



The tendencies of the international watch in June 2011 seen through the 22 articles of the blog

MONTHLY ANALYSIS LETTER

POLICY AND STRATEGY

The **French Marine Energies** project, supported by Ifremer, which comprises 54 public and private organisations, and 55 researchers with a budget of € 142 million over 10 years, is among the six competitors still in the race to benefit from investments for the future for the establishment of the Institut d'Excellence des Energies Décarbonées (IEED), an institute for carbon-free. If successful, it will be based in Brest with test sites on the west coast, in Toulon and Reunion. Thus, combining expertise in renewable energy from the sea and energy management for intelligent networks, western France would become a real marine capital with 2 excellence laboratories: LabEx Mer and the "Comin Labs" LabEx. (June 2nd) The launch of the **Government call for candidates** for a 3000 MW offshore wind farm construction and commissioning, is now promised for July. It has been postponed several times before. (June 8th)

To develop the 100 hectares of the Verdon site, the Port of Bordeaux (**Grand Port Maritime de Bordeaux, GPMB**) called for "offshore wind" nominations with the support of "**Cluster Eolien Aquitain**". This cluster brings together R & D laboratories and high-tech companies, some of which have extensive wind farm experience, like EADS Astrium. The call for applications will close on September 15th. The selection decision will be taken by November 15th and a provisional contract will then be signed. The project is expected to generate maritime traffic and create jobs. (June 22nd)

The Icelandic company **Landsvirkjun**, which already supplies 74% of the country's electricity, will double its production capacity, using the hydroelectric and geothermal energy already in use, and with the development of wind and tidal energies. The program, in cooperation with three public and private partners, plans to develop wind energy first, and then tidal currents energy. A submarine cable will link Iceland to Europe, doubling the existing one that carries IT data. (June 16th)

On June 23rd, the American Congress will consider the "**Advancing Offshore Wind Production Act**" (Offshore wind energy promotion law), to facilitate administrative procedures, promote financing at different stages, and establish cost competitiveness. According to the organisations involved, this legislation is necessary for the United States not to be overtaken by other countries, thus losing a market worth several billion dollars and that may create millions of jobs. (June 23rd)

Ireland and the UK, with the Channel Islands and the Isle of Man, have signed the "**All Island Approach to Energy**", an agreement covering exploitation of marine energy resources and the protection of supplies. A bi-directional submarine cable between Ireland and the UK will transfer the energy produced according to needs and production. (June 24th)

FINANCES AND BUSINESS

Series of bi-lateral agreements.

Aegir Wave Power, a joint venture between the Swedish **Vattenfall AD** and the British **Pelamis Wave Power**, has obtained a location to establish a wave farm off the Shetland Islands from the Crown Estate. Environmental studies and the deployment of buoys have started. The installation is planned to come on-stream in 2015 with a total capacity of 10 MW supplied

by Pelamis 2 recovery systems with a power of 750 KW per unit. (June 3rd)

Agreement between **JSC Rushydro** (Russia), and the Argentinian **Energia Argentina (ENARSA)**, to develop projects in hydropower, tidal and currents energies. The two companies will pool their expertise in the design, construction and maintenance to operate more profitable plants. (June 15th)

Other agreement between **Scottish Power Renewables**, and **DONG Energy** (Denmark), joining up in equal parts to build the West of Duddon Sands offshore wind farm. At its commissioning in 2014, the park will include 108 wind turbines with a total capacity of 389 MW and an estimated cost of £ 1.6 billion. This park will be added to the two Walney parks, also of great power. An agreement with Belfast Harbour has just been signed for the creation of the necessary port facilities. (June 17th)

TECHNOLOGIES

Offshore wind energy

There are several types of foundations for offshore wind turbines, depending on the soil and the water depth:

Monopile foundations consist of a single pile with a diameter of 5 to 6 meters driven in the soil to a depth sufficient to secure the turbine. This solution is simple, but needs a lot of steel.

Foundations "jackets" inspired by oil rig foundations in the form of tubular mesh anchored to the bottom on four legs. They are light and their technology is now fully mastered.

Foundations in "massive gravity" consist of a heavy concrete block (up to 1400 tons), just laying on the bottom. Their transport and installation are under study. They seem to have been selected by French companies for future equipment. (June 1st)

The race for giant wind turbines has begun in **China**. Many companies, especially **Sinovel Wind Group**, **Goldwind**, **XEMC** and **Guodian**, want to build wind turbines with a capacity of 6 MW, and even, for some of them, of 10 MW as soon as possible. Construction and maintenance costs are not proportional to the turbines size and the market for large wind capacity is currently very promising. The construction of low power wind turbines in series is being developed simultaneously: **China Guodian** and **United Power** announce the annual manufacturing of 800 1.5 MW wind turbines. China intends to install offshore wind turbine for a power of 5 GW in 2015 and 30 GW in 2020. (June 10th)

In **Belgium**, on the grounds of Thorntonbank, C Power began installing the 24 turbines of the second phase of the total of 54 wind turbines each of 6 MW that comprise the complete project. The Franco-Belgian company **SDI / DEME**, responsible for installing turbines, will adapt different types of jacket foundation depending on the depth of the water. C Power asked a group of experts to assess the impact on different users, the environment, the flora and fauna and safety. In 2013, the park will provide electricity to 600,000 inhabitants. The dismantling of the turbines is already planned for their end of life and it even includes the recycling of materials recovered from the sea. (June 27th)



Specific risks for people working for and on offshore wind turbines are increasingly taken into account. In the United-States, the "**The Occupation Safety and Health Administration (OSHA)**" observations could affect the design and maintenance of offshore wind turbines. In London, **GE** and **Siemens** pool their thinking on safety and risk assessment. **The European Union** considers the major risks, falls and vibrations, and asked to adapt the legislation to the particular offshore wind industry conditions. (June 6th)

Currents

Research into harnessing tidal energy is increasing and diversifying.

In France, **Le Gaz Integral (LGI)** brought together **Guinard Energies, Bernard and Bonnefond, Ifremer Brest** and **Britain ENSTA** to develop BluStream ® an efficient and low cost tidal turbine consisting of two divergent nozzles which accelerate the flow and of a new propeller. BluStream ® is also characterized by the propeller shroud and its being placed directly on the bottom. The first tests will take place off Bréhat islands. (June 14th)

In Korea, **Hyundai Heavy Industries (HHI)** successfully completes the testing of a turbine rotating according to currents and integrated into a system that also includes a transformer and a generator. HHI will develop a tidal park in the South Korean program for creating high-power parks known as "megawatt-class" by 2014. (June 20th)

In Australia, **Tidal Energy Pty Ltd** developed the **DHV** (Davidson-Hill Venturi Turbine) turbine. Its main characteristic is to have a cover that speeds the flow of water and produces three times more electricity. Modular - rotor diameter can range from 1.5 to 10 meters - the DVH units have power outputs ranging from 4.6 kW to 5.5 MW and can be used either in network near "big agglomerations" or in isolation for island communities. The final use should be either in a cluster near a big agglomeration or individually for island communities. (June 29th)

In Norway, the tidal **Flumill** system has no propeller but is composed of two giant drilling screws, placed side by side, and of a generator. This set can be fixed to the ground of the sea, near, far or very far from the coast, or in rivers or lake environments. According to manufacturers, there are numerous benefits: manufacturing, installation, maintenance and even decommissioning low cost, very low environmental impacts, operating in all currents forces of and even during maintenance. Flumill is now looking for locations and investors. (June 30th)

Biomass

A very significant boost has just been given to the research and use of microalgae. **Fermentalga** received € 14.6 million with OSEO support, in addition to € 5.3 million raised from investors in January, to develop the **EIMA** European project for industrial microalgae exploitation. With the culture of algae that do not require light and a performance far superior to others, production costs could be divided by 10 by EMIA over 5 years. EMIA brings together highly important industrial and scientific institutions. (June 21st)

Osmotic power

A more efficient membrane will give a new impetus to the production of electricity by reverse osmosis. The Norwegian **Statkraft** and **Hydranautics**, a subsidiary of the Japanese Nitto Denko, develop together an effective and robust membrane, allowing high flow rates, the condition for profitability. The membrane is the key element of the reverse

osmosis technology. It enables the production of electricity thanks to the salinity difference between two liquids. (June 28th)

Energy mix

In Florida, the **SNMERC (Southeast National Marine Renewable Energy Center)**, already known for its work on sea corrosion and its participation in developing the legal framework for marine energy development, will develop its function as R&D and test centre at sea. Six groups are already planned: prevention and health, rotor /propeller and instrumentation, fluid dynamics and simulation, materials, corrosion and bio-fouling, systems dynamics and stability, and ecosystems interactions. (June 7th)

Similarly in Canada **Axys Technologies Inc.**, already providing all the information needed to install and manage offshore wind turbines through the "Windsentinel" buoy, expands its offer to waves and currents energy. Several versions are planned: "Triaxys with current buoy" to quantify ocean currents and waves, "Axys hydrolevel" to measure the water level rise, and the "Axys wave view" software to read, decode and store the information received. (June 9th)

BLOG NEWS

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