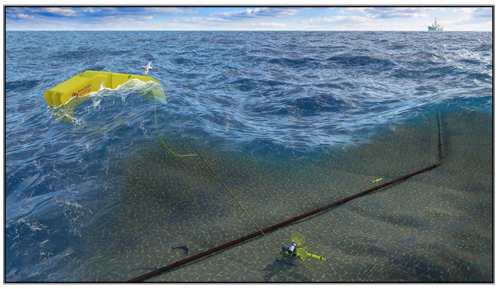
AWS Ocean Energy Waveswing Device



Mocean Energy Blue Horizon Device

Wave Energy Scotland has run a technology development programme for the last five years progressively selecting the best performing technology through a competitive process. The programme has worked with over 230 organisations from industry and academia on 96 projects and provided over £41M of funding.

ABOUT WAVE ENERGY SCOTLAND

Wave Energy Scotland (WES) is fully funded by the Scottish Government, with the objective of developing cost competitive wave energy technology. This technology would provide utility scale energy from wave farms around the UK and beyond. At lower power the technology can provide power to off grid applications in the oil and gas industry, aquaculture, defence and for remote sensing and instrumentation.

RECENT PROGRAMME ACHIEVEMENTS

WES' Novel Wave Energy Convertor programme is now in its third stage with two companies being awarded £7.7 million to develop half scale wave energy machines. These will be tested at the European Marine Energy Centre (EMEC) in 2021, experiencing challenging sea conditions.

Five projects have been taken through to stage three of the Power Take-Off programme. Recent highlights include Edinburgh based Artemis Intelligent Power demonstrating highly advanced hydraulics technology on a bespoke test rig simulating wave conditions. Their Digital Displacement based solution also has value for markets in other sectors such as rail and the automotive industry. The University of Edinburgh, CorPower and Umbra Group have both completed sea-based trials of their technology, and Oceaneering continue to develop a magnet based contactless gear solution.

In February 2020, £1 million was awarded to two innovation projects designed to support further investigation of promising structural materials and manufacturing concepts. Now at stage three, these projects are looking at the role of concrete (Arup) and flexible membranes (Tension Technology International). A prototype of TTI's Netbuoy system is undergoing extended field trials in the Cromarty Firth in September. While the work for WES is targeting wave energy technology, TTI has identified applications for NetBuoy in tidal stream and offshore wind technologies.

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Our latest programme for Quick Connection Systems opened in 2019 and four companies have progressed into the second stage. Projects within this programme seek to develop mechanical, electrical or combined technologies that address the challenging conditions experienced when securing wave energy converters. In common with other WES programmes, experience and expertise from other sectors is being used to make wave energy achievable.

CHAMPIONING RENEWABLES

Wave Energy Scotland is supporting projects that can demonstrate a route to market for their designs and solutions which meet the WES requirements. WES is particularly interested in technology transfer from other sectors such as automotive, offshore wind, mining, aerospace, defence, maritime and oil & gas. Innovation and collaboration are actively encouraged between business, research institutes and academia.

WES is running an internal project called SEAWEED (Systems Engineering Approach to Wave Energy Engineering Design) using structured innovation to identify the best concepts for wave technology. This technique is used in the automotive and aircraft industries to produce more optimised designs. The US Department of Energy and the EU are interested in this approach and we are collaborating with them on this.

KNOWLEDGE CAPTURE AND DISSEMINATION

WES is running a 'knowledge capture' project, where wave developers and supply chain companies past and present are being asked to identify the lessons learned in the sector and suggest future options for WES.

KNOWLEDGE SHARING

The results of the 'knowledge capture' project and results from other projects will be shared within the programme to help prevent repetition of past failures, duplication of effort or accelerate new technology. This information is shared among the programme participants, as well as through the online WES Knowledge Library, which is a free resource accessible to the public and other developers and researchers.

DTOCEAN PLUS

As part of the DTOceanPlus consortium, funded by the European Commission, WES is leading the creation of the Stage Gate design tool. This software package will accelerate development of ocean energy technology by guiding developers and funders and helping them implement a stage gate process, as used in the WES programme. Alongside this, WES is collaborating internationally to build global consensus on development processes and technology assessment methods.

OCEANSET

Through its participation in the OceanSET project, WES is preparing a pathway for the European Commission to realise its ambition of a commercial marine renewables sector, setting out the activities and investment requirements needed to see marine renewables become cost competitive over the next decade.

SALTIRE TIDAL ENERGY CHALLENGE FUND

The Scottish Government has engaged WES for the administration of their ambitious Tidal Energy Challenge Fund initiative. WES is using its broad marine energy innovation experience for application review, project and contract management, and finance monitoring to support the delivery of two home-grown projects deploying innovative tidal technology in Scottish waters.

For more information contact

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