

Oceanlinx celebrates wave-power unit launch in Australia

November 4 2013, by Nancy Owano



(Phys.org) —Oceans carry enough potential energy to make a difference. The devil is in the details. Finding a way to harness all that power had prevented wave power from being seen as a practical solution but now technologists are advancing with promising potential.

Oceanlinx, a wave energy developer in Australia, has set out to harness the ocean waves in the belief that their enormous quantities of energy can be transformed into a real solution. The concept involves the use of waves to produce high pressure air, which in turn is converted into electricity by a turbine. Australia is said to have among the best wave energy resources in the world. Last month, Oceanlinx reached a milestone with the launch of the first 1MW wave-energy-to-electricity unit in Port MacDonnell, South Australia. The unit's rated capacity of 1MW can supply approximately 1,000 homes with their required electricity consumption. This machine is the first commercial-scale unit

to be launched; the Oceanlinx team celebrated in Adelaide, South Australia, with guests invited to walk around the "greenWAVE" for a firsthand view. The machine is to undergo more testing. The project is supported by the Australian Government through the Australian Renewable Energy Agency's (ARENA) Emerging Renewables Program, with \$4.4 million funding.

The machine is made of prefabricated reinforced concrete. The unit is to be stationed off Port McDonnell, and it will be connected to the grid later this year. But what is its impact on nature and will operation be too costly? The company said that the technology used is one of the most tested and matured technologies in the [wave energy](#) sector, and environmentally friendly, sitting under its own weight on the seabed in shallow water with no anchors, mooring or attachment to the seabed. The device can play a supportive role, in that it can act as an artificial reef for sea life. The machine has no moving parts and is built to withstand aggressive sea conditions.

How does the technology work? The company's site details its working concept of the Oscillating Water Column [principle](#):

Oscillating Water Columns (OWCs) are constructions that behave as piston and cylinder. As waves rise within the OWC, it replicates the action of a piston, driving a column of air ahead of it and through the turbine. While most turbines are made to function with a constant flow in a single direction, the team's airWAVE turbine is able to continue generating [electricity](#) regardless of any change in direction under varying flow conditions. The system will be matched to the airWAVE turbine based on wave resource available. The generator's rated capacity will vary to match the environmental conditions at the installed location.

As waves pass the OWC, the column is moving up and down and in turn the air is compressed and is driven through the turbine under pressure,

which generates electricity. As the wave recedes air is sucked back into the OWC through the [turbine](#), continuing electricity generation.

More information: [reneweconomy.com.au/2013/ocean ... ergy-machine-s-88176](http://reneweconomy.com.au/2013/ocean-...-ergy-machine-s-88176)
oceanlinx.com/technology/how-it-works
www.businessspectator.com.au/n ... s-1mw-wave-converter

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