MARINE RENEWABLE ENERGY

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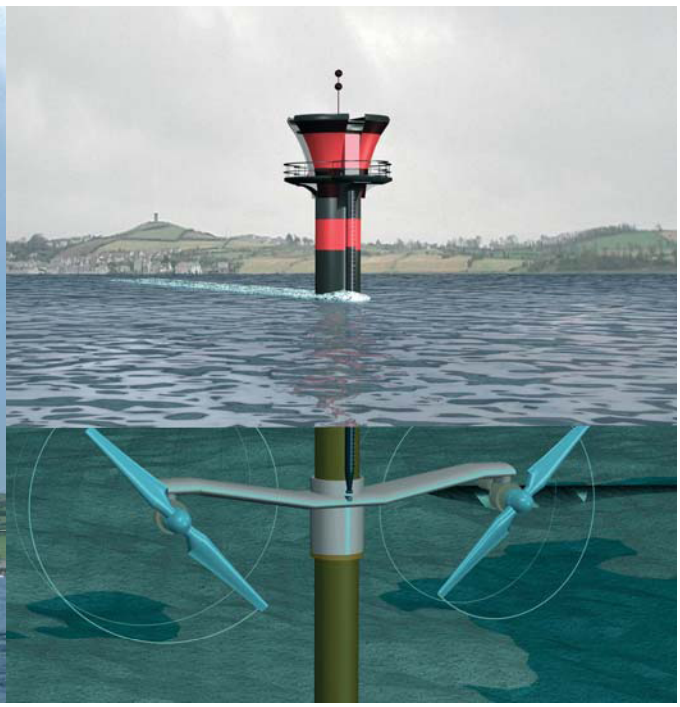
Realising the promise of abundant marine renewable energy has had a long gestation. For decades, there have been attempts to capture the power of ocean winds, waves, tides, currents and temperature differences as a source of renewable energy. Until recently, few of the promising technologies for doing so had reached commercial viability or significant delivery of their potential contribution to energy supplies. Granted, there are a few notable exceptions, such as the La Rance tidal barrage, which has been successfully delivering about 600 million KWh of electrical power from the rise and fall of the tides every year since 1966. More generally, until the end of the twentieth century, the majority of activity in marine renewable energy was experimental, conducted with limited budgets, and with little government support or encouragement.

The acceptance that large scale use of fossil fuels is leading to dangerous levels of climate change and a growing recognition of the finite nature of hydrocarbon reserves, as well as energy security concerns, has led to a resurgence of interest in renewable energy. Nations around the planet are progressively committing to ambitious targets for renewable power generation.

In Europe, the 2009 Renewable Energy Directive sets a binding requirement that 20% of energy across the EU is to be from renewable sources by 2020. For the UK, this EU Directive translates into a legally-binding target of 15% of energy from renewables. This ambitious target will require a seven-fold increase in UK renewable energy from 2008 levels. Under its lead scenario the Department of Energy and Climate Change suggests we could see more than 30% of UK electricity being generated from renewable sources,



compared with 5.5% today. Much of this is expected to come from wind power, on and offshore, with biomass, hydro, wave and tidal also performing an important role.

The announcement of successful negotiations for leases to develop UK offshore wind farms with a potential capacity of up to 25 GW takes offshore wind energy onto a path to meeting this target. Other nations are also expanding commitments to offshore wind energy and more plan to do so. 2010 marks a turning point for offshore wind energy and sets a massive challenge for delivery of increased UK capacity over a single decade.

Although less mature, other marine renewable energy sources are emerging from experiment and prototype to become commercially viable technologies. The installation of the world's largest commercial tidal current turbine in the narrow entrance to Strangford Lough in 2008 marked the start of serious exploitation of tidal stream energy in the UK. More schemes are to follow soon, including the installation of a novel tidal stream generating system in Ramsay Sound.

Wave power is another potentially huge renewable energy source. Many different systems have been developed to exploit wave energy but none have yet demonstrated viability at a truly commercial scale. A number of prototype and pre-commercial systems are under test and clear winners are likely to emerge in the coming few years.

Over the coming decade, investment in marine renewable energy will be substantial. Offshore wind is already creating some of the biggest infrastructure projects in the world with a potential investment of over £100 billion.

This rapidly growing market creates exciting opportunities for members of the Society of Maritime Industries with their wealth of knowledge and experience in marine engineering, science and technology.

Engineering skills are needed to design and build highly reliable and robust structures and machinery capable of operating in the demanding and sometimes very hostile marine environment. Scientific knowledge is needed to identify optimum locations, determine design criteria, minimise impact on the environment and plan installation operations and through life maintenance. Novel technologies are needed to optimise power outputs and efficiently transmit electricity to shore for connection to the grid. Specialised vessels are needed for construction and maintenance.

Realising the potential of marine renewable energy draws on knowledge, skills and experience that Society of Maritime Industries' members have in abundance. Our collective understanding of the unique engineering, scientific and technical challenges of operating in the maritime environment gives us a major part to play in building a low carbon economy and a sustainable basis for meeting the world's energy demands.