Press Release

SEM-REV
The offshore test site of Centrale Nantes ready to supply its first kWhs to the French electrical grid

Nantes, 28 June - Centrale Nantes and Mojo Maritime France teams have worked 24/7 for the last week off the coast from Le Croisic. Their goal was to replace a defective connection box which was preventing electrical connection to marine energy (wind and wave) converters.

The **Floatgen** floating wind turbine, the first French offshore wind turbine, is one of the few floating wind turbine prototypes installed in the world today. The turbine had been waiting for this moment since the day it arrived on site last May. The operation, carefully managed by Mojo Maritime France, was a total success and the 8MW electrical connection is now operational and will start supplying energy this summer.

For the record, it was two years ago that Centrale Nantes researchers and engineers installed the subsea connection hub, to which three demonstrators can connect simultaneously on the SEM-REV site. Since then, projects have been queueing up to access one of the few multi-technology test sites in the world. The first of these was the iconic Floatgen floating wind turbine, developed in a consortium with Ideol and Bouygues Travaux Publics.

However, the final validation checks on the connection revealed an insulation defect on one of the phases of the 25km-long underwater cable. It was then a race against the clock to not jeopardize the future of the site and its projects: the connection had to be repaired by 2018.

Press Contact

Centrale Nantes - Emilie Demange + 33 (0) 2 40 37 16 90 emilie.demange@ec-nantes.fr

But where exactly was the defect? The answer is far from obvious when you consider that the export cable, intersected by fifteen connection boxes, is buried 20m deep under the rock of the Croisic coastline from where it extends for a further 23km towards the offshore site, under more than two metres of sand and at sea depths of up to 40m. It took eighteen months of intensive research at Centrale Nantes to pinpoint the exact location, thanks to advanced technologies based on electrical echometry and acoustics, implemented by the ENEDIS and EDF teams. The defect was gradually tracked down to a faulty connection box which fortunately lay on the seabed, accessible and interchangeable.

The decision was made quickly: change the box and restore the integrity of the electrical connection while maintaining the quality of the optical fibres that run through it, all at a depth of 40m. Centrale Nantes thus drew on the expertise of Mojo Maritime France, the Nantes-based local subsidiary of James Fisher Marine Services whose offshore project management experience is well established in the marine renewables sector. An imposing offshore construction vessel, the Ariadne, was chartered for the occasion; in favourable weather, five days was ample enough time to complete the operation and allow the site to supply its first kilowatt hours.

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About Centrale Nantes and SEM-REV

With research platforms ranging from digital simulation to ocean test facilities and on-site testing, Centrale Nantes has developed strong expertise in training, research and innovation in the maritime sector (shipbuilding, energy). Centrale Nantes started the SEM-REV project in 2007, with the aim of supplementing its skills and resources in the development and validation of Marine Renewable Energies. SEM-REV represents today an investment of €20M and it is set to play a decisive role in meeting the challenge of Marine Renewable Energy development in France.

The test site has all the necessary permits, equipment and measurement capabilities to develop, energy recovery systems (mainly from wind and wave sources) under operational conditions. It is the world's first multi-technology offshore test site designed specifically for marine renewable energies.
It is composed of an offshore area of approximately 1km^2 located 20km off Le Croisic and is connected to the Enedis network via a buried electric export cable. It has a maximum power of 8MW and its own electric sub-station on land. An innovative undersea hub and dynamic cable specifically designed to connect a high-power floating demonstrator will connect up to 3 systems simultaneously.

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About Floatgen

The first of the prototypes to be hosted by SEM-REV is the Floatgen floating wind turbine project (2MW) supported by three founding partners (the start-up IDEOL, Centrale Nantes and Bouygues Travaux Publics). The main elements of its anchoring system were assembled and installed in the summer of 2017. This system consists in particular of 6 synthetic mooring lines (nylon) - a first for permanent anchoring of this dimension.

It is one of the first floating wind turbines in the world and the first French offshore wind turbine. It was inaugurated in October 2017 in St Nazaire in the presence of Sébastien Lecornu, Secretary of State to the Minister for Ecological Transition. The first kWhs are expected this summer.

About Mojo Maritime

Mojo Maritime France SAS is the subsidiary of James Fisher Marine Services, a part of James Fisher and Sons plc. With offices located in Nantes, Mojo Maritime France specialises in project management, engineering and consultancy services for the offshore renewable energy industry. With its experienced team of analysts, engineers, naval architects and master mariners, Mojo Maritime France has built a successful track record supporting multiple high profile projects in offshore wind, wave and tidal energy. In addition, Mojo Maritime France actively develops a range of products geared towards reducing the inherent risks and costs of working offshore. These include Mermaid® which is one of the most sophisticated marine operations and analysis system available that quantifies weather risk by forecasting its impact on simulated project plans.

About James Fisher Marine Services Ltd.

James Fisher Marine Services (JFMS) was formed in 2008 to provide a single contractual interface to the specialist marine and subsea services provided by the companies within the James Fisher group. JFMS specialises in project management, engineering and consultancy services for the marine renewable energy industry. With its experienced team of analysts, engineers, naval architects and master mariners we have built a successful track record supporting multiple high profile projects in offshore wind, wave and tidal energy. In addition to this, JFMS actively develops a range of products geared towards reducing the inherent risks and costs of working offshore.

Useful links:
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Press Contact

Centrale Nantes - Emilie Demange + 33 (0) 2 40 37 16 90 emilie.demange@ec-nantes.fr