Edinburgh Wave Developer teams up with BAE Systems

BAE Systems has joined forces with wave energy developer Aquamarine Power as part of a £450,000 project to deliver cheaper, more reliable sources of clean energy for homes across the UK and beyond.

The Technology Strategy Board awarded the grant, match-funded by the partners, to support a 2.5 year research, development and demonstration project to enable large-scale commercial production of Aquamarine Power's Oyster wave energy converter. The innovative device – a buoyant hinged flap – attaches to the seabed and moves backwards and forwards in the nearshore waves, pumping high pressure water onshore to drive a hydro-electric turbine, which then generates electricity for the National Grid.

Under the partnership, engineers at BAE Systems usually involved in the design, repair and maintenance of complex naval systems, will work with Aquamarine Power to develop an intelligent diagnostic system and remote ballasting mechanism. Together, these innovations will drive down maintenance costs and help to maximise energy production, paving the way for this ground-breaking technology to be rolled out on a commercial scale to establish Oyster clean energy farms around the world.

Kevin McLeod, Engineering Director at BAE Systems' Surface Ships division, said: "This is a great opportunity for us to apply skills developed in naval design and the management of large scale complex maritime engineering programmes to support the emerging marine energy industry.

"In working with Aquamarine Power as a partner, we are helping to pioneer commercial clean energy solutions that will help

the UK meet its ambitious climate change targets."

"The Oyster system works well," says Aquamarine Power Chief Executive, Martin McAdam. "Our next step is to drive down the cost of electricity generated from wave power through improvements in Oyster reliability and reduced maintenance costs.

"BAE Systems is a fantastic company with extensive experience in marine systems performance modelling and analysis. Our companies are very different in size, but we share a passion for engineering excellence and a belief in the global potential of wave energy. We are grateful to the Technology Strategy Board for providing the grant funding which has enabled this collaboration to take place."

Aquamarine Power's innovative Oyster technology is designed to be installed at around 10 metres depth, 0.5km from shore. Aquamarine Power has already installed and tested its Oyster 1 demonstration device at the European Marine Energy Centre in Orkney, Scotland, where it generates electricity which is transmitted to the National Grid to power homes in the local area. It is estimated that a farm of 20 Oyster 2 devices will generate enough energy to power more than 12,000 homes.

Iain Gray, Chief Executive of the Technology Strategy Board, said: "By 2050 we are going to have very different energy needs than we have today and we will be getting our energy from different sources. The UK is well placed to exploit wave and tidal stream energy resources with all of the coast line that we have, and it is expected this kind of technology will be an important part of the renewable energy mix needed in the future.

"We still need to prove which technological solutions will most successfully harness marine energy and we need to reduce the cost of the energy produced to make the technology competitive with other renewable energy solutions. So there

are a range of technological challenges to address.”

BAE Systems is already involved in a number of initiatives to support the renewable energy sector. The defence company actively works with the wind farm industry to resolve issues about their disruption to radars. Its engineers designed the electrical distribution system for the largest land based wind farm in Europe at Whitelee and BAE Systems is also working with partners to develop an deepwater offshore windfarm design.

Aquamarine Power closed a £6 million funding round this year and has subsequently been awarded more than £3 million from the Scottish Government WATERS fund (Wave and Tidal Energy: Research, Development and Demonstration Support). The company is actively seeking a major investment partner and a strategic technology partner to take the Oyster device through to commercialisation.