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**THESE SUBMARINE TOWERS REPRESENT THE WORLD'S FIRST FULLY** operational wave plant. Designed by Australian company Carnegie Wave Energy, three of these structures are tethered to the ocean floor just off Perth, where they convert wave power into emission-free electricity. Together, they generate 720kW annually, powering part of a nearby naval base. And now Carnegie Wave Energy wants to go global with these units. "You can link together as many of them as you need," says Michael Ottaviano, the company's managing director. "That's where we see this going - large-scale wave farms."

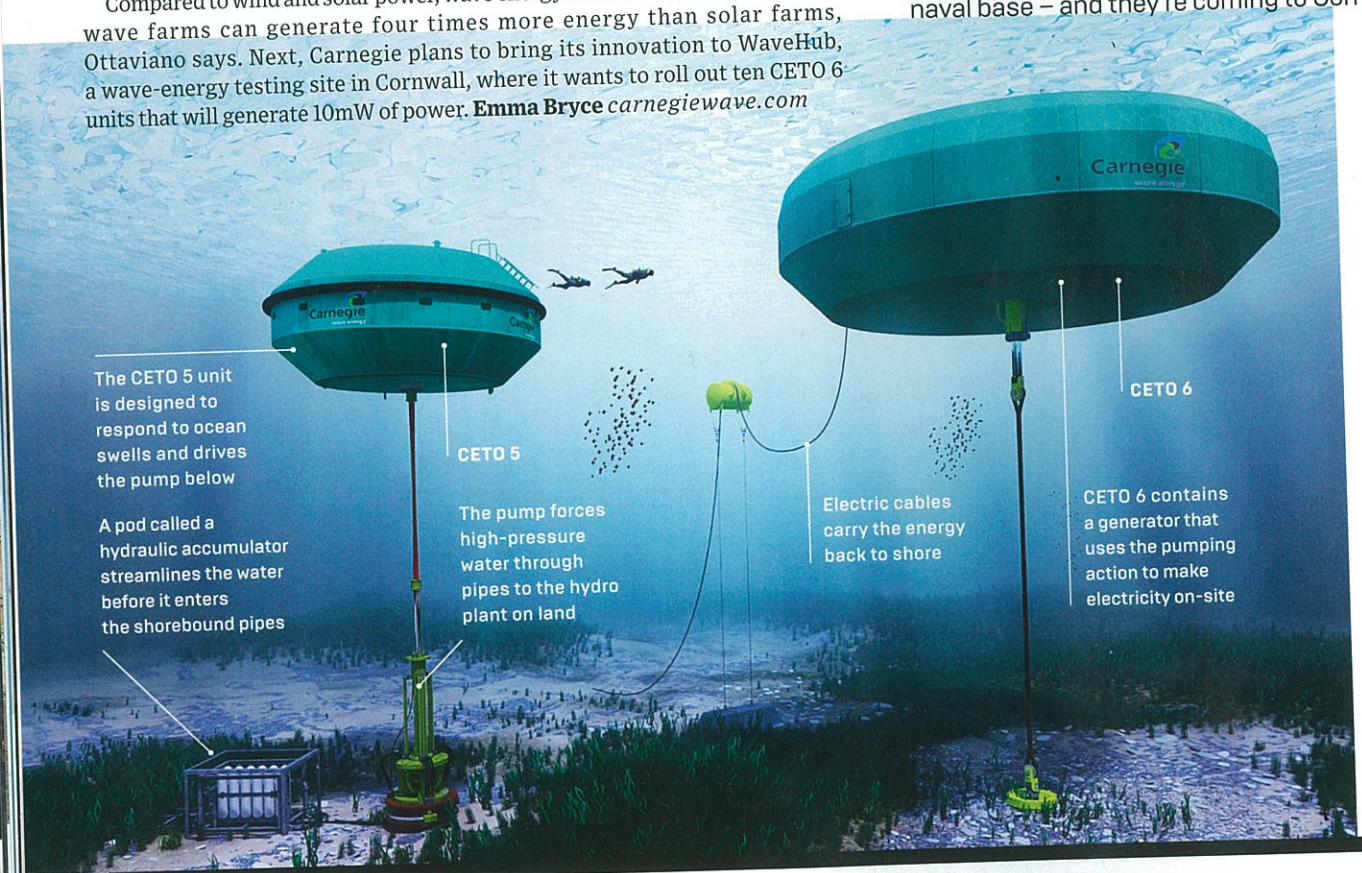
The current model is the CETO 5, an 11-metre-wide platform that makes electricity by using waves to push a pump at its base. The pump sends a stream of pressurised water shooting through pipes that run along the ocean floor. Those generate electricity at a land-based hydroelectric plant, where the force

of the water rotates the turbines. The pumping action can also be used to drive desalination plants and make fresh, drinkable water. Now Carnegie is upgrading to CETO 6, which will produce power completely offshore by using the pumping action to drive a generator within the buoy, making electricity on site. Subsea cables will then wire the power back to land. With its 20-metre diameter, CETO 6 can produce 1mW of energy; by 2017 Carnegie wants to tether three units off Perth.

Compared to wind and solar power, wave energy is denser: by area, Carnegie's wave farms can generate four times more energy than solar farms, Ottaviano says. Next, Carnegie plans to bring its innovation to WaveHub, a wave-energy testing site in Cornwall, where it wants to roll out ten CETO 6 units that will generate 10mW of power. **Emma Bryce** [carnegiwave.com](http://carnegiwave.com)

# Surf's up

These wave farms help to power an Australian naval base - and they're coming to Cornwall



The CETO 5 unit is designed to respond to ocean swells and drives the pump below

A pod called a hydraulic accumulator streamlines the water before it enters the shorebound pipes

CETO 5

The pump forces high-pressure water through pipes to the hydro plant on land

Electric cables carry the energy back to shore

CETO 6

CETO 6 contains a generator that uses the pumping action to make electricity on-site

## YOUR INSURER IS TRACKING YOU



First, devices were installed in your car to monitor how safely you drive. Now, health insurance companies are using wearables to track your day-to-day health. Curious about how last night's kebab could have affected your premiums? Ask these guys. **SE**

### JOHN HANCOCK

The American insurer is offering a rewards programme alongside partner The Vitality Group: the more you exercise, the less you pay. Customers get a free Fitbit, which tracks their exercise routine and gives discounts - or markups.



### OSCAR

This New York-based health insurance startup has partnered with tech company Misfit Wearables to link its customers' biometric information to their insurance plan. Those who keep healthy can receive up to \$20 (£13) each month in Amazon gift cards.

### CIGNA

After distributing BodyMedia armbands to the employees of one of its corporate customers in a pilot programme, insurance company Cigna launched a "healthy rewards" discount programme, using the band for its other customers.