

## **ASX Announcement**

# Friday 20th February 2015

## **CETO 6 Project Update**

- Financial close reached on the \$20m CEFC facility for CETO 6
- Investigative site license issued for CETO 6 Project
- Site characterisation activities underway

Wave energy developer Carnegie Wave Energy Limited (ASX: CWE) is pleased to provide an update on the progress of its CETO 6 Project off Garden Island.

In parallel with the delivery of the current Perth Wave Energy Project (Perth Project) that is now exporting power into the grid at HMAS Stirling on Garden Island in Western Australia, Carnegie has made significant commercial and technical progress with its CETO 6 Project also to be located off Garden Island.

Carnegie has now reached financial close on the previously announced Clean Energy Finance Corporation's (CEFC) five-year, \$20 million loan facility which will part fund the Project. The CEFC facility will be used to part fund the construction of the project and will reduce the amount of equity Carnegie would otherwise require for the Project. The CETO 6 Project is also supported by an \$11m grant from the Australian Renewable Energy Agency (ARENA).



Carnegie Chief Financial Officer, Aidan Flynn and CEFC CEO, Oliver Yates on site at Henderson, WA

t: +61 8 9486 4466



Carnegie's Chief Financial Officer, Aidan Flynn, said:

"Reaching financial close on the CEFC facility is a watershed moment for Carnegie as this is the first time ever that Carnegie has achieved a pure debt finance deal. It follows on from the commissioning of the Perth Wave Energy Project and is representative of the maturing nature of the CETO technology. It now gives Carnegie the certainty of capital and cash flows to build this important commercial version of the CETO technology. Not only does the financial close pave the way for this project to happen it also importantly paves the way for project finance for subsequent CETO projects."

Mr Oliver Yates, Chief Executive Officer of the Clean Energy Finance Corporation, said;

"The CEFC is pleased to be financing technology that potentially positions Australia as a world leader in the growing global ocean energy sector. Australia's extensive coastline and largely coastal population mean we are perfectly placed to take advantage of ocean energy. Carnegie's engineering and R&D expertise has brought the CETO 6 Project to its current stage and we look forward to seeing continued improvements as the project moves towards commercialisation."

Carnegie has also recently been granted a Commonwealth investigation licence to undertake the site characterisation activities required to finalise the design of the Project. In addition Carnegie has received an EPBC Referral Decision from the Federal Department of the Environment to undertake geophysical and geotechnical surveys at the proposed CETO 6 Project site. A wave buoy has already been deployed at the site to collect further detailed data about the wave resource at that location.



Carnegie CEO Dr Michael Ottaviano and Federal Minister for Industry and Science, the Hon Ian Macfarlane signing the deed of licence for the CETO 6 project.

t: +61 8 9486 4466



Following on from Carnegie's Perth Wave Energy Project, the CETO 6 offshore project site will be located approximately 8 km further offshore from the current Perth Project site, with the exact location to be determined following geophysical surveys. The offshore site, located off Five Fathom Bank, provides deeper water than the original Perth Project site and will be the first demonstration of Carnegie's next iteration of its CETO technology, CETO 6. The wave resource at the CETO 6 project site is expected to be some three times more energetic than the existing Perth Project site.



Wave measurement buoy being deployed in the CETO 6 project area

The conceptual design for the Project is also progressing well and is approaching completion, ahead of the detailed design phase. Completion of the conceptual design is also the second milestone in Carnegie's \$11m grant from the Australian Renewable Energy Agency's (ARENA).

The development of the CETO 6 project officially began in 2013 and is currently in the concept design stage. Carnegie has previously announced that the CETO 6 unit will have increased power output, targeting four times the power capacity of the 240kW CETO 5 unit currently operating in the Perth Project. The CETO 6 Project will follow the Perth Project, which is currently operating off Garden Island, Western Australia and utilises the CETO 5 generation. By delivering step changes in power and efficiency, CETO 6 will advance the CETO technology towards commercial deployment in a wide range of targeted markets globally by reducing the levelised cost of energy produced.

t: +61 8 9486 4466



# **About Wave Energy**

Wave energy is considered to be the most concentrated and least variable form of renewable energy, with huge potential in Australia and globally. The World Energy Council has estimated that approximately two million megawatts could be produced from the oceans via wave power, about double current world electricity production.

Australia has arguably the largest wave energy resource in the world. In 2012 a CSIRO study found that Australia's near-shore wave energy resource between Geraldton and Tasmania was equivalent to about five times Australia's total energy demand. The long-term potential for wave energy is therefore extensive, but it requires greater technological advancement. Ernst & Young concluded that effective financial support was critical for Australian ocean energy technologies to be pushed down the technology cost curve and be competitive with other alternative technologies.

## **About CEFC**

The Clean Energy Finance Corporation (CEFC) invests using a commercial approach to overcome market barriers and mobilise investment in renewable energy, energy efficiency and low emissions technologies.

As at 30 June 2014, the CEFC has contracted investments of over \$900 million in projects with a total value of over \$3 billion. The CEFC invests for a positive return, with its more than 40 direct investments and 25 projects co-financed under aggregation programs expected to achieve an average financial yield of about 7 per cent.

These CEFC investments are expected to achieve abatement of 4.2 million tonnes of CO2e per annum with a positive net benefit to the taxpayer in the order of \$2.40 per tonne CO2e. They help to improve energy productivity for businesses across Australia, develop local industries and generate new employment opportunities.

The CEFC operates under the CEFC Act 2012. More information is available at <a href="https://www.cleanenergyfinancecorp.com.au">www.cleanenergyfinancecorp.com.au</a>

#### **About ARENA**

The Australian Renewable Energy Agency (ARENA) was established by the Australian Government as an independent agency on 1 July 2012 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.

#### **About Carnegie**

<u>Carnegie Wave Energy Limited</u> 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.

t: +61 8 9486 4466

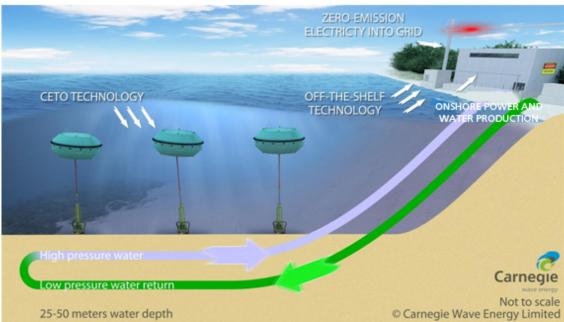


## **About CETO**

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. Fully-submerged buoys are tethered to seabed pump units. These buoys move with the motion of the passing waves and drive the pumps. The pumps pressurise fluid which is then used to drive hydro turbines and generators to produce electricity.

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.



**CETO Power & Water** 

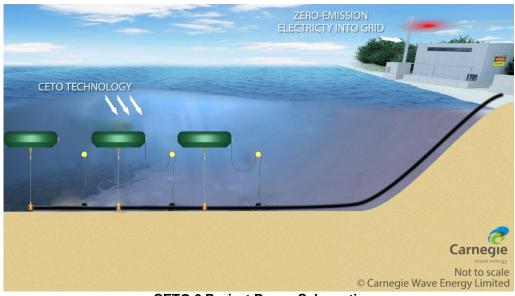
t: +61 8 9486 4466



#### **CETO 6 Project Fact File**

The CETO 6 unit has a targeted 1MW (1000kW) power capacity, some four times of the current CETO 5 generation being used in the Perth Project. It will also have superior efficiency, lower capital cost and reduced maintenance costs for sites where the array is located far from shore or in deeper water. CETO 6 will also incorporate the configuration option for the power generation system to be moved offshore and subsea rather than solely onshore as with the current CETO 5 generation. This option allows CETO to take advantage of deeper, more distant to shore wave resources which can significantly increase the size of the commercial market for CETO.

- The Project comprises the design, construction, deployment and demonstration of three CETO 6
  units in a grid-connected, up to 3MW peak installed capacity wave energy project at Garden
  Island, Western Australia.
- The CETO 6 Project is supported by \$11m in Australian Government funding through the Australian Renewable Energy Agency's Emerging Renewables Program.
- The CETO 6 Project is supported by a five year \$20 million loan facility form the Australian Clean Energy Finance Corporation.
- Utilises Carnegie's fully submerged and commercially proven CETO wave energy device.
- The clean, renewable energy generated by the Project will be sold to the Australian Department of Defence at Australia's largest naval base, HMAS Stirling, on Garden Island in Western Australia.



**CETO 6 Project Power Schematic** 

For more information:

Dr Michael Ottaviano

**CEO & Managing Director** 

Carnegie Wave Energy Limited

+61 8 9486 4466

enquiries@carnegiewave.com

Website: www.carnegiewave.com