

## Harnessing Marine Energy

Due to its abundance of marine energy resources, the United Kingdom is seen not only as a world leader in harnessing wave and tidal stream power, but also as the centre of an emerging industry that develops increasingly efficient technology to capture the energy potential of the sea. The UK government estimates that about 50 per cent of Europe's tidal energy resources are located in the sea surrounding the UK, and that the combination of the country's wave and tidal stream energy has the potential to meet about 20 per cent of its total electricity demand.

The payoff for wave and tidal developments is huge—the Atlantic edge of the British Isles has some of the strongest waves and tidal currents in the world. But this potential is threatened by various risks and an industry still in its infancy. It's important for investors and developers to understand the attendant hazards in order to mitigate risk in an industry with enormous potential.

### Assessing the Technology

There are several types of devices used to capture wave or tidal energy and convert it into electricity. In order to successfully plan and protect your investment, you should consider the efficacy of the following devices in relation to the project's location:

#### Wave Energy Devices

- *Buoys* move along with the waves while remaining connected to an anchored structure below the surface.
- *Segmented devices* are comprised of several connected segments that float semi-submerged while attached to an anchor.

- *Oscillating water columns* operate close to the shore and produce energy from the rush of air caused by wave movement.

---

The payoff for wave and tidal developments in the UK is huge, but it is threatened by various risks and an industry still in its infancy.

---

#### Tidal Energy Devices

- *Ranges* exploit the change in water height due to tides to create energy.
- *Current* devices rely on the flow of water caused by tides to produce electricity.

Each device is designed to function at certain depths and distances from shore. A careful consideration of your project's location will help determine which technology can provide the most return on investment.

#### Investment Risks

As the marine energy industry experiences and works through its growing pains, investors have identified and sought to mitigate the risks associated with harnessing the sea's energy. In order to protect your investment, you should consider the following list of risks and ways to avoid them:

- **Funding gaps:** Risks of insufficient financing may disproportionately affect wave projects, endangering the long-term viability of wave technology at this crucial developmental stage.

---

Provided by Johnston Park McAndrew

The content of this Risk Insights is of general interest and is not intended to apply to specific circumstances. It does not purport to be a comprehensive analysis of all matters relevant to its subject matter. The content should not, therefore, be regarded as constituting legal advice and not be relied upon as such. In relation to any particular problem which they may have, readers are advised to seek specific advice. Further, the law may have changed since first publication and the reader is cautioned accordingly. © 2013 Zywave, Inc. All rights reserved.

# Harnessing Marine Energy

- **Cost pressure:** Small margins for error mean that any significant failures in technology development could completely halt a project.
- **Survivability:** The installation and longevity of the devices are constantly being threatened by harsh and difficult-to-access marine environments.
- **Grid connectivity:** Wave and tidal energy projects typically exist at the outskirts of the existing electrical infrastructure, which may raise connectivity costs and prolong connection time.
- **Lack of regulatory preparedness:** Because wave and tidal technology is new and diverse, regulatory authorities could be unprepared to assess—and inadvertently pause—your project.

You can mitigate these risks by doing the following:

- Investing in both wave and tidal projects to diversify and protect your investment
- Communicating the risks and potential rewards to fellow investors and policymakers
- Continuing or starting a concerted Research and Development effort to improve device survivability and ensure long-term technological success
- Planning ahead for higher connection costs and pre-emptively addressing delays to grid connection
- Participating in public debate surrounding marine energy benefits and roadblocks towards large-scale implementation

## Health and Safety Risks and Considerations

Although more empirical data is needed to compose an exhaustive list of the health and safety risks to workers in the marine energy industry, the general risks of marine construction and installation include:

- Operating specialised construction barges
- Moving devices from land to sea
- Anchoring devices to the seabed

- Laying cables for grid connection
- Possibility of electrocution

The operational health and safety risks include:

- Working from height
- Diving activities
- Slips and trips
- Working in a harsh, remote area

Currently, marine energy technology needs regular maintenance which requires workers to uninstall devices and return them to shore for repair. Workers must therefore habitually dive and operate heavy machinery. Workers also expose themselves to the risks of high winds, large waves, moving machinery and remote access to medical care.

You can mitigate health and safety risks for your employees by implementing wellness programmes, addressing risk in contractual agreements and transferring risk using insurance and other risk compensation devices.

## Support in Your Endeavour

The exponential growth of the marine energy industry and its universal applicability could translate to considerable gains for investors. Appraising and mitigating industry risks can help guarantee success.

To discuss your risk transfer options when planning and operating marine energy developments, contact the insurance professionals at Johnston Park McAndrew, who can assist you in assessing your unique risks and needs at every stage of the project and secure the appropriate cover.