

EuropeWave Update: Submission of Phase 2 Deliverables and Phase 3 Tender

- EuropeWave Phase 2 deliverables submitted related to CETO prototype design, testing, certification and commercialisation tasks and over €500k payments received
- CETO Wave Energy Ireland is 1 of 5 contractors delivering Phase 2 of the EuropeWave PCP Programme, a competitive programme to advance wave energy
- EuropeWave Phase 3 tender submitted for approximately €3.75m to build and operate a CETO prototype at a European wave energy test site
- Up to 3 of the 5 contractors will be selected to receive a EuropeWave Phase 3 contract
- Clear alignment between EuropeWave programme’s ambition and Carnegie’s commercial and strategic objectives – unlocking the next step in CETO’s Product Validation roadmap

Carnegie Clean Energy (ASX: CCE) (“Carnegie” or the “Company”) is pleased to share that its wholly owned subsidiary CETO Wave Energy Ireland (CWEI) recently submitted EuropeWave Phase 2 deliverables and submitted its EuropeWave Phase 3 tender requesting approximately €3.75m to deliver a CETO prototype at a European test site.

The EuropeWave PCP Programme is an innovative and competitive stage-gate programme designed to advance promising wave energy converter systems and targeted to prove technical and commercial viability for large scale deployment for future national/regional development programmes and/or private investment.

CETO Wave Energy Ireland recently submitted Phase 2 deliverables under its contract covering front-end engineering design (FEED), testing, certification and commercialisation activities undertaken during Phase 2. This included deliverables from the tank testing campaign in which Carnegie’s Reinforcement Learning Controller was successfully demonstrated in collaboration with Hewlett Packard Enterprise, a first for the wave energy industry. Following EuropeWave PCP Programme deliverable review, CETO Wave Energy Ireland received payments of over €500k from EuropeWave for these activities.



CETO Wave Energy Ireland and HPE Staff at the Phase 3 tank testing in Cantabria, Spain.

Following progression through Phase 1 and 2 of the EuropeWave PCP Programme, which have advanced the CETO prototype design through a staged and independently reviewed development process, CETO Wave Energy Ireland has recently submitted its tender for consideration for a EuropeWave Phase 3 contract.

The EuropeWave Buyers Group will select up to three of the five Phase 2 EuropeWave contractors to receive Phase 3 contracts to deploy their wave energy prototype at the open-water facilities of the Biscay Marine Energy Platform (BiMEP) in the Basque Country or the European Marine Energy Centre (EMEC) in Scotland. EuropeWave is expected to announce Phase 3 awards in August 2023 with the Phase 3 programme activities commencing in September 2023 and running through to May 2026.

Carnegie's CEO, Mr Jonathan Fiévez, commented: *"The ACHIEVE project team worked diligently and collaboratively with our EuropeWave partners to deliver a significant body of design and testing work under the EuropeWave Phase 2 programme. We were particularly excited to see the success of the reinforcement learning controller in the wave tank testing campaign, a world first and an outcome enabled through our close collaboration with Hewlett Packard Enterprise over recent years. The work delivered by the team in Phase 2 demonstrates that CETO can become a valuable and reliable part of renewable energy portfolios in Europe and beyond.*

The Phase 3 tender submitted outlines our plans to use the CETO advancements achieved in Phases 1 and 2 to deliver a CETO prototype at the BiMEP or EMEC test site to further validate the commercial potential of the technology. The Phase 3 CETO prototype will undergo final design and testing activities before being fabricated in Europe and then operated at the test site for at least a year. This achievement is expected to be a critical turning point for the CETO technology and would help unlock exciting CETO project opportunities with strategic partners.

EuropeWave truly aligns with our corporate objectives to pave the way for a CETO commercial roll-out and attract future project partners. We thank the EuropeWave Buyers Group for their strategic vision and dedication to supporting the emerging wave energy industry".

This announcement has been authorised by the Chairman and CEO.

For more information

Carnegie Clean Energy Limited

+61 8 6168 8400

enquiries@carnegiece.com

www.carnegiece.com

ABOUT EUROPEWAVE PRE-COMMERCIAL PROCUREMENT PROGRAMME



EuropeWave PCP is an innovative R&D programme for wave energy technology, which runs from 2022 to 2026. It will combine over €22.5m of national, regional and EU funding to drive a competitive Pre-Commercial Procurement (PCP) programme for wave energy.

Originally pioneered by the Wave Energy Scotland programme, the PCP model provides a structured approach, fostering greater openness, collaboration and sharing of risk between the public sector and technology developers. The programme will focus on the design, development, and demonstration of cost-effective wave energy converter (WEC) systems for electrical power production that can survive in the harsh ocean environment.

Match-funded by the EU's Horizon 2020 programme, it is a collaboration between Wave Energy Scotland (WES), the Basque Energy Agency (EVE) and Ocean Energy Europe (OEE). This collaboration is closely aligned with the decarbonisation, industrial and competitiveness objectives of the European Green Deal, and is part of a range of actions being taken to meet the European Commission's targets of 100MW of ocean energy by 2025 and at least 1GW by 2030. The main technical challenges to be addressed in EuropeWave PCP may be expressed in terms of:

- Performance – obtain quantitative evidence of appropriate power capture and conversion. capability and increase confidence in yield predictions from numerical model simulations.
- Survivability – demonstrate effective strategies for survival in survival events.
- Availability – demonstrate levels of availability through reliable prototype operation.
- Affordability – increase confidence in the estimation of the technology costs (capital and operational) and determine a route to cost reduction to achieve a competitive LCOE.

	Start date	End Date	Number of Contracts		Contract Maximum Value	
			Minimum	Anticipated	ex. VAT	inc. VAT
Phase 1 Concept Development	03 Jan 2022	29 July 2022	5	7	€ 291,667	€ 350,000
Phase 2 FEED and Modelling	26 Sept 2022	30 June 2023	4	5	€ 608,333	€ 730,000
Phase 3 Open- water deployment	11 Sept 2023	29 May 2026	3	3	€ 3,750,000	€ 4,500,000
Totals					€ 4,650,000	€ 5,580,000



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<https://www.europewave.eu/>

ABOUT CARNEGIE & CETO WAVE ENERGY IRELAND

Carnegie Clean Energy (ASX: CCE) is a technology developer focused on delivering ocean energy technologies to make the world more sustainable. CETO Wave Energy Ireland is a wholly owned subsidiary of Carnegie Clean Energy. Carnegie is the owner and developer of the CETO and MoorPower technologies, which capture energy from ocean waves and convert it into electricity. Using the latest advances in artificial intelligence and electric machines, Carnegie can optimally control our technologies and generate electricity in the most efficient way possible. The company has a long history in ocean energy with a track record of world leading developments.

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