 2008 in response to the global financial crisis and economic slowdown. The regulation lists 47 projects and the Community contribution for each of them, with a total financial envelope for implementation in 2009 and 2010 of EUR 3,980 million.

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[66] Comissioner Joe Borg in Conference of Peripheral Maritime Regions, Faial, Azores (EC, 06/07/2009)

The European Commissioner responsible for Fisheries and Maritime Affairs, Joe Borg, participated in the Conference of Peripheral Maritime Regions, that has taken place in Horta, Faial. The intervention of Commissioner Borg was focussed on the future of the integrated Maritime Policy of the European Union.

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[67] SPEECH Maritime spatial planning: building on our commitment (EC, 03/07/2009)

The European Commissioner Borg, participated in the Workshop on Maritime Spatial Planning, which occurred in the Azores. That was the second last such workshop organised by the European Commission in 2009. The speech of Commissioner Borg focussed on the importance of maritime spatial planning.

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