

Carbon Neutral Desalinization and Power Generation

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CETO Freshwater

The world is running increasingly short of freshwater. It is estimated that nearly 2/3rds of the entire world will be water scarce by the year 2030.

Because 97.25% of the world's water is in its oceans and most of the rest is in ice caps, only 0.01% of all the water in the world is accessible without seawater desalination. Currently, desalination is very energy intensive and is therefore a significant greenhouse gas emitter. A 500kL/day desalination plant operating on Australia's eastern seaboard emits the equivalent of nearly 1,000,000 tonnes of CO₂ per year or an extra 220,000 cars on the road every year*. CETO differs from other wave energy technologies under development by being able to pump water directly ashore under high pressure where there is demand for desalinated freshwater. This makes CETO the most efficient and cost effective way to desalinate freshwater from wave energy.

Other wave energy technologies will need to bring electricity to shore under high voltage, in order to run pumping stations that pump seawater ashore and deliver it to a desalination station. This introduces an inefficient additional step (electricity energy being converted to mechanical energy for pumping with associated losses), additional capital and operating costs associated with the pumps as well as additional onshore footprint.

In 2014, Carnegie was the first wave energy company to generate both power and freshwater onshore as part of its Perth Wave Energy Project at Garden Island in Western Australia. The Australian Department of Defence will buy

the power and water produced to supply Australia's largest naval base located on Garden Island.

