

Announcement

31 July 2018

Carnegie and Enel Green Power to collaborate on wave energy

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- €1 million (AU\$1.6 million) investment by Enel Green Power
- Collaboration focused on CETO 6, Albany and Wave Energy Research Centre
- Collaboration extends to pursuing international opportunities for CETO

Carnegie Clean Energy (ASX: CCE) is pleased announced the signing of a Collaboration Agreement with global renewables player Enel Green Power (EGP) which will see EGP invest €1 million (AU\$1.6 million) in the research, development and deployment of the CETO wave energy technology. EGP will also become a technical advisory committee member of both Carnegie and the Wave Energy Research Centre run by the University of Western Australia with support from the WA State Government.

Enel Green Power (EGP) is the renewable energy division of the Enel Group, one of the largest energy companies in the world. EGP is a global leader in renewable energy with a presence in Europe, the Americas, Asia, Africa and Oceania. It manages around 42,000 MW of renewable energy plants across wind, solar, geothermal and hydropower, and is at the forefront of integrating innovative technologies into renewable power plants.

Carnegie and EGP will collaborate on the development and testing of the CETO technology, the Albany Wave Energy Project and future CETO projects. EGP will invest €1 million (AU\$1.6 million) into the development of CETO across a number of milestones. Carnegie and EGP will also work together to identify, develop and invest in opportunities for CETO across Australia, Europe and internationally.

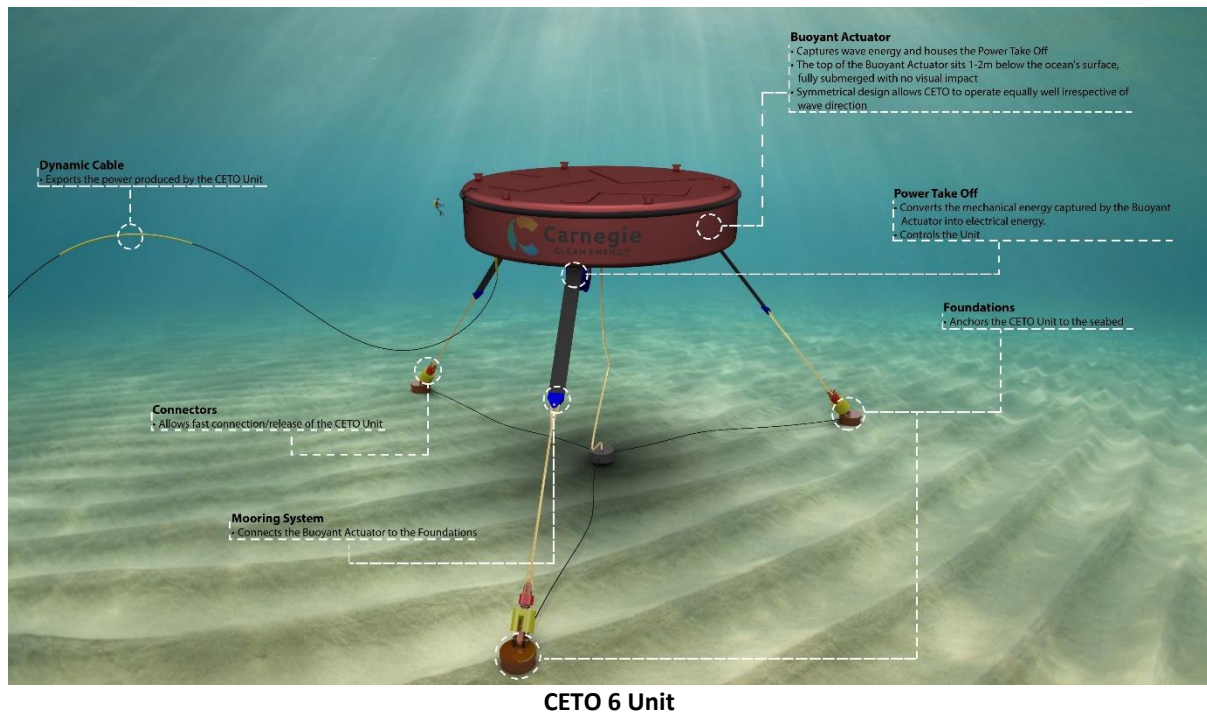
Carnegie's Managing Director, Dr Michael Ottaviano, said:

"We are delighted to be collaborating with a global leader in renewable energy such as Enel Green Power. Their deep experience of the renewables market globally will help Carnegie to tailor its CETO technology to the needs of its future utility customers."

"Our belief in the potential of CETO remains undiminished. Wave energy remains the last great untapped renewable resource globally. Like all power technologies, its commercialisation requires the collaboration and consistent commitment of innovators, governments, research and industry leaders of the likes of Enel Green Power."

CETO 6 Technology

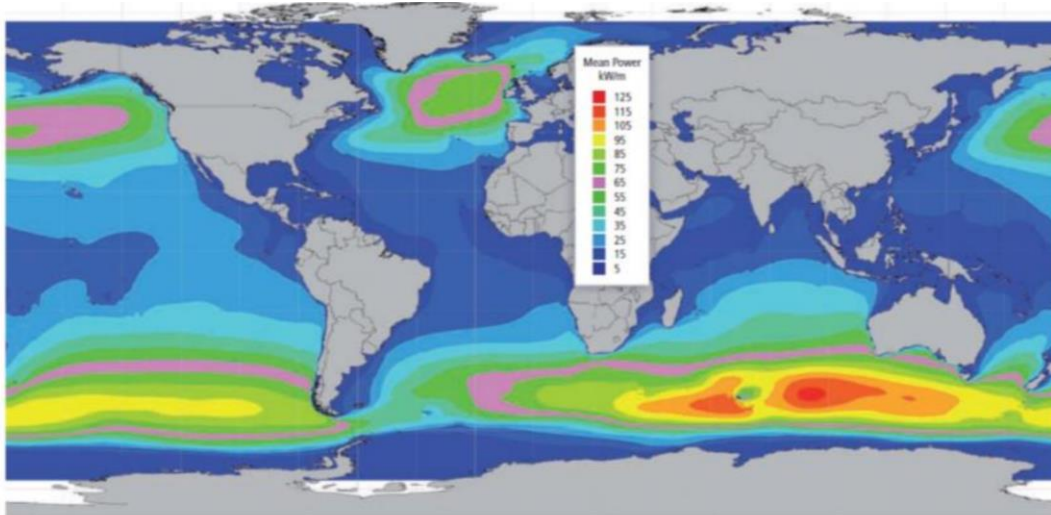
The CETO 6 design builds on intellectual property first lodged by Carnegie in 2013 incorporating on-board power generation and multiple moorings and power take off (PTO) modules. These additional features boost power production and unit efficiency however also introduce additional complexity. Carnegie took a conservative development path to progressively introduce these features through its CETO 5 generation and only now with CETO 6, will these features be incorporated for the first time.



The new CETO 6 unit will have a nameplate capacity of 1.5MW and deliver more than twice the energy production of the previous single moored CETO 6 unit design aimed at being competitive with other mainstream renewable technologies once it is being manufactured in high volumes and built at large project scale.

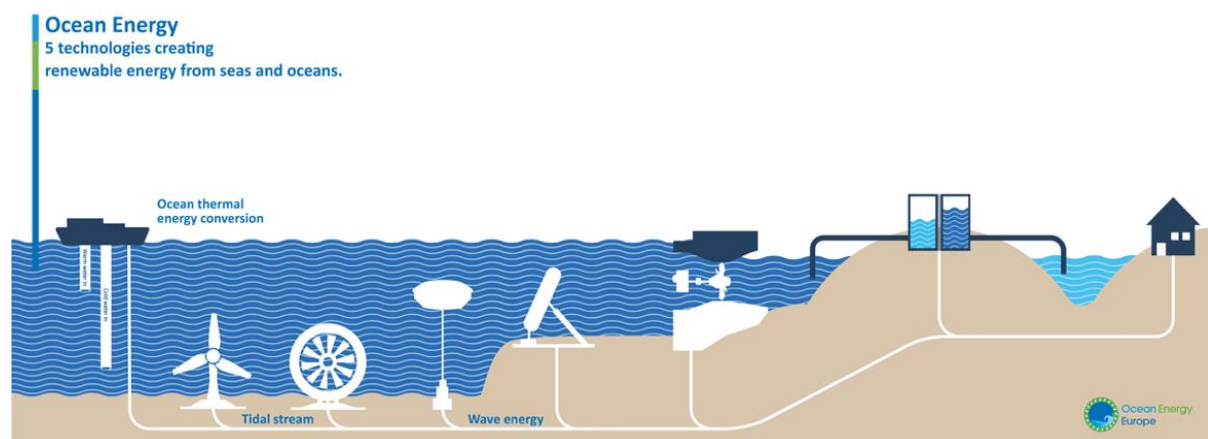
Global Wave Energy Potential

Wave energy remains one of the largest, untapped renewable resources globally. The World Energy Council (2016) forecasts installed capacity of ocean energy of up to 62,000MW by 2040.



Global Wave Energy Resource Distribution (Source: World Energy Council, 2016)

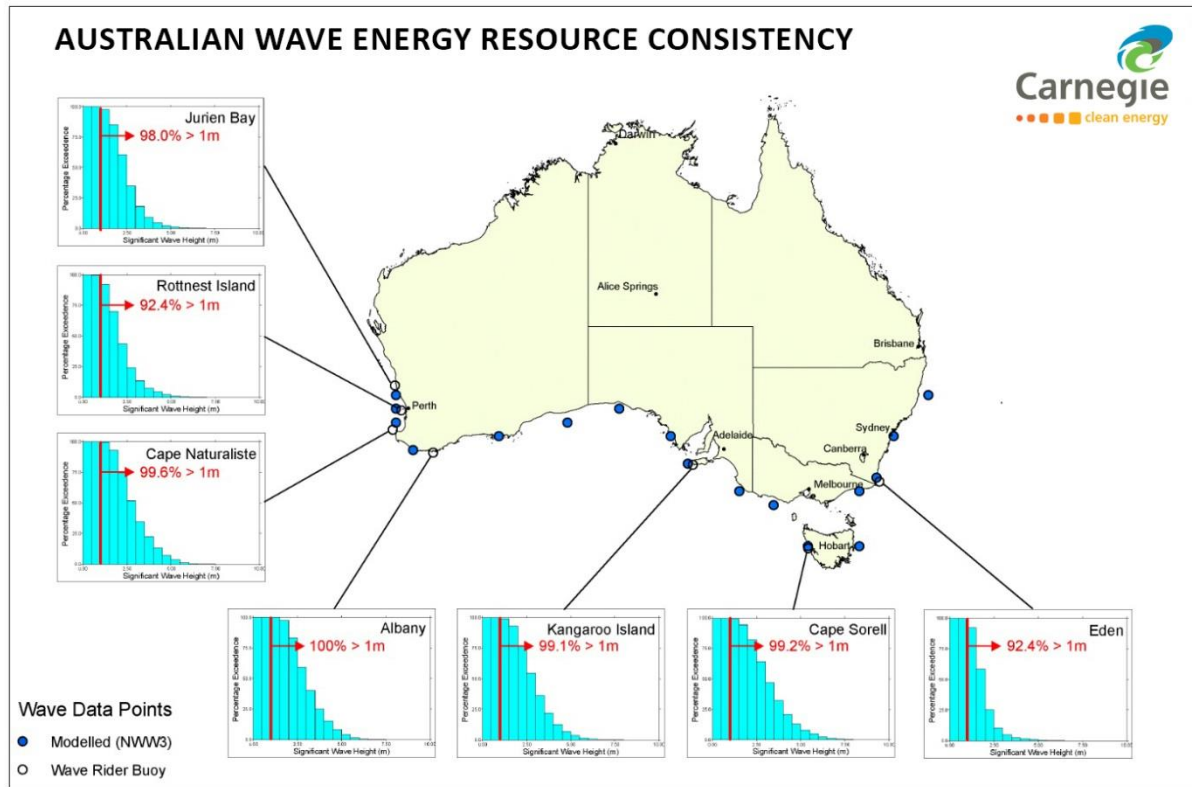
Ocean Energy Europe forecasts global market for ocean energy could see 337GW of installed capacity by 2050 incorporating wave, tidal, and ocean thermal conversion. Of this, around 188GW is expected to be wave energy.



Ocean Energy (Source: Ocean Energy Europe)

Australian Wave Energy Potential

The consistency of the swell off the southern coastline of Australia means wave energy has a major role to play as our energy mix transitions to one dominated by renewables. Albany has one the most consistent wave energy resources in the world, experiencing greater than 1m swell, 100% of the time. The integration of this 24/7 wave resource with the regions existing infrastructure, including the existing wind farm, has the potential to provide more stable, consistent and reliable renewable energy to the Western Australian electricity grid.



Consistency of Australian Wave Energy Resource (Source: RPS MetOcean, 2010)

Wave Energy Research Centre

The WA State Government is also supporting the establishment of the national Wave Energy Research Centre managed by the University of Western Australia's Oceans Institute and UWA's Albany Campus. The local Western Australian investment will apply WA's existing unique offshore energy capability to the development of a wave energy industry, creating domestic and export opportunities. Carnegie will play a role in the Wave Energy Research Centre through close collaboration with UWA and all the Research Centre partners. This will include sharing the site-specific surveys and common user data produced by Carnegie's Albany Wave Energy Project. In addition, Carnegie intends to transfer the common user infrastructure to the State following the completion of the Project's operational period. Carnegie will also facilitate access for industry partners to Carnegie's wave energy research facility in North Fremantle and Carnegie's Garden Island Demonstration site.

Albany Wave Energy Project

The Albany Wave Energy Project (AWEP) is a technology development project that involves the design, manufacture and installation of a CETO 6 unit in Carnegie's existing licence area offshore from Torbay and Sandpatch in Albany, Western Australia. The unit will be operated for 12 months during which Carnegie will be testing the system to maximise learnings including optimising system performance, validating computational modelling results, refining installation and removal methodologies, and validating the reliability of the system. If successful, Carnegie aims to follow this with a 20MW wave farm and potentially a 100MW expansion.

The project will also deliver common user infrastructure at the Albany site which will be made available for other wave energy industry developers once AWEP is complete. AWEP is supported by \$15.75m from the Western Australian Government's Department of Primary Industries and Regional Development (DPIRD) and \$11.7m from the Australian Renewable Energy Agency (ARENA).

About Carnegie Clean Energy Limited

Carnegie Clean Energy Limited is an ASX-listed (ASX: CCE) renewable developer with over 10,000 Australian shareholders. Carnegie is the 100% owner and developer of the CETO Wave Energy Technology intellectual property and a global leader in this field.

About Enel Green Power

Enel Green Power, the Renewable Energies division of Enel Group, is dedicated to the development and operation of renewables across the world, with a presence in Europe, the Americas, Asia, Africa and Oceania. Enel Green Power is a global leader in the green energy sector with a managed capacity of around 42 GW across a generation mix that includes wind, solar, geothermal, biomass and hydropower, and is at the forefront of integrating innovative technologies into renewables power plants.

In **Australia**, Enel Green Power has recently connected to the grid the first 45 MW feeder of the 137 MW Bungala Solar One PV plant. The facility is part of the Bungala Solar PV Project, located near Port Augusta, South Australia and, once operational, will have a total capacity of 275 MW.

About Department of Primary Industries and Regional Development

The Department of Primary Industries and Regional Development (DPIRD) is committed to building vibrant regions with strong economies through jobs growth, economic growth and capable people. The Department is responsible for the effective planning, coordination and delivery of the State Government's regional development agenda. This includes the management of the Royalties for Regions investment program and maintaining effective relationships with key partners across government, industry and the community. The Western Australian State Government, via DPIRD, is investing \$15.75 million in grant funding into the Albany Wave Energy Project and a further \$3.75m into the Wave Energy Research Centre via the University of Western Australia.

About ARENA

ARENA was established by the Australian Government to make renewable energy technologies more affordable and increase the supply of renewable energy in Australia. Through the provision of funding coupled with deep commercial and technical expertise, ARENA provides the support needed to accelerate the development of promising new solutions towards commercialisation. ARENA invests in renewable energy projects across the innovation chain and is committed to sharing knowledge and lessons learned from its portfolio of projects and information about renewable energy. ARENA always looks for at least matched funding from the projects it supports and to date has committed \$1.1 billion in funding to more than 270 projects. For more information, visit www.arena.gov.au