Offshore wind ‘living lab’ switched on in Grimsby as port looks to accelerate development of digital tools

A living lab for digital development in offshore wind has been switched on in Grimsby, with ministerial backing for the world-leading project.

The £2.8 million 5G Portal – Ports and Offshore Renewable Technology Accelerator Lincolnshire – covers the operations and maintenance cluster as well as the Lynn and Inner Dowsing wind farm. The first investment in regional offshore wind is being used as a testbed for a new generation of technology, as first revealed in April .

It will help accelerate delivery of tools to aid the huge expansion required to meet the 50GW target by 2030, giving providers and developers access to real world conditions, bolstered by the roll-out of reliable, high speed communications.

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- Myenergi secures £30m from global investment firm

Minister for Energy Security and Net Zero, Graham Stuart, said: “As a country, we need to embrace new ideas and technologies to make sure the global boom in offshore wind continues. The high-speed communications infrastructure will provide the perfect environment to test and develop the next generation of digital technologies – making our wind farms smarter, safer and greener.

“This will also level up the country by sustaining 200 skilled jobs, supporting more than 120 businesses and creating 20 new enterprises. Thanks to the 5G Portal, Grimsby is becoming world famous as the driving force behind the digital revolution in offshore wind.”

Launching the 5G Portal living lab, from left, Tony Lyon, Xceco; Jo Goubert, Accelleran; Peter Smith, ABP; Ben George, ORE Catapult; Halina Davies, Greater Lincolnshire LEP; Simon Hart, Innovate UK; Donal O’Sullivan, Boldyn Networks and James Thomas, Jet Connectivity, with an Xocean autonomous, solar powered vessel to help with subsurface and turbine inspections.
(Image: ORE Catapult)

Funded by Innovate UK and Greater Lincolnshire Local Enterprise Partnership, the lab was switched on at the Offshore Renewable Energy Catapult’s Operations and Maintenance Centre of Excellence in Grimsby’s Port Office.

5G Portal is delivered by a consortium led by ORE Catapult, bringing together the expertise of Microsoft, XceCo, Associated British Ports, Accelleran, Jet Connectivity, Boldyn Networks and Satellite Applications Catapult.

Andrew Macdonald, director of offshore wind development and operations at ORE Catapult, said: “We are delighted the 5G Portal has been switched on – opening the door to an exciting new future for offshore renewable energy in the Humber with our expert partners.

“It will provide a real-world test and demonstration zone for robotics, AI, remote sensors, wearable technology, zero emission vessels, smart ports – driving forward the digital evolution of our next generation wind farms. Innovators can make the most of this unique resource as they bring new products and services to market, both in the UK and across the world. We believe it will attract investment from the global offshore wind market that will be felt regionally and nationally as offshore wind rapidly expands and opens up significant export opportunities.”

Two 5G technology development and demonstration zones linked by a fibre network have been created – one end at Port of Grimsby and the other within the Lynn and Inner Dowsing wind farm off the Lincolnshire coast. A total of 15 5G radio transmitters are placed across five sites – including four wind turbines and a radio mast in the port -, working in conjunction with a solar powered 5G buoy developed by Jet Connectivity, together providing an extended private 5G network over a 45 sq km area.

Demonstrations at launch included:

- ABP and HeroTech8 – autonomously controlled drones designed to conduct inspections offshore, provided video, sensor capture and data transmission before returning to base.

- Microsoft – a live feed from the port mast relayed data back to base where it was shown through HoloLens interactive software as interactive augmented reality. This will remotely assist and direct field technicians with instructions overlaid on their visors.
- ABP and BT – video monitoring and image processing with AI – used to monitor lock gate movements and vessel conditions with image recognition software, to determine changes or damage to vessels.
- Xocean – an autonomous, solar powered 5m vessel to help with subsurface and asset inspections.
- JET Connectivity – its data dashboard showed environmental, weather, and 5G service data from the 5G buoy.