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Making waves in offshore wind R&D Siemens partners with Newcastle University

Siemens the world leader in offshore wind energy solutions is collaborating with the Newcastle University and offshore specialist ALE in an innovative offshore R&D programme. Focused on ensuring the future energy transmission needs of the offshore wind industry are met effectively, wave tank modeling is part of the wider Offshore Platform Reference Design (AC and HVDC) project which sits within the Wind Innovation Programme managed by Narec, the Blyth-based National Renewable Energy Centre. The project is supported by the Government's Regional Growth Fund (RGF) initiative.

The UK is one of the world's leading markets for offshore wind energy and has one of the most ambitious development programmes to date in the Crown Estate's Round Three offshore programme. The size and scale of the offshore programme together with the need for deployment further out to sea than ever before (up to 80kms), will require much more robust offshore substation designs and a foolproof platform installation strategy.

Utilising its resources and vast experience in offshore grid interconnection projects, Siemens is developing an AC reference platform design, and an initial HVDC reference platform design to kick start its multi-million Euro R&D project for full reference design. Siemens needed partners with the right kind of expertise to work together to ensure that the UK industry is prepared for the deployment and installation of these huge offshore structures. Newcastle University and ALE will support Siemens in conducting motion analyses of the platform during installation, in a wave tank environment using scale models developed for the project.

Steve Jones, director – Engineering and Technology Siemens Power Transmission said:

“The wave tank project is really leading-edge R&D and something that we have been using in Siemens along with other methodologies to test these structures. In looking at the UK, where we play a lead role in the offshore industry, we were keen to work with local partners who could compliment our in-house expertise. The University of Newcastle and Staffordshire based ALE were perfect choices, enabling us to leverage experts from both our Manchester and Newcastle offices on this key project.”

The wave tank project aims to de-risk the overall deployment of offshore HVDC transmission projects by targeting three elements of the process; AC and HVDC platform designs, HVDC platform installation, and sub-sea cable procurement strategy. It is hoped that improving the overall deployment process, in partnership with UK/European design and construction companies will greatly increase the ability of Siemens in the UK and local partners to compete with overseas providers and create jobs and skills in the longer term.

Peter Bowes, facilities manager, School of Marine Science and Technology at Newcastle University said:

“Newcastle University’s expertise and state-of-the-art extensive testing facilities are well placed to support Siemens in addressing the practical challenges presented in the developing the deployment of Topsides structures in the North Sea and helping to validate and inform computer simulations. Such strategic interactions inform our teaching and research in this area, which will ensure that the excellent employability record for our graduates will continue to be maintained into the future.”

Alan Waggott, chief engineer, Narec said:

“Narec is delighted to see this project entering the test and demonstration phase; it is playing a pivotal role in preparing the industry for the deployment and installation of HVDC platforms”

“The project is one of six projects being managed by Narec which is involved in the Government’s RGF Wind Innovation Programme, focused on supporting investment and economic growth in the UK offshore wind industry.”

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Siemens plc

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* Data includes intercompany revenue. Data may not be comparable with revenue reported in annual or interim reports.

RGF Wind Innovation Programme

The £11 million RGF Wind Innovation Programme initiated and managed by Narec, which includes match funding from the private sector to the order of £5 million, is delivering a total of six major technology projects (Romax Technology Ltd, University of Sheffield, TWI, HVPD, David Brown Gear Systems Ltd and Siemens Transmission and Distribution Ltd) that are addressing key technical challenges associated with the offshore wind supply chain. The programme is expected to create or safeguard in the region of 750 jobs with further employment opportunities expected to follow.

Regional Growth Fund (RGF)

The Regional Growth Fund (RGF) is a £2.6 billion fund operating across England from 2011 to 2016. It supports projects and programmes that use private sector investment to create economic growth and sustainable employment. The first three rounds allocated £2.4 billion which will leverage over £13 billion of private sector investment and create or safeguard over 500,000 jobs. The RGF is a flexible and competitive fund, with bidders able to submit bids either as a project or a programme.