



New wave of power in renewable energy market

Energy experts say waves could rival wind and solar as power sources. By **Stephen Cauchi**.

AUSTRALIA — and particularly the southern coastline — has a potentially inexhaustible source of renewable energy lapping at its shores: waves.

Proponents of wave power — which uses off-shore buoys and pumps to run electricity generators — claim the technology could generate at least 35% of the nation's power needs.

If embraced, it could prove as efficient as wind power and more affordable than solar options, according to the three companies that have already started harnessing Australia's oceanic energy.

And governments are warming to the idea — but not as quickly as advocates would like. The Federal Government has pumped \$5 million into the Biopower company, which runs prototype wave power units in Bass Strait, and the State Government has allocated \$72 million for green energy initiatives, including wave energy.

Michael Ottaviano, managing director of Carnegie Corporation, which operates the experimental CETO wave energy system in Fremantle, says as a sustainable energy source, governments cannot ignore the merits of wave power. "The resource is so large and so reliable that it deserves attention. It's only a matter of time," Dr Ottaviano says.

He concedes that wave power will face stiff competition from other renewable forms of energy, particularly wind and solar, but is optimistic that it will become popular over time as the cost of harnessing it decreases.

"We know that our first plant will generate power at about the same price as wind," he told *The Sunday Age*. "Solar was twice as expensive 10 years ago

... if we start out where wind is, we know that in five to 10 years we'll be fossil fuel competitive."

Dr Ottaviano says that a report by ocean resource specialists RPS Met Ocean shows that more than 17,000 megawatts in wave energy can be extracted at any given time off Australia's coasts. Around 1800 megawatts can be generated off the Victorian coast, with the western coast around Portland particularly rich in shallow water wave energy.

"This means that around 35% of Australia's current power usage could be met by harnessing wave energy," Dr Ottaviano said. "The analysis showed that a significant wave height of greater than one metre — above which CETO units generate electricity — occurred for an average of 95% of the time. This demonstrates the suitability of (wave power) for baseline (constant) power generation."

Carnegie commissioned the report — Wave Power Assessment for the Entire Southern Coastline of Australia — but stresses that it is independent, with data sourced from the United States' National Oceanic and Atmospheric Administration.

Carnegie is about to announce the site of its first commercial CETO wave farm. Although Portland was considered, the site is expected to be Albany in Western Australia.

Along with Carnegie and Biopower — which has two wave/tidal units in Bass Strait, off King Island and Flinders Island — another company, Oceanlinx, has installed a 500-kilowatt plant off the Wollongong coast.

Carnegie's CETO model merely acts as a pump, pushing water up a pipe to a generator offshore. The Biopower model, by contrast, locates the gener-

ator within the pump itself. The electricity is generated on the spot and injected into the electricity grid by underwater cables.

Carnegie believes its model is superior, citing difficulties with generating electricity underwater in choppy conditions.

Dr Ottaviano said that a national carbon trading scheme, as recommended in the Garnaut report, would be required to make renewable energy competitive with fossil fuels such as coal. And the Federal Government's 20% renewable energy target would "certainly help", he said.

Nevertheless, for "new renewables" such as wave and

geothermal to get started, more government support was required. "If you've got a technology risk, then the bank won't lend you money," he said.

Energy experts agree that wave power can not match fossil fuels for electricity production but can be competitive with other renewables.

Murdoch University's professor of energy studies, Philip Jennings, said earlier this year that wave power was "one of the emerging technologies".

"It's not as well established as solar, thermal, wind and biomass but it shows a lot of promise," he said.

"I'd say of all the new technologies that have come forward in the past decade for renewable energy, geothermal and wind look the most promising. Australia has vast wave and geothermal resources and they look like they've got a bright future, in Australia at least."

Dr Ottaviano said there was overseas interest in CETO, particularly from Chile and Mauritius.

