

# Ocean energy - A sustainable approach to mitigate climate change

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## ABSTRACT

Ocean Energy (OE) involves the generation of electricity from the waves, the tides, the currents, the salinity gradient, and the thermal gradient of the sea or the ocean. The ocean is an enormous and predictable source of renewable energy with the potential to satisfy an important percentage of the worldwide electricity supply. The oceans cover 75 per cent of the world surface and, therefore, it represents one of the largest renewable energy sources available to contribute to the security of energy supply and reduce greenhouse gases emissions. Globally, the theoretical potential of OE has been estimated by the International Energy Agency's Implementing Agreement on Ocean Energy (IEA-OES) between 20,000 and 90,000 TWh/year (as a reference, the world's electricity consumption is around 16,000 TWh/year). This breaks up depending on technology, in the following way: tide and marine current resources represent estimated annual global potentials exceeding 300 TWh and 800 TWh per annum, respectively. Wave energy has an estimated theoretical potential of between 8,000 TWh and 80,000 TWh per annum. The theoretical potential of ocean thermal gradient (also known as OTEC) is estimated around 10,000 TWh per annum. The potential of salinity gradients is estimated at 2,000 TWh per annum. The paper deals each and every component of ocean energy and its potential in India.

Key words : Ocean energy, Salinity gradient, Thermal gradient, Wave energy, Renewable energy

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