MARINE ENERGY: GROWING AN INDUSTRY THROUGH COLLABORATIVE ACTION

By Richard Knight, Energy Technologies Institute

Earlier this month, the marine energy industry received mainstream spotlight attention when the *New York Times* reported on the United States' first commercially licensed grid-connected wave power project aiming to harness enough energy from coastal Oregon seawaters to power 1,000 homes.

What the casual reader might not have realized is that the project in Oregon led by Ocean Power Technologies is just the tip of iceberg for what is currently underway internationally to advance the global marine energy industry. This week business executives, policymakers and leading academic researchers from around the world are convening at the Ocean Renewable Energy Group's (OREG) annual conference in Halifax, Nova Scotia because

they know that collaboration and partnership with other nations, businesses and research institutions is the key path to realizing the massive potential of ocean energy.

While still in an embryonic phase, the industry's enormous potential for clean energy generation, steady job creation and reduced emissions is undeniable. Focusing on the UK – the home of the Energy Technologies Institute (ETI) – recent government figures predict that ocean energy has the potential to generate USD$23 billion for the British economy by 2050. Estimates from Wave Hub, a UK-based company focusing on offshore electrical hubs, suggest that ocean energy has the potential to generate up to one-sixth of the UK's electricity consumption.

But how do we move from potential to reality? If this burgeoning global industry is going to grow – recent projections predict 180 MW of global tidal and wave installations by late 2016 – we must heed lessons from other industries such as aerospace and oil & gas that have traveled similar paths previously – by working collectively and sharing knowledge to help it move forward.

Public-private partnerships like the ETI help achieve the strategic partnerships that are necessary to scale up a nascent industry like marine energy. ETI through its membership structure brings together global engineering and energy companies BP, Shell, EDF, E.ON Caterpillar and Rolls-Royce together with the UK government to work with academia and other companies to help bridge the gap between laboratory scale R&D and commercial deployment of large-scale engineering projects.

As an evolving industry, marine energy still faces hurdles: bringing down technology and installation costs, attracting private sector investment, and improving deployment and performance capabilities, for example.

To address many of these key innovation challenges, the ETI has developed a portfolio of projects including the recent completion of a 11kV Wet-mate Connector, which allows for more rapid connection of offshore energy sources to the cables that transmit electricity to shore.

By partnering with MacArtney, an industry leader in underwater oceanographic equipment, the ETI consortium successfully developed the world's first 3 phase 11kV system for marine renewables application that provides lower installation, operating and maintenance costs, and more rapid deployment of marine energy arrays.

The marine energy sector is now at a critical point, and the challenges it faces are not trivial. Joining together to solve problems and develop solutions like the Wet-mate Connector will be the key to transforming this nascent energy solution from novelty to mainstream. An industry that will need to prove it is economically viable – for producers and suppliers of energy through to end use consumers.

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