

HARNESSING RENEWABLE ENERGY FROM THE SEA

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With strategic development, Marine Renewable Energy has the opportunity to substantially contribute to Europe's energy needs and become a competitive energy source with increased volumes of commercial deployments across Europe. The main sources of Marine Renewable Energy in Europe are offshore wind, wave, tidal range and currents, salinity gradient, thermal gradient and marine biomass.

These technologies are at various stages of maturity with, for example, offshore wind being more advanced than wave or tidal energy. After introducing the range of marine energy opportunities that Europe has to call upon this paper will focus on the two fast emerging technologies of wave and tidal power.

In doing this it will discuss:

- Wave and tidal technologies;
- Future technology development scenarios and deployment targets;
- Research challenges and cross technology synergies and solutions.

This will involve reference to specific industry and research roadmaps and highlighting the challenges surrounding resource, finance, technology, infrastructure, and environment, regulation and legislation as well as a consideration of the priorities between these different elements. In doing so, the paper will cover the progress and development of the technologies as well as current and future plans for the large scale deployment of ocean energy devices and the associated research challenges and priorities from deployment and installation through to environmental considerations.