# New technology will **harness the power** of the sea

**A new wave power system** will be a pearl in the quest for cheaper and greener alternative energy. Edinburgh-based Aquamarine Power hopes to harvest this source and is now commercialising the Oyster device, developed by Queen's University Belfast (QUB). Oyster is ready for full-scale testing and is scheduled to be hooked up to the National Grid by 2013.

**3,000**
The number of homes that could be powered by just ten Oysters.

**2009**
Full-scale testing of the Oyster scheduled.

Oyster has no gearbox, generator or electrical components in the water. Instead, it transfers the sea's energy to the shore for electricity generation on dry land. This cuts costs, reduces environmental risk and makes Oyster easier to maintain and more reliable explains Sian McGrath, Aquamarine's head of commercial development.

"The most complex part of the system is onshore, so it is always accessible," says McGrath, "the hydroelectric plant on-shore is standard proven technology. All of these factors make Oyster cost competitive."

QUB's Professor Trevor Whittaker first investigated how to cut wave power costs in 2003. His project focused on studies of Oscillating Wave Surge Converters which led to Oyster. The innovative designs attracted the interest of Alan Thomson, retired founder of WaveGen, the UK's oldest wave power company. In 2005, Aquamarine Power was set up to commercialise Oyster.

Scaled-down versions of Oyster have been tested in QUB's wave power tank for the past three years and in 2008, the first full-scale prototype was fabricated and tested. Offshore trials at the European Marine Energy Centre (EMEC) in Orkney begin in Summer 2009. McGrath says the first fully commissioned demonstration wave power farm will be running by 2012, with commercial farms potentially operating as early as 2013.

An array of just ten Oysters could provide enough power for up to 3,000 homes – or 7,000 people – the size of a small town.

The company's portfolio now also extends to a tidal-power converter and a desalination device as well as Oyster. Aquamarine Power acquired rights to an underwater tidal turbine demonstrator called Neptune when it joined forces with Scottish and Southern Energy's subsidiary, Renewable Technology Ventures Ltd, in 2007.

The company utilises the best of both private and public sector research and technology and could become the first company to deploy both wave and tidal devices commercially, says McGrath. "There is a real opportunity for Scotland to lead the growth of a new worldwide industry," she adds. "This is a very exciting and important time for the marine energy industry, which is going from strength to strength."

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