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NEWS RELEASE

Trident Energy and 42 Technology make waves with improved PowerPod II design

Trident Energy – an independent developer of enabling technology for the offshore renewables industry – has announced today that a technology optimisation project with 42 Technology has ‘exceeded all expectations’ in improving the performance of the company’s novel linear generator concept.

The re-designed concept, named PowerPod II, represents a major advance for Trident Energy and its WaveDrive project, which is aimed at developing a generic power take-off (PTO) system for use in a broad range of wave energy converter (WEC) devices. Trident’s WaveDrive project was awarded almost £0.5M in development funding earlier this year from Wave Energy Scotland (WES) as a Stage 2 project in its PTO innovation call.

“42 Technology has undertaken a detailed design review of Trident’s existing PowerPod linear generator and has successfully optimised it for performance, robustness and manufacturability. The design improvements and project outcomes have exceeded expectations and the two companies are now progressing to detailed design of the new linear generator technology,” said Steve Packard, CEO of Trident Energy.

Tim Hurst, managing director of Wave Energy Scotland added: “I am pleased to see the improvements to this technology’s performance. This is a success for Trident and an excellent contribution to the advancement of wave energy technology.”

The new PowerPod II concept is based on a single generic design that can be adapted for use in different types of wave energy converters and certain tidal energy devices, potentially enabling higher manufacturing volumes, lower cost and faster commercial deployment. The new concept is similar in size to its predecessor but it generates 50% more electrical power on each stroke thus helping WEC developers implement more cost-effective and competitive systems.

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The magnetic stack configuration has been optimised to allow the linear generator to operate horizontally, widening the available options for installation and operation. Improvements to the seal design for 'in-sea' operation and a more robust bearing solution have been implemented to further increase reliability and reduce maintenance cycles. The improved PowerPod II design is also fully controllable using solid state power electronics, which opens the door to advanced "real-time" control systems and improved energy capture efficiency of WEC devices.

In addition to 42 Technology, Trident has also appointed a number of other leading engineers and academics into its WaveDrive project team consortium for their expertise in using state-of-the-art modelling and analysis tools to help solve specific design challenges.

Notes for editors

About Trident Energy

Trident Energy's PowerPod uses a linear generator to convert the motion in sea waves directly into electricity, without the need for intermediate systems such as gearboxes and hydraulics, and thereby potentially offering a simpler, lower cost and more reliable power take-off (PTO) solution for the emerging wave energy sector.

PowerPod PTOs offer 4-quadrant system control capability which can be operated in real-time using solid state power electronics. Using this approach to deliver WEC (wave energy converter) system control capability means the PowerPod PTO is able to instantaneously alter the spring and damper characteristics and thereby opening the door to advanced WEC control systems.

The rapidly emerging advanced control systems for WEC devices are seen as a possible "step change" in the economics of converting wave energy into low cost renewable electricity.

For further information see www.tridentenergy.co.uk

About 42 Technology

42 Technology is a technology innovation and product development consultancy that helps to create innovative new products and manufacturing processes for some of the world's best known brands, as well as start-ups and SMEs. The company works across five key sectors: consumer, industrial, energy, healthcare, and transport.

The company offers its clients a cost-effective and efficient approach by supplementing its own team of industry-experienced engineers, scientists, designers and project managers with specialist skills drawn when required from an extensive network of associates and partner companies.

42 Technology was founded in 1998 and is based in St Ives, near Cambridge.

For further information please visit or contact:

- www.42technology.com
- Press enquiries or requests for supporting images should be directed to Simon McKay on +44 (0)1353 741075 or email to simon.mckay@42technology.com
- All other enquiries to Adrian Swinburne at 42 Technology on +44 (0)1480 302700

WaveDrive project consortium

42 Technology is one of a number of companies and organisations that Trident Energy has appointed to help deliver its WaveDrive project. The other consortium members include:

- **University of Warwick** - responsible for design of the EC&I of the enhanced LG and implementing advanced control system capability.
- **West Coast Wave Initiative/ University of Victoria** – leading the hydrodynamic modelling and advanced control systems work package.
- **Technology from Ideas** – designing next generation end-stops, with tailored stress-strain response for a wide range of WEC applications.
- **Energy Technology Centre** – leading the detailed design of a linear test bed capable of simulating real-wave conditions for testing PowerPod II.

- **Sgurr Energy** – providing project management services to Trident and the other WaveDrive consortium members. Sgurr will also handle dissemination to the industry at the end of the project later this year.

About Wave Energy Scotland

Wave Energy Scotland (WES) takes an innovative approach to supporting the development of wave technology. WES is supporting and accelerating the development of wave energy technology in Scotland and was established as part of Highlands and Islands Enterprise, at the request of the Scottish Government, during December 2014.

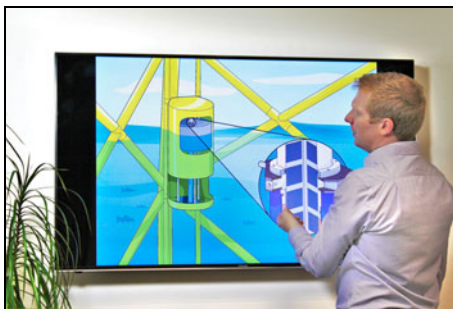
WES will provide funding packages for the development of innovative technologies to produce low cost, efficient and reliable components and subsystems which can form the basis of the cost effective generation of wave energy in Scotland. WES will enable developers to take projects from the earliest stage of development through to proving and demonstration.

A successful outcome will produce a technology which has been through a rigorous process to reduce the technical and commercial risk attached to developing it further. This is essential for developers to attract private sector investment which will be vital to produce wave energy on a commercially viable scale.

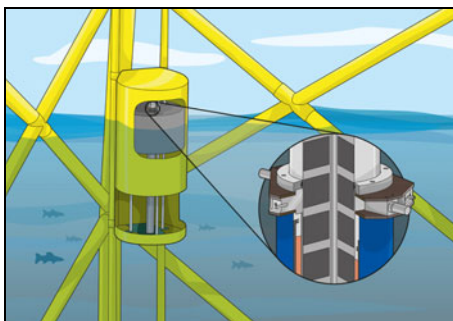
WES is fully funded by the Scottish Government and has a budget of £14.3m until the end of the financial year in 2016. The budget for the following years is expected to be similar but is subject to parliamentary scrutiny and approval. For further information: www.hie.co.uk

Photography

High resolution versions of the images embedded in below have been attached to the original email or are also available from Simon McKay (contact details above) on request.



1 – 42 Technology has completed a detailed design review of Trident Energy’s existing PowerPod linear generator to optimise it for performance, robustness and reliability. This image show Alan Mackay, project lead for 42 Technology working on Trident’s new PowerPod II concept.



2 – This image shows a CAD drawing of Trident Energy’s PowerPod II attached to an offshore wind foundation (with detailed view of generator).



3 – Trident Energy's WaveDrive project, which is aimed at developing a generic power take-off system, was awarded almost £0.5M in development funding from Wave Energy Scotland (WES) earlier this year. The Highlands and Islands of Scotland are home to incredibly rich wind, wave and tidal resources, and are central to an increasingly global marine energy industry.
Credit: Mark Ferguson/Alamy

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