

Global Ocean Energy Report Ed 1 2011

Market Intelligence

2009 was a good year for the ocean energy sector with US \$246 million invested in the sector, up from the 2008 figure. Key areas of development were wave energy, and tidal and marine current projects. For both sectors, more devices reached the prototype stage and were tested out at sea. Considerably more funding has been available for projects to take this leap.

Portugal and the UK remain as the main countries for wave energy projects due to generous grants and subsidies, targets and in the case of Portugal, a feed-in tariff. If the Scottish parliament passes a proposal for wave energy projects to receive five ROCs per MWh of electricity produced and three ROCs per MWh for tidal energy projects instead of two ROCs currently received across the UK, NRG EXPERT expects the bulk of UK projects to be developed there. Other countries making significant inroads in the sector last year include Australia, the US, New Zealand and other European countries, especially Ireland.

The most established wave energy developer is still Pelamis, with many companies not far behind. Larger players have started to show an interest in wave energy. Petrobras is developing a device in conjunction with COPPE/UFRJ. Airtricity, the Irish utility, has signed an agreement with Aquamarine Power to develop 1 GW of projects by 2020. Mitsui Engineering and Shipbuilding is planning to use Ocean Power technologies (OPT) devices to develop a 10 MW farm.

For tidal and marine current projects, most are being developed in the UK, the US, Canada, Australasia and other European countries. Utilities have started to show more interest in the sector, with several developing projects or buying devices from developers, notably Nova Scotia Power, Scottish Renewables, RWE Innogy and npower renewables. One utility, Alstom Hydro, went one step further and bought the worldwide licence for Clean Current Power Systems' tidal devices.

UK-based Marine Current Turbines continues to be the furthest along in terms of commercialisation; however, several developers are not far behind. For example, Hammerfast Strøm has been operating a 300 kW for some time and has an agreement to supply devices for Scottish Renewables projects. Verdant in the US has signed a MoU with the China Energy Conservation Environment Protection Group (CECEP) to develop projects in the country.

Although tidal barrages and lagoons are the most mature technology, very little progress was made last year. A short list of five potential 'Severn Tidal' projects was announced and a public consultation will be held this year. However, one of the most interesting developments was a proposal to combine a road bridge and a tidal barrage across the Duddadon Estuary in Cumbria in the UK. As this would shear seventeen miles off the existing journey between the towns of Barrow and Millom, it may be more acceptable to the public than a tidal project on its own. Thus reducing opposition to the development of the project. In the second half of this year completion of the Sihwa Lake Tidal plant in Korea is expected. It will have a larger installed capacity than the 240 MW La Rance power plant in France, currently the largest plant in operation.

Highlights

Ocean Thermal Energy Conversion (OTEC) is still a long way from commercialisation. DCNS, Lockheed Martin and Xenosys have emerged as the main companies involved in OTEC projects. Last year Lockheed Martin was awarded an US \$8 million component supply contract by the US military. NRG EXPERT expects military bases to be a major use of OTEC due to the high cost of diesel imports at remote island locations. Other major uses of OTEC, along with direct power use, may be desalination and sea water air conditioning.

By far the most experimental technology is still the salinity gradient. In November last year Statkraft commissioned a 2 to 4 kW prototype off Tofte near Oslo, Norway. This project is one of the relatively few salinity gradient projects, and is by far the most advanced. Thus it is unlikely that this will be a major source of power in the short term.

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Contents

Executive Summary	11
Background.....	11
Technology development	12
Market Development	13
Tidal Energy.....	17
Wave Energy	18
Ocean Thermal Energy Conversion (OTEC).....	20
Tidal or Marine Current Energy	20
Salinity Gradients.....	21
Manufacturing	22
2. Tidal Energy	23
Advantages	24
Disadvantages	24
Technical concepts for exploiting Tidal Energy - Tidal Barrages	25
Secondary water storage.....	26
Current Development of Tidal Barrage Schemes	26
Technical status and experience from operating systems	28
France - La Rance 240 MW Tidal Barrage	28
Canada – Annapolis 17.8 MW Tidal Barrage.....	29
China – 11 MW of small Tidal Barrages.....	29
Tidal barrage plant under construction	29
Korea	29
China Yalu River Tidal Barrage.....	29
Experimental and proposed tidal barrages.....	29
Scotland.....	29
United Kingdom – Severn Estuary, Mersey Estuary	30
Scottish schemes	32
Russian Federation - Kislogubsk 400 kW	32
Other tidal flow prospects	33
Australia – Derby	33
United States	33
Argentina	33
Canada	33
China	33
India.....	34
Korea (Republic).....	34

Mexico	34
Economic considerations	34
Environmental aspects	35
3. Wave Energy.....	36
Wave resources	36
Wave energy technology	37
WECS (Wave energy conversion systems)	37
Oscillating water column (OWC)	38
Wave surge or focussing devices - Tapchan (Tapered channel system)	38
Floats or buoys	38
Oscillating Water Column (OWC)	38
Siadar Wave Energy Project (SWEP)	40
Figure 3.6: MK3PC installed at Port Kembla	53
Source; Oceanlinx	53
Sperboy	53
Voith Hydro (Wavegen)	54
Point Absorber	55
Finavera Renewables.....	55
Ocean Power Technologies	55
McCabe Wave Pump.....	59
Pelamis Wave Power Ltd	59
AWS Ocean Energy (Archimedes Wave Swing).....	63
Tapchan	64
Wave Dragon.....	64
Other.....	66
Searaser	66
Wave Hub.....	67
Wave Propulsion.....	69
Synergies with the offshore industry.....	71
The road to commercial wave power.....	71
Current status for Wave Energy development – Country Developments.....	73
Australia.....	73
China	74
Denmark	75
India	78
Indonesia	78
Ireland.....	78
Japan.....	82

Maldives	83
Norway	84
Portugal	85
Romania	87
Spain	87
Sweden.....	88
United Kingdom	88
United States	96
4. Ocean Thermal Energy	100
Ocean Thermal Energy Conversion (OTEC).....	100
Additional benefits of OTEC technology - DOWA	101
Exclusive Economic Zone (EEZ)	104
Status of development and funding support	104
Support organisations	104
The International OTEC/DOWA Association (IOA)	104
EU and Maritime Industries Forum.....	104
Japan Association of Deep Ocean Water Applications.....	105
Markets for OTEC	105
Country Developments	109
Côte d'Ivoire.....	109
Cuba	109
Fiji	109
French Polynesia.....	109
Guadeloupe	110
India	110
Indonesia	110
Jamaica	110
Japan.....	110
Kiribati.....	111
Marshall Islands.....	111
Nauru	111
Netherlands Antilles.....	112
New Caledonia	112
Puerto Rico.....	112
Sri Lanka	112
St. Lucia.....	112
Taiwan	113
United States	113

5. Tidal or Marine Current Energy.....	116
Marine Current Turbines (MCT) - The world's first marine current turbine	123
Stingray and the EB Frond, the Engineering Business (EB).....	135
The Marine Current resource.....	137
Status of Marine Current technology.....	139
Horizontal Axis Turbines (axial flow turbine)	139
Vertical Axis Turbines (cross flow turbine)	139
Synergies with the offshore industry.....	139
Technical problems for research	140
Experimental marine plant, Korea	141
Future of Tidal and Marine Current Energy	141
6. Salinity Gradients	150
Pressure retarded osmosis (PRO).....	150
Vapour compression.....	151
Reverse dialysis (RED)	151
Demonstration and commercialisation of salinity gradient power	151
7. Ocean Energy Conversion Costs.....	152
8. National Policies for Renewable Energy.....	157
Renewable energy targets	157
Feed-in tariffs and RPS	158
EU and feed-in tariffs.....	194
US and RPS	194
The feed-in tariff in Europe.....	194
The evolution of RPS Policy in the United States	196
Comparison of feed-in tariffs and RPS.....	197
Europe – the EU Renewable Energy Directive	197
Investor confidence, price, and policy cost	197
Effectiveness	197
Innovation and technology diversity	197
Ownership structure	197
Conclusion.....	198
Feed-in tariffs in the United States.....	198
9. Benefits of Different Forms of Energy.....	200
10. Acknowledgements	202

Figures

Figure 1.1: Status of ocean energy technologies, December 2007

Figure 1.2: Planned and historical development of wave and tidal projects, MW

Figure 1.3: Project status by country, December 2007

Figure 1.4: Level of Research & Development and Demonstration investment by members of the IEA Implementing Agreement on Ocean Energy Systems

Figure 2.1: The Global Tidal Resource

Figure 2.2: La Rance Tidal Barrage

Figure 2.3: Tidal Current Power

Figure 2.4: Base Data for the Severn Barrage

Figure 2.5: Proposed Severn Barrage

Figure 3.1: Wave power resources of the world

Figure 3.2: The Mighty Whale

Figure 3.3: Offshore test centres for wave energy

Figure 3.4: Proposed European Test Centres

Figure 3.5: Development programme for WECs

Figure 3.6: MK3PC installed at Port Kembla

Figure 3.7: SPERBOY Oscillating Water Column device

Figure 3.8: Limpet shoreline energy module

Figure 3.9: Finavera AquabuOY

Figure 3.10: Floating buoy energy converters

Figure 3.11: CETO device

Figure 3.12: Wavebob

Figure 3.13: Wave Star device

Figure 3.14: Pelamis

Figure 3.15: Archimedes Wave Swing III (AWS III)

Figure 3.16: Wave Dragon Floating Tapchan

Figure 3.17: Waveplane

Figure 3.18: Searaser

Figure 3.19: Wave Hub

Figure 3.20: The Orcelle, sustainably powered ship

Figure 3.21: Pelamis wave farm in Portugal

Figure 3.22: The UK wave power resource

Figure 3.23: Humboldt WaveConnect™ Pilot Project

Figure 4.1: OTEC resource map

Figure 4.2: The OTEC device

Figure 4.3: Energy Island systems diagram perspective view

Figure 4.4: Makai Ocean Engineering List Open Cycle OTEC plant

Figure 5.1: The Seagen Marine Current Turbine

Figure 5.2: SeaGen in Strangford Lough

Figure 5.3: Marine Current Turbine second generation device

Figure 5.4: Third generation SeaGen device

Figure 5.5: Atlantic Resources' AK 1000 turbine

Figure 5.6: BioSTREAM device

Figure 5.7: Fri-El Green Power ship

Figure 5.8: Hammerfest Strøm HS1000 turbine

Figure 5.9: Early rendering of Hydro Green Energy's dual ducted hydrokinetic turbine array (HTA) as viewed from below the surface of the water

Figure 5.10: Lunar Energy's Rotech Tidal Turbine

Figure 5.11: Ocean Renewable Power's RivGen™, TidGen™, and OCGen™ systems

Figure 5.12: Open Hydro seabed mounted open-centre turbine

Figure 5.13: TidEL Tidal Energy Device

Figure 5.14: Stingray and EB Frond Wave Energy Devices

Figure 5.15: Verdant Power's free flow system

Figure 5.16: Marine Current resource in the UK

Figure 5.17: Comparison of offshore wind turbine and marine or tidal current turbine projects

Figure 7.1: Wave power installed cost curve versus other renewables

Figure 7.2: Generation costs from Ocean Energy Conversion estimated experience

Figure 7.3: EU wind and wave deployment and costs

Figure 7.4: Capital cost breakdown for a particular wave energy device

Figure 7.5: Capital cost breakdown for installation of a particular tidal stream energy device in a tidal stream farm of a certain size

Figure 8.1: National renewable energy policies in EU countries

Figure 8.2: US states with RPS regulations, August 2010

Tables

Table 1.1: Marine Energy sources and product

Table 1.2: The size of the oceanic energy resource

Table 1.3: Ocean energy projects installed or under construction in IEA Ocean member states, kW, end 2009

Table 1.4: Consent process for ocean energy projects in selected countries

Table 2.1: Prospective Sites for Tidal Energy Projects

Table 2.2: Comparison of World Tidal Schemes in Existence or Proposed

Table 2.3: Identified for Possible Tidal Barrage Plants

Table 3.1: Six types of WEC identified by the EMEC

Table 3.2: List of wave developers

Table 3.3: Status of known wave energy projects in November 2008

Table 3.4: Schedule and budget for the development of a WEC prototype

Table 3.5: Six Pelamis projects at various stages of development

Table 3.6: Comparison of three different wave devices at three sites in Canada

Table 3.7: Required price of electricity for a 10-year simple payback period for three wave devices, C\$

Table 3.8: Status of wave energy projects in Denmark at the end of 2009

Table 3.9: Planned development of wave energy devices in Ireland

Table 3.10: Recipients Prototype Development Funds

Table 3.11: Prototype Development Funds for different project phases

Table 3.12: Potential for Marine Energy Converter Technologies in New Zealand

Table 3.13: Recipients of the 'Wave and Tidal Stream Energy Technologies' funding round

Table 3.14: Recipients of Round 1 of the WATERS fund

Table 3.15: Wave project developers awarded licences for Crown Estate marine sites

Table 3.16: ROCs received per technology, April 2010

Table 3.17: Wave device testing sites in the UK

Table 3.18: Wave projects included in the Advanced Water Technologies receiving DOE funding, 2009

Table 3.19: Recipients of SBIR funding

Table 4.1: Seawater air conditioning plants

Table 4.2: Reported advantages and challenges for the Energy Island

Table 4.3: OTEC projects included in the Advanced Water Technologies receiving DOE funding, 2009

Table 5.1: Tidal or marine current energy devices

Table 5.2: Methods to fix turbine energy converters to the seabed

Table 5.3: Tidal or marine current developers

Table 5.4: Status of known marine and hydrokinetic projects in November 2008

Table 5.5: Kilowatt of electricity produced per tonne of turbine

Table 5.6: Biopower projects

Table 5.7: Verdant Power tidal projects

Table 5.8: Distribution of potential tidal sites in Canada

Table 5.9: Recipients of Clean Energy Funds

Table 5.10: Ocean projects awarded ICE funds in British Columbia

Table 5.11: Three tidal technology projects in the Netherlands

Table 5.12: Tidal project developers awarded licences for Crown Estate marine sites

Table 5.13: Tidal projects included in the Advanced Water Technologies receiving DOE funding, 2009

Table 8.1 Renewables targets and support schemes of European countries

Table 8.2 Non-European countries with renewable energy targets and plans

Table 8.3: State RPS resource tiers

Table 9.1: The Advantages and Disadvantages of Different Energy Technologies



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