

Harnessing tides / waves and ocean currents / and ocean temperature differences

Are oceans an inexhaustible source of energy? Close-up

Did you know that oceans cover 71% of the Earth's surface?

Various technologies are being developed to harness the ocean's inexhaustible resources and produce cleaner electricity.

The different forms of energy are referred to as "BLUE ENERGY".

The ocean's energy production potential is estimated between 100,000 and 150,000 TWh per year – around 5 to 7 times more than total onshore production.

Blue energy faces a number of obstacles, however, including: Installation costs / Open-sea maintenance / Corrosion / Impact on the landscape / Competition from the fishing industry

Examples of projects

LA RANCE TIDAL POWER PLANT – France

The station's 24 turbines have been harnessing the large tide differential since 1966. Output: 540 GWh/year, equivalent to the energy use of a city of 300,000 people.

WAVE POWER STATION – Australia

The system comprises underwater buoys equipped with hydraulic pumps driven by the motion of waves. The energy produced is sent in the form of high-pressure water to an onshore power plant. Current output: 3 MW, enough to provide electricity to 1,500 to 2,000 households.

HAMMERFEST TIDAL TURBINES – Norway

Tidal turbine structures with a diameter of 20 m are installed at a depth of 50 m. Based on a mean current of 1.8 m/s, the devices have a rated power of 300 kW.

HEAT PUMPS – Monaco

Monaco generates 15% of its electricity from heat pumps that take heat or cold from seawater to heat or cool buildings.