

Boost for wave energy: half the Wave Hub berths now filled

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Two of the four berths at an EU-funded grid-connected offshore marine-energy test site have now been filled. Wave Hub, located off the Cornish coast in the United Kingdom, is the largest test site of its type in the world. It is supported by EUR 23 million from the European Regional Development Fund under its Convergence objective, which focuses on supporting sustainable integrated economic development and the creation of sustainable jobs.

Wave Hub provides shared offshore infrastructure for the demonstration and proving of arrays of wave energy-generation devices over a sustained period of time. Situated 16 kilometres off the coast, it consists of an electrical hub on the seabed, to which wave [energy devices](#) can be connected. Four separate berths are available to lease, each with a capacity of between 4 MW and 5 MW. Combined, these four berths have a capacity equivalent to the electricity needs of more than 7 000 homes.

The latest company to get on board and take part in Wave Hub is the Irish company OceanEnergy Limited. They join Ocean Power Technologies (OPT), based in the [United Kingdom](#) and the United States, who have already signed a commitment agreement to deploy their PowerBuoy device at Wave Hub.

For the past three years, OceanEnergy has been testing a quarter-scale prototype of its OE Buoy in Galway Bay, Ireland. These tests were given a boost as part of the EU-funded CORES ('Components for ocean

renewable energy systems') project, funded in part by more than EUR 4.5 million under a grant from the Seventh Framework Programme's (FP7) 'Energy' Theme.

Now the OE Buoy tests will be put into practice at Wave Hub, essentially a giant 'socket' on the seabed that is connected to the national grid on shore by a subsea [underwater cable](#) that weighs 1 300 tonnes and stretches for 25 km.

The OE Buoy uses the oscillating water column principle. As waves enter a subsea chamber, they force air through a turbine on the surface and generate electricity. As the waves recede, they cause a vacuum, drawing air back through the turbine. The technology employed means the turbine rotates continuously, regardless of the direction of the airflow. This improves efficiency and involves only one moving part, minimising maintenance costs.

Research, Innovation and Science Commissioner Máire Geoghegan-Quinn visited the OE Buoy in November 2010 during the CORES project.

Wave Hub general manager Claire Gibson comments on filling the second berth: 'I am pleased to confirm our partnership with OceanEnergy Limited and look forward to assisting them with their deployment at Wave Hub later this year. OceanEnergy has completed three years of prototype testing in energetic sea conditions and is ready to make the next step to Wave Hub with a full-scale device. If the testing goes well, we expect to see OceanEnergy deploy an array of devices at Wave Hub. By supporting OceanEnergy's deployment, now we can fully test our operational procedures and establish the process for securing a Marine Licence. This will support and accelerate further deployments at Wave Hub.'

With long sections of coastline facing directly out to the Atlantic Ocean, the United Kingdom and Ireland are both well placed for fostering [wave energy](#) development, as storms far out in the Atlantic generate waves that eventually reach these shores.

Harnessing the energy in these waves can provide a secure supply of green electricity for many years to come - one that doesn't emit dirty greenhouse gases into Earth's already clogged up atmosphere. Supporting and encouraging this type of technology is essential if the EU is to meet its target of sourcing 20% of its energy needs from renewables by 2020.

Wave technology is still relatively young, and in order for these systems to progress towards full commercial realisation they need to be successfully developed into units suited to mass production.

More information: www.oceanenergy.ie/

Provided by CORDIS

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