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Increased Tidal Power Potential by Kite Usage

Minesto, a Swedish and UK based company, develops new technology for electricity generation from slow water currents. This niche opens up entirely new areas for electricity production from the seas. In the UK, the estimated power from tides increases from around 22 TWh to 40 TWh which corresponds to 3.8 million additional households. The existing owners Saab Group, Midroc New Technology, Verdane Capital and Encubator have recently invested additional capital to accelerate the development. In total they have invested just under €2 million into the company while additional funding has been received from both Swedish and UK governments.

UK forms a strategic base

During the summer of 2009, Minesto took the step of focusing its commercial operations in the UK. The technology has global potential but since the UK represents 50 percent of Europe's tidal power potential and is the most developed market in terms of infrastructure, incentive structures and experience in the world, and is therefore an excellent starting point for exploitation. Northern Ireland and Belfast are now home to all major UK activities.

Northern Ireland has been able to offer Minesto the perfect foundation. Co-operation between the private sector, universities and government has been inspirational. Our aim is to offer green electricity at a future low cost to citizens of Northern Ireland and the rest of the UK, says Anders Jansson, CEO at Minesto.

The UK is not unfamiliar with Minesto. In 2007 the technology was evaluated and taken up in the Marine Energy Accelerator (MEA) program by The Carbon Trust in a bid to accelerate the move to a low carbon economy. Carbon Trust is an independent company, set up by the UK Government in 2001 aiming to accelerate the commercialization of cost efficient marine energy technologies.

The Minesto device is a key component in the Carbon Trust's strategy to develop novel devices which represent the next generation of marine renewable energy, said Tom Delay, chief executive of the Carbon Trust.

A niche technology

The Deep Green device is a radically new principle for energy extraction from the ocean. It is the next generation of tidal power plant which can provide electricity to a broad range of countries worldwide. The new technology will contribute to a substantial increase of power from the tides with its ability to produce energy from areas where other technologies are less efficient. The main reason for this is the extended site areas available when looking at sites with a current velocity of 1.2-2.2m/s and depths between 60-120 meters. In the UK, Deep Green alone adds 18 TWh of electricity potential utilized from tides.

The company and future

Minesto's technology originates from the wind department at SAAB Group in Sweden. It was quickly determined that the concept was more suited to water, which is 832 times more dense than air. Since it was then beyond SAAB's core business it was spun out and Minesto was formed in 2007.

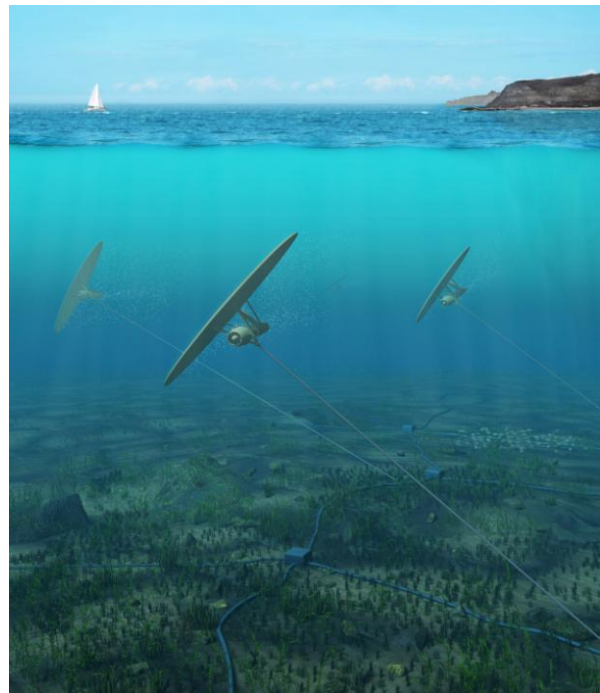
Today the concept is verified on a scale of 1:10 and Minesto is now working on the next prototype in a 1:4 scale. It will be tested in authentic conditions outside the coast of Northern Ireland.

We have been active on the UK market for several years and now we will deepen our UK relationships and set up a solid, experienced organization here. This will be a key success factor in bringing Deep Green to the market, states Anders Jansson, CEO of Minesto.

The Deep Green Principle

Flying kites might sound more of a seaside hobby than a serious way to plug the energy gap but Minesto has unveiled a way of using an underwater kite that can harness the power of the seas. The principle of the technology can be explained as a two stage process. The first stage increases the relative flow speed entering a turbine. When the tide hits the wing it creates a lift force, since the kite is mounted to the ocean bed with a tether and is controlled by a rudder, the kite can be taken in the desired trajectory. The method increases the flow velocity into the turbine with 10 times the current speed. The second stage uses a conventional plant to convert kinetic energy into electrical power. The net result is increased power from a smaller package.

The power plant weighs only 13-14 tons/MW and electricity generation costs using Deep Green are in the range of 0.06 to 0.14 Euros per KWh.



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