



News from Pulse Tidal Ltd.

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Shallow water tidal device delivers predictable, low cost, renewable energy

- **Concept “will surpass wind turbine as most economic source of offshore power”**
- **Horizontal blade device provides lowest cost tidal energy in global market worth £6+ billion p.a.**
- **Chemicals manufacturer becomes first to receive direct tidal power supply**

The first fully predictable electricity generated by tidal power in shallow waters is now coming ashore on the banks of the Humber. The test system shows that predictable energy can be produced close to shore where it is needed, reducing massively the investment required to install, connect and maintain devices compared to those in remote locations.

Sheffield-based Pulse Tidal believes its approach will surpass the wind turbine as the most economic source of offshore power. In addition, the fully submerged design dramatically reduces the environmental impact.

The 100kW Humber prototype system, in which tidal streams move horizontal blades up and down to drive a generator, has shown it can harness enough energy to power 70 homes. Pulse is now engineering a much larger device that will deliver the lowest lifetime cost of power from tidal streams thanks to its reliability and its straightforward installation and maintenance.

Pulse chief executive Bob Smith says: “The last few months of operation have shown that the Pulse concept offers an economic way to recover predictable, renewable energy from the tides.

“According to the latest industry figures*, offshore wind energy costs between 8p and 11p per kWh to produce. We believe that the Pulse system will be more cost effective than offshore wind after only 1-200MW has been installed.

“In fact, offshore wind power costs have been rising. The Government has responded to this by increasing the incentives for offshore wind projects from 1.5 ROCs (Renewables Obligation Certificates) to 2 ROCs. Unless it is matched by an increase in incentives for Tidal Power, this short-term measure will divert investment from technologies like ours which can ultimately be more cost effective.

“Pulse’s first device has opened up shallow water resources close to shore for direct connection to end users. Our next device will be much larger, providing power for around 1,000 homes. It will be able to operate in a wide range of water depths, but we will focus initially on the shallow sites since they offer lower cost and are less complex. We are currently negotiating the location for our first full-scale project, which will begin operation in 2012.”

£6billion annual market for tidal energy

The Carbon Trust estimates the worldwide tidal energy market will generate over 120TWh of electricity per year, equivalent to at least £6 billion worth of power annually.

Pulse Tidal's device was commissioned in May in the Humber estuary's shallow waters off Immingham Dock. It is now feeding electricity into Millennium Inorganic Chemicals on the south bank of the Humber, making MIC the first UK company to take a direct feed from tidal power.

Commissioning of the PS100 is the culmination of 10 years development by inventor Marc Paish, Pulse's chief technology officer. He says: "The teamwork between IT Power, Humber Work Boats, Corus and Senergy Econnect has enabled us to prove that low cost, reliable, clean energy can be produced from waters close to shore."

Howard Nimmo, commercial director, adds: "We have been supported by a number of investors, including IT Power, Marubeni Europe plc, LIFE-IC and The Viking Fund, as well as by Government grants. Generating power in the Humber is a significant milestone for the company that has enabled us to raise additional finance from our current partners."

Jamie O'Nians of IT Power, who is project director of the PS100, agrees: "This is a defining moment for Pulse Tidal. The success of this project differentiates it from other technologies and places it in a unique and exciting position of generating predictable power from a well understood resource close to the end user. The benefits of shallow water tidal resources are clear and there is now the technology to exploit it."

Ends

Notes to Editors

- * Figures from 'Powering The Nation' update 2009 from Parsons Brinckerhoff, the global consulting, engineering management organisation.
- Pulse Tidal is a wholly-owned subsidiary of Pulse Group Holdings Ltd. based in South Yorkshire. The company has received generous support from Yorkshire Forward (the Regional Development Agency for Yorkshire and Humber) and Future Energy Yorkshire.
- **Pulse Tidal** was commended in the 2008 Rushlight Awards. The judges commented "A highly innovative concept that could significantly extend the application of marine turbines by permitting their use in comparatively shallow waters but at large power levels."
- **IT Power** was launched in 1981 as a small research and consulting firm. We have now grown to become the IT Power Group of Companies, which provides specialist services in all aspects of sustainable energy and climate change. Now with over 25 years of experience achieved in 1000+ projects in 100+ countries, IT Power is entering a new phase of rapid growth, in line with the global imperative to tackle the human impact on the climate through the use of renewable energy technologies. IT Power is headquartered in the UK with offices in Hampshire, Bristol and London, and operates out of offices across the world, providing a global network of specialists. The company and team members have been recognised by several prestigious awards.
- **The Viking Fund** is a Yorkshire-wide, co-investment venture capital fund, specialising in providing finance for early-stage technology companies. The £5 million fund was set up with UK government capital, under the DBERR Early Growth Fund initiative. It provides early-stage risk capital to match - on the same terms - that invested by business angels or other private investors. In five years, Viking Fund received more than 340 applications for funding and made more than 65 investments in 27 companies, totalling £4.0 million (which generated an additional £5.5 million in match funding).
- **LIFE-IC** is the first dedicated business accelerator focused exclusively on new energy economy products and services. LIFE accommodates and supports organisations developing sustainable energy products and technologies including fuel cells, hydrogen infrastructure technology, photo-voltaic technology, wind energy, wave/tidal energy and bio-fuels. LIFE also provides access to resources, networks, information and ICT infrastructure, training and start-up services including grants, debt and equity finance where applicable.
- **Marubeni Europe plc** is the wholly-owned European subsidiary of Marubeni Corporation, which is one of Japan's largest sogo shosha, or general trading houses.
- **Millennium Inorganic Chemicals** is a wholly-owned subsidiary of Cristal Global, the world's second-largest producer of titanium dioxide and a leading producer of titanium chemicals. Cristal Global operates eight TiO₂ manufacturing plants in six countries on five continents and employs more than 3,800 people worldwide.