

Marine Current Turbines

Running with the tide of renewable energy

SeaGen News (August 2006) Experimental Tidal Turbine Development at Strangford Lough

This newsletter provides the latest news about the installation of the SeaGen tidal stream turbine in Strangford Lough by Marine Current Turbines Ltd (MCT). Due to be installed in late 2006/early 2007, Seagen will generate electricity equivalent to the needs of about 800 homes. The SeaGen project will demonstrate the commercial potential of tidal stream energy whilst at the same time showing that tidal stream turbines, if sensitively located and operated, have little or no environmental impact.

Tidal Stream Energy - sustainable and predictable

Generating clean and sustainable electricity from tidal waters is now accepted as one of the ways to reduce the harmful effects of global warming by CO₂ emissions reduction whilst also helping to meet the UK's renewable energy targets (20% of UK electricity generation from renewable sources by 2020). Within UK and Irish waters, it is estimated that there is an exploitable tidal capacity of 7,000 GW, equivalent of about 3 to 4 nuclear power stations.

After the successful trial of MCT's first prototype, the 300KW Seaflow, off the North Devon coast, Seagen will be the first ever tidal stream energy device to be connected to the grid. SeaGen will have a capacity of 1.2 MW, and generate electricity on an entirely predictable basis, 365 days a year. It comprises two turbines mounted either side of a single monopile structure which work rather like under-water windmills, but in this case driven by the strong water currents rather than the wind.

Government Support

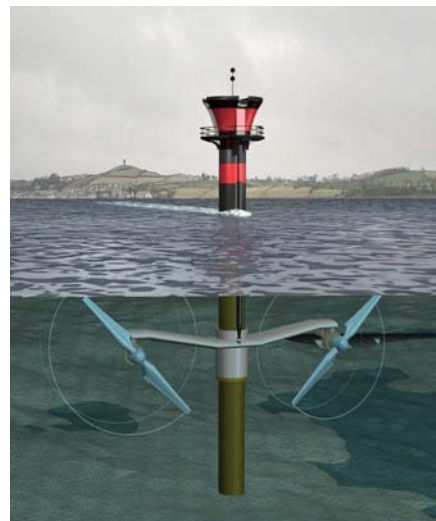
The SeaGen experimental tidal stream turbine is supported by the Northern Ireland Government and the Department of Trade and Industry (DTI). Malcolm Wicks, the UK Energy Minister, said in December 2005: "The Strangford location will afford a unique opportunity to further our understanding of the true environmental impact as well as the generation potential of these new technologies. It is a real feather in the cap for Northern Ireland to be at the forefront of developing the technology to commercial scale". The DTI has provided a grant of £4.7m to cover nearly half the cost of the project. The SeaGen project has also been welcomed by Peter Hain, Secretary of State for Northern Ireland (pictured below with Martin Wright, MCT's Managing Director).

Environmental Monitoring

Strangford Lough is protected under European and National Law for its important habitats and species and therefore a robust and high-level environmental monitoring programme is essential to ensure no significant impact to the environment. So SeaGen will be installed in Strangford Narrows for a period of up to 5 years and during this period will undergo rigorous operational monitoring and testing to evaluate its impact on the marine environment. MCT has developed a comprehensive £2M environmental monitoring programme, in conjunction with the Department of the Environment and Heritage Service, scientists and conservationists, to ensure that any potential significant impacts on the integrity of the internationally designated site are identified early to avoid any damage to the environmental features within Strangford Lough.

A SeaGen Science Group has been established to regulate the project, deliver and ensure the environmental monitoring is carried out to the highest of standards. The group consists of the following members:

Member	Organisation	Role
David Erwin	Independent	Independent Chair of Science Group
Joe Breen	Department of the Environment and Heritage Service Northern Ireland (EHS)	Northern Ireland Government Regulator
Phil Elliot	Department of the Environment and Heritage Service Northern	Northern Ireland Government Regulator



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	Ireland (EHS)	
John Anderson	Council for Nature Conservation and the Countryside (CNCC)	Northern Ireland Government Advisor for Nature Conservation Issues
Andrew Prior	Joint Nature Conservation Committee (JNCC)	Government Advisor for Nature Conservation Issues
Pat Boaden	Ulster Wildlife Trust (UWT)	Non Governmental Organisation providing advice on environmental issues
Ian Boyd	Sea Mammal Research Unit (SMRU), St. Andrews University	Sea mammal research and data collection
Alice MacKay	Sea Mammal Research Unit (SMRU), St. Andrews University	Sea mammal research and data collection
Graham Savidge	Portaferry Marine Laboratory, Queens' University Belfast	Marine data collection, surveying and monitoring with scientific support
Alistair Davison	Royal Haskoning	Environmental monitoring project director
Andrew Finlay	Royal Haskoning	Environmental monitoring project manager
David Ainsworth	Marine Current Turbines (MCT)	Seagen Project Manager

The SeaGen Science Group has now met twice where the preliminary results of a years' worth of baseline observational data set have been discussed. Since April 2005, Queens University Belfast have been undertaking conducting observation surveys of all marine mammals (seals, dolphins and porpoises), sharks and diving birds. These results will form the primary baseline data set from which all future data throughout the operation of the turbine will be compared to. This will enable the detection of changes to be made before the turbine has any significant impact on the environmental features of the Lough.

In addition, the Sea Mammal Research Unit (SMRU) from St Andrew's University, is tracking by satellite 12 seals which have been electronically tagged. This will enable the Science Group to determine any future changes in the behaviour and locations of the seals. SMRU has also started aerial imaging surveys with the latest thermal imaging equipment mounted to helicopters to detect usage of the narrows by different marine animals. Sonar equipment has also been deployed within the narrows to detect the presence of porpoises under water. It is intended that the data collected will enable the Science Group to determine if the presence of the slow rotating turbines (maximum speed 14 RPM) will causes porpoises and other marine species to change their behaviour.

The project team is also establishing a Liaison Group made up of all other interested parties who do not have a direct involvement in the scientific work. This group met on 1st August to further ensure that all environmental issues are being considered during SeaGen's installation and operation. The attendees included the Department of the Environment and Heritage Service, the Crown Estate, the NI Department of Enterprise Trade and Investment (DETI), Office for the Regulation of Energy and Gas, Strangford Lough Management Advisory Committee (SLMAC), the Department of the Agriculture and Rural Development - Fisheries Division, The National Trust, The Ulster Wildlife Trust, The Royal Society of Protection for Birds, Strangford Lough Yacht Clubs and other interested stakeholders.

Next Steps

The environmental monitoring work is well underway with teams from the SMRU and Queen's University Belfast collecting data from both sides of the Narrows, seal tagging, aerial imaging, marine benthic surveys, and active and passive sonar deployment.

Meanwhile, MCT is building the SeaGen system for installation during the late 2006. The precise schedule of the work has yet to be confirmed but prior to the installation there will be some limited activity in the area, for example the construction of the electrical substation for the grid connection.

Local Liaison & Consultation

MCT and members of the project team are keen to share its plans with local people and listen to people's views about the project. A project specific website (www.seageneration.co.uk to be live early September) will carry regular updates on the SeaGen project, a public exhibition of the SeaGen plans will be held during the September before installation and another newsletter will be produced to coincide with the exhibition.

In the meantime, if you have any questions about any aspect of the project, please contact us at: Seageninfo@marineturbines.com or at Marine Current Turbines Ltd.

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