

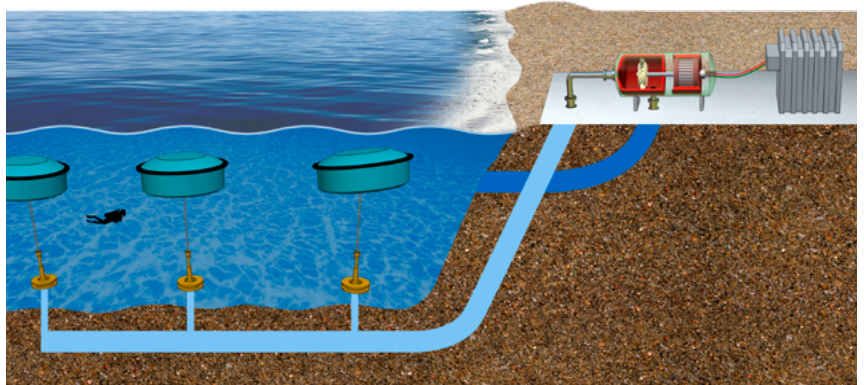


RENEWABLE ENERGY IN AUSTRALIA

Ocean (wave) energy

Ocean energy refers to all forms of renewable energy derived from the sea. This can include wave energy, tide energy or ocean thermal energy. Here we will focus on wave energy.

Waves are created by wind passing over the surface of the ocean. Wave power plants can harness the energy in the up and down motion of waves and convert it into electricity. To do this a device with a large float is tethered (attached) to the ocean floor. The motion of the waves cause the float to move up and down which powers a pump that moves pressurised water along pipes to the land. This water powers a turbine (the same as in a hydropower plant) which runs a generator that produces electricity. See page 2 for a diagram showing this process.

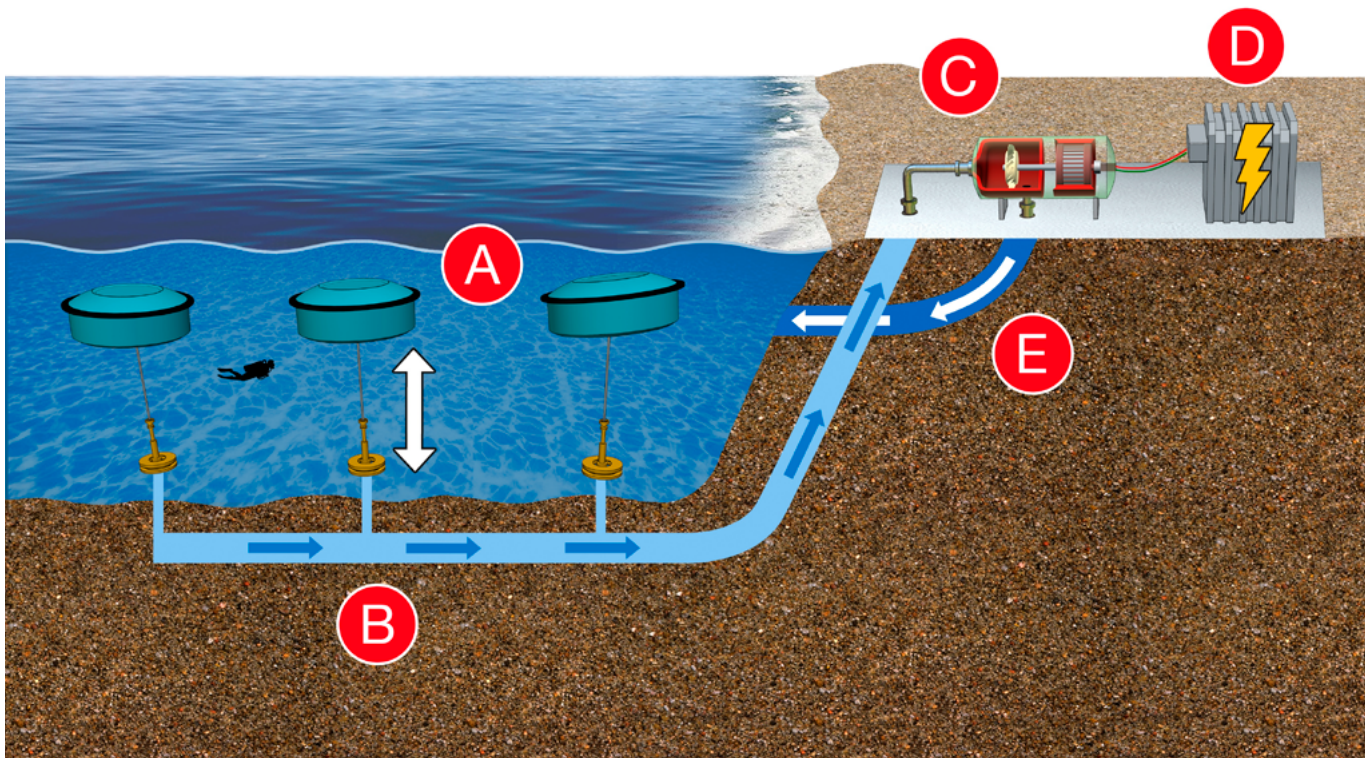


Facts about ocean power

- Tidal energy can also be captured with power stations that work like hydroelectric plants.
- Did you know that the temperature differences in the ocean can also be used to generate electricity? The warm surface waters can be used to make steam, which is passed through a turbine generator to make electricity. This is known as ocean thermal energy.
- Wave power is still an under-developed form of renewable energy in Australia. There is Carnegie Energy's CETO 6 demonstration plant in WA and another system in Port Fairy (Vic), but these are both still in the early stages.



RENEWABLE ENERGY IN AUSTRALIA



Ocean (wave) energy in action

- A. Waves cause large floats to move up and down.
- B. This motion operates a pump which pushes pressurised water through a pipeline.
- C. The water passes through a turbine which operates a generator.
- D. The generator produces electricity which is fed into the grid via a substation.
- E. The water used by the generator passes through a pipeline back to the ocean.