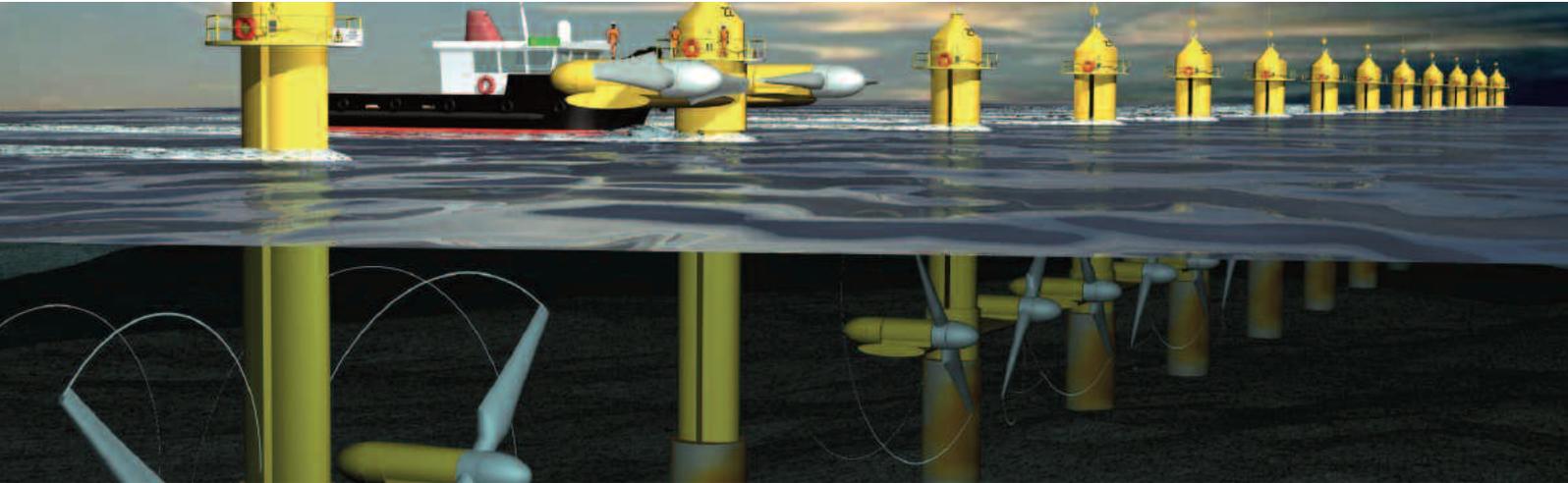


Electricity from maritime energy sources



Maritime energy sources are primarily tidal and wave energy systems. In addition, there are ways of exploiting temperature differences and the different salt concentrations of freshwater and seawater.

The German coast has relatively little potential for maritime energy sources. The technology for the utilisation of these energy sources nonetheless has considerable long-term significance for Germany in view of the possibilities of energy imports in the form of electricity and synthetic fuels and the export opportunities for German plant technology.

The ebb and flow of the **tides** allows conventional water turbines to generate electricity. At present, an installed generating capacity of 260 MW exists worldwide.

Wave energy is based on the interaction between the surface of the sea and the wind. Currently around 2 MW are installed in demonstration plants in offshore locations. The potential for wave energy in Europe is estimated at over 200 TWh/a, 1 % of which is on German coasts.

Sea currents in coastal areas are caused primarily by the tide. Where the topological conditions are right, the water flow speed can

be fast enough for commercial energy use. The global technical potential is estimated at around 1500 TWh/a, almost 10% of which is in Europe. Since 2003, the first test systems with an output of 100 to 300 kW have been in operation in Italy, Great Britain, and Norway with the participation of German researchers and industry. Furthermore, megawatt systems are also being developed.

Generally speaking, technologies for maritime energy sources are still in their infancy. The aim is to make the economically efficient utilisation of these potentials a reality. To achieve this, large installed capacities are necessary in all offshore technologies.

Research activities in this field are taking place in close cooperation with countries whose coastal and sea areas have a high potential for maritime energy, such as Great Britain.



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