

Tidal Energy | Cook Strait

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New Zealand continues to explore innovative methods of using renewable energy to supplement the traditional fossil fuel fired power plants in the country. Tidal power is the latest renewable energy source that looks to be moving a step closer to becoming reality.

A prototype tidal turbine is being prepared for a trial in New Zealand's Cook Strait. Christchurch company Neptune Power is planning to instal an experimental turbine 4.5km off Wellington's Island Bay.

The turbine will have a maximum electricity generation capacity of 1MW and the cost of the project will be around \$10 million. Approval has been granted by the Greater Wellington Regional Council for the trial that can last up to 10 years.

Reliability testing is currently being performed on the turbine off the Scottish coastline. Rather than fixing the turbine to the ocean floor which would expose it to unexpected and variable conditions, the testing is being achieved with the turbine attached to the front of a boat. This will give the development team exact and accurate results.

At this stage the manufacturers of the turbine have been unnamed, but the turbine will be 14m in diameter and constructed of carbon fibre. The carbon fibre construction will give the turbine three times the generation capacity of a conventional wind turbine according to Neptune Power director Chris Bathurst.

The turbine will be placed in waters known as the "Karori rip", an area where the tidal current changes orientation from east-west to north-south where Wellington juts into Cook Strait.

"That speeds up the current at that point - a bit like a bend in a river," Bathurst said.

Power from the trial turbine is expected to be brought ashore at Vector's Island Bay substation.

According to Bathurst, there is the potential for the extraction of up to 12GW of power from Cook Strait which could be tapped at the cost of several billion dollars. First, though, the testing of 1MW still has to be achieved successfully.