

ASX Announcement

Wednesday, 20th May 2015

Successful CETO Unit Retrieval

- **CETO 5 unit #1 retrieved on first attempt validating ‘hot swap’ maintenance strategy**
- **Onshore inspection and overhaul of Unit to now commence**
- **Total operational hours over 8,500 hours and waves up to 5.7m in height.**

Wave energy developer Carnegie Wave Energy Limited (ASX: CWE) is pleased to announce that the first of its CETO 5 Units has been successfully retrieved after over 4,000 hours of operation and over 8,500 across all three Units.

The retrieval was successfully completed on the first attempt by using its hydraulic “quick connect” technology to disconnect the Unit from the seabed foundation. The disconnection was then followed in succession by the de-ballasting of the Buoyant Actuator, floating up of the Pump assembly on site and then towing the complete Unit back to the Australian Marine Complex (AMC) in Henderson.



Unit breaking surface during retrieval (L), Unit on top of water, preparing to be towed back to shore (R)

The Unit has now been lifted out of the water and returned to Carnegie’s staging area within the AMC to begin the onshore inspection and overhaul process.



CETO Unit being lifted out of the water (L) Unit being transported to Carnegie's staging area within the AMC (R)

The successful retrieval of the unit on the first attempt has validated Carnegie's "hot swap" operating and maintenance philosophy. This involves the rapid installation and retrieval of units for maintenance purposes which avoids the need to carry out any maintenance offshore where it is expensive and often impossible in most of the prevailing conditions at a commercial wave project site.

The retrieval is also important as it now allows Carnegie's in house engineering and design team to inspect the unit onshore and gather valuable data. The Unit will be completely stripped down, to allow for non-destructive testing, and in depth inspection. The Unit will then be overhauled as required and re-assembled, prior to beginning onshore re-testing of the CETO Unit in advance of offshore re-installation.

After having successfully installed all three CETO 5 Units on the first attempt through November to March, the goal is to re-install Unit 1 and progressively retrieve Units 2 and 3 during winter when installation and retrieval conditions are more challenging. Carnegie's aim to have a CETO 5 Unit continuously operate throughout winter.

The Project has now achieved more 8,500 continuous operational hours during which the units have experienced a range of sea states, including waves up to 5.7m in height.

About Carnegie

[Carnegie Wave Energy Limited](#) is an Australian, ASX-listed (ASX:CWE) wave energy technology developer. Carnegie is the 100% owner and developer of the CETO Wave Energy Technology intellectual property. Carnegie has subsidiaries established in the UK, Chile and Ireland focussed on commercial exploitation opportunities in key target markets.

About CETO

The CETO system is different from other wave energy devices as it operates under water where it is safer from large storms and invisible from the shore. The technology is capable of generating power onshore or offshore depending upon the specific characteristics of a project site.

CETO technology characteristics include:

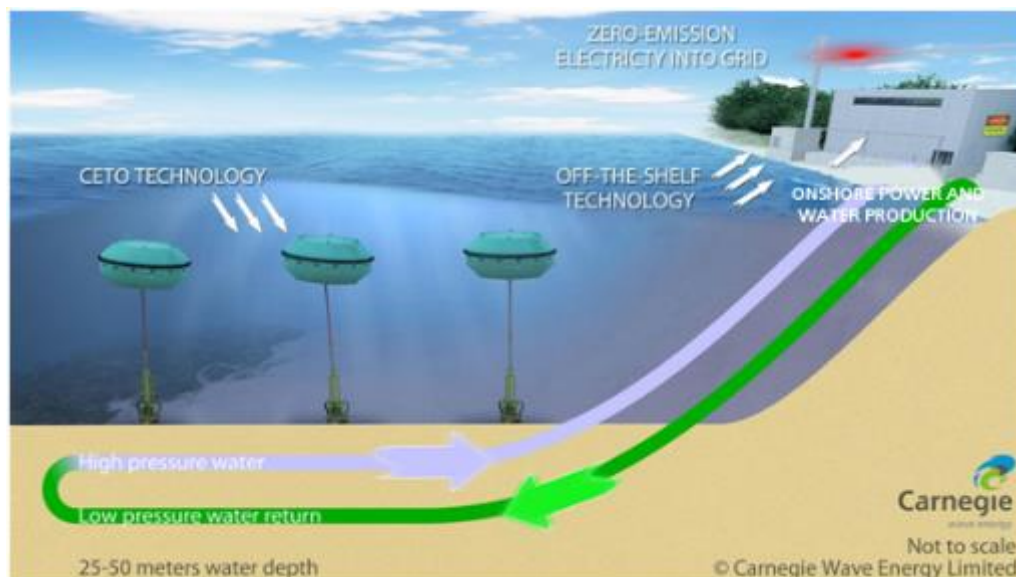
- Converts ocean wave energy into zero-emission electricity and desalinated water.
- Environmentally friendly, has minimal visual impact and attracts marine life.

- Fully-submerged in deep water, away from breaking waves and beachgoers, and unaffected by storms.

Perth Wave Energy Project ('PWE') Fact File

- PWE is the world's first commercial-scale CETO grid and desalinated water connected wave energy project.
- The Perth Wave Energy Project is supported by \$13.1m funding from the Australian Renewable Energy Agency.
- PWE is supported by \$7.3 million from the Government of Western Australia's Low Emissions Energy Development (LEED) Fund. This is part of a larger \$10 million LEED grant, awarded to Carnegie by the Western Australian Government, to support the development of the CETO technology from concept through to completion of PWE.
- The Desalination Pilot is supported by a \$1.27m AusIndustry grant from the Clean Technology Innovation Program.
- Providing clean, renewable energy and potable desalinated water to Australia's largest naval base, HMAS Stirling, on Garden Island in Western Australia.

The CETO 5 technology being operated in the Perth Wave Energy Project (PWE) is configured to utilise the CETO pumps to pressurise water and deliver it onshore via an underwater pipe. Then, onshore, high-pressure water is used to drive hydroelectric turbines, generating zero-emission electricity. The high-pressure water can also be used to supply a reverse osmosis desalination plant, replacing or reducing reliance on greenhouse gas-emitting, electrically-driven pumps usually required for such plants.



CETO 5 (Perth Wave Energy Project) Power & Water Schematic

About ARENA

ARENA was established by the Australian Government to make renewable energy technologies more affordable and increase the amount of renewable energy used in Australia. ARENA invests in renewable energy projects, supports research and development activities, boosts job creation and industry development, and increases knowledge about renewable energy. ARENA is currently supporting more than 200 projects and is actively seeking new projects to support.

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