

Wave energy farms: the answer to Australia's water and power needs

Perth-based clean energy company Carnegie Corporation Ltd has developed a zero emission wave energy technology called CETO, which has the potential to significantly contribute to Australia's future power and water needs.

Named after the Greek sea goddess, the CETO technology converts renewable energy from the ocean's waves into base load power or zero-emission fresh water.

The CETO system distinguishes itself from other wave energy devices by resting out of sight on the ocean floor. An array of submerged buoys is tethered to seabed pump units, which move in harmony with the motion of passing waves. This movement drives the pumps, pressurising the seawater which is delivered ashore via a pipeline. The high-pressure seawater can then be used to supply a reverse osmosis desalination plant and can also be used to drive hydro turbines, generating zero-emission electricity.

Invented by Carnegie chairman Alan Burns in 1975, CETO was trialled successfully in Fremantle, Western Australia in 2006. Details are currently being finalised for a \$400 million, 300-unit CETO wave energy farm in Australia. If approved, the CETO wave farm will be the world's first base-load wave energy power station and

zero emission desalination plant. Construction could begin in 2009 with full capacity achieved in 2014. The farm would occupy 4 hectares of seafloor and provide 50 megawatts (MW) of peak installed power, about enough for 25,000 households.

"With 60 per cent of the world's population living within 60 kilometres of the coast, we believe wave power is the sleeping giant of the clean energy industry. Ocean-generated power really makes so much sense, especially in a country like Australia where almost all of us live along the coastline," said Carnegie Corporation managing director Michael Ottaviano.

"We are currently in discussion with the Federal and various State governments in Australia and hope to be able to announce the first site this year." Dr Ottaviano said Carnegie has the exclusive license to operate all CETO wave energy power and water stations in the Southern Hemisphere, with multiple international, mass produced wave energy stations achievable within 10 years. 

Why CETO works

- The energy density of waves is much greater than wind, increasing the amount of energy available for harvesting
- CETO can fluctuate its ratio of electrical power to water output easily
- Waves are predictable days in advance making it easier to match supply and demand
- CETO units sit underwater, meaning there is no aesthetic impact
- CETO units are environmentally friendly and attract marine life
- CETO units can be mass produced and shipped anywhere in the world
- CETO does not require specialised equipment for deployment, minimising construction and maintenance costs

Development Timeline

