



## Regulating marine renewables

**Project Title:** Tidal Technologies: Key issues across the planning and development process for UK environment agencies

**Project Code:** ER20

**Intended Audience:** Environmental regulators

### Objectives of the project

The purpose of this contracted research project managed by SNIFFER was to clarify the objectives, roles, responsibilities and opportunities for engagement of the UK environment agencies for planning and development of tidal technologies including wave technologies. Issues accompanying the start-up of the marine renewables industry have been examined through a case study of the Pentland Firth and Orkney Waters (PFOW) area in Scotland which is at the forefront of research, development and regulation for the sector.

These objectives build on a tidal technology stakeholder workshop concerning the Pentland Firth area held in Inverness in February 2011.

### Background

The development and deployment of wave and tidal energy in Scottish waters has government priority as an important element for national energy security and the mitigation of climate change. The industry technologies and the regulatory frameworks within which they work are under development.

It is important for environmental regulators to identify the key issues and to agree the various roles and responsibilities throughout the developmental, planning and deployment stages of tidal technologies so that the planning processes are streamlined.

### Key findings and recommendations

The report examines the targets, technologies, the potential locations in Scotland and the regime of incentives designed to help the industry. The greatest UK marine energy resource is off the coast of NW Scotland and the Northern Isles. Full-scale trials are currently underway and seabed leases have been allocated to marine energy developers in the PFOW that are supported by the ROC (Renewables Obligation Certificate) scheme. Significant deployment of devices will begin from about 2015 with the aspiration to have 1.6GW of capacity installed by 2020 as part of the government's target to supply 80% of Scotland's power from renewables.

*Significant deployment of devices will build up from about 2015 with the aspiration to have installed 1.6GW of capacity by 2020*

Potential environmental impacts arising from the generation of power using wave and tidal devices were identified by pooling evidence from previous reviews, modelling studies, information on the functioning of physical and ecological processes in marine environments, and experience from other marine industries such as offshore wind, oil and gas.

This review identified several key *environmental considerations* that will require further consideration by regulators:

- Development of proposals in areas of high conservation value for biotopes and species, where seasonal variation in populations (particularly during critical stages in the life history and population viability) require consideration against the background of other anthropogenic changes (e.g. climate).
- Cumulative effects on physical, oceanographic and ecological processes from energy removal in any given area.
- Identification of key indicator species for Environmental Impact Assessments and monitoring to ensure compliance with EU descriptors of Good Environmental Status.
- Methods for monitoring, detecting and mitigating against potential collisions of structures with marine biota.
- Further investigation of several inter-related issues concerning interactions between marine renewable energy developments and fisheries; in terms of opportunities for benefits and understanding potential dis-benefits for fish stocks and fisheries.

Further work is required to address the above including, systemic modelling of hydrodynamics coupled with ecological processes to develop the predictive capacity necessary to guide regulation of the deployment and operation of marine renewables.

An additional challenge for the marine renewable energy industry is to identify and secure local and community benefits to offset disturbance to the environment and existing activities. Engaging with local communities and embracing local concerns is a key task. As part of this task, it is necessary to establish processes and structures which monitor and analyse the on-going responses (human and environmental) to this industry and adapt plans and practices where needed.

## Future Work

Recommendations have been made for:

- A review of community-benefit options and their applicability in a marine context.
- Dialogue with other marine users to understand their needs for space.
- Identify opportunities for engagement with the emerging marine renewable sector.
- A review of the interaction of the marine and local terrestrial planning systems.
- Local socio-economic impact assessment to understand the effects of job creation at the local level.
- Further work to identify gaps in the supply chain, raising awareness of future opportunities amongst local suppliers.
- Investment in the development of a marine energy “knowledge economy” and relevant service-sector activities that provide additional economic development and export opportunities.

## Further Information

Copies of the project report and summary report are available at [www.sniffer.org.uk](http://www.sniffer.org.uk)  
(Enter “ER20” in the Project Search field)

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## Partners

Scottish Environment Protection Agency  
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