Carnegie
CLEAN ENERGY

Delivering Wave Energy To The World

Webinar – November 2026

ASX	CCE
FRA	CNM1
OTCQB	CWGYF



ACHIEVE PROGRAMME

Six CETO objectives

Demonstrating commercial, technical and operational objectives for commercial-scale CETO

01	**Commercial objectives**	Modular, scalable and accepted due to fully submerged design
02	**Energy capture**	Capacity factors and spatial density
03	**Control system**	AI-enabled algorithms working in real conditions
04	**Survivability and reliability**	Active and passive mitigation strategies in extreme seas
05	**Operations and maintenance**	Rapid generator module swaps with minimal offshore work
06	**Technology development**	Multi moorings, continuous depth control, rotary power conversion

ACHIEVE PROGRAMME

CETO Basque Country Deployment



Carnegie office in Basque Country **(Bilbao)** driving the project

EUROPEWAVE CONTRACTED DEPLOYMENT

Phase 1
Concept & tank test
✓ **Complete**

Phase 2
Preliminary design
✓ **Complete**

Phase 3 (final)
Build & deploy
80% complete

#1

Ranked first of **36 applicants** at start of Phase 3

Judged on **independently validated** criteria

- **LCOE**
- **Performance**
- **Reliability**
- **Availability**
- **Survivability**

TOTAL FUNDING

€7.05m

€3.75m
EU EuropeWave
Phase 3 award

€1.2m
Spanish Gov't
IDAE – Renmarinas, Dec 2023

€2.1m
Basque agency EVE
March 2024

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ACHIEVE PROGRAMME

Design and Testing

Developing and validating architecture and component selection

- Architecture developed and proven through tank testing
- Component suppliers, fabricators and service providers identified and engaged
- Components evaluated and tested





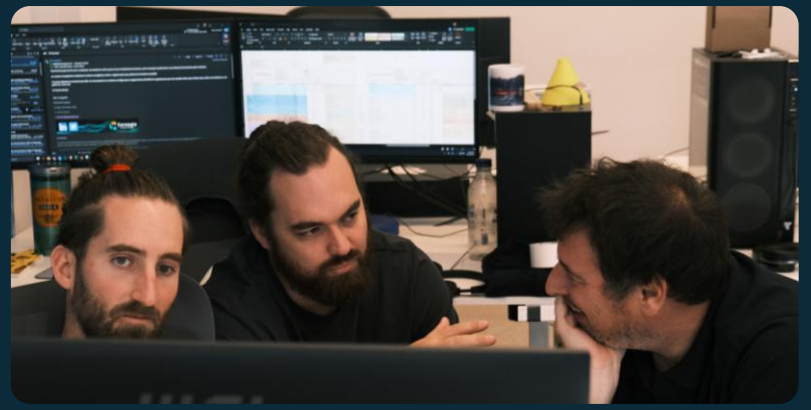


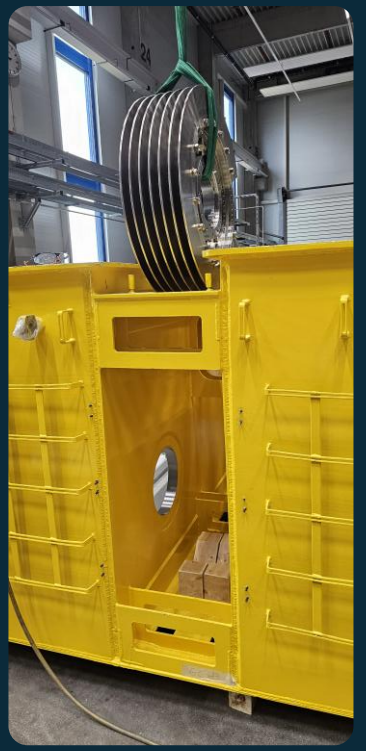
ACHIEVE PROGRAMME

Electrical and Generator Modules

Generate electricity, store energy, control force, condition power

- Modules developed in-house by mechanical and electrical design team
- Containers fabricated by local Basque fabricator
- Suppliers SEI and SKF supported detailed design and assembly
- Generator Modules currently being assembled at SKF









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ACHIEVE PROGRAMME

Buoyant Actuator

Hydrodynamic prime mover, buoyant platform for modules

- BA sets the hydrodynamic profile and provides system buoyancy
- Designed by Carnegie Bilbao team
- Fabricated in the Basque Country
- Segmented design for logistical benefits







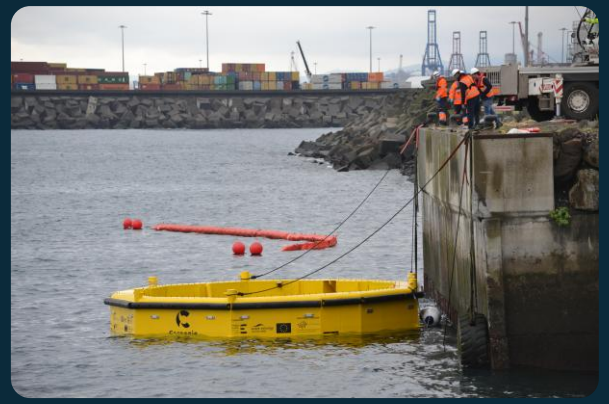


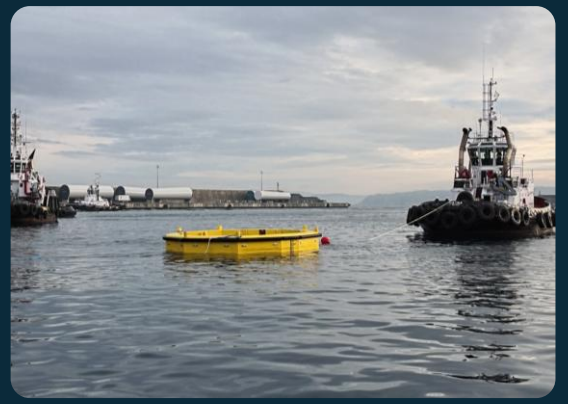
ACHIEVE PROGRAMME

Stage 1 deployment

Paving the way for full system deployment

- BA assembled and deployed at BiMEP
- Requirement for milestone payment
- Validation of towing, floatation behaviours
- Significant learnings in identifying and working with key stakeholders and suppliers
  - Port of Bilbao and Harbor Master
  - Intermediaries for wharf access and storage
  - Tug boats and private vessels operators
  - Crane operators







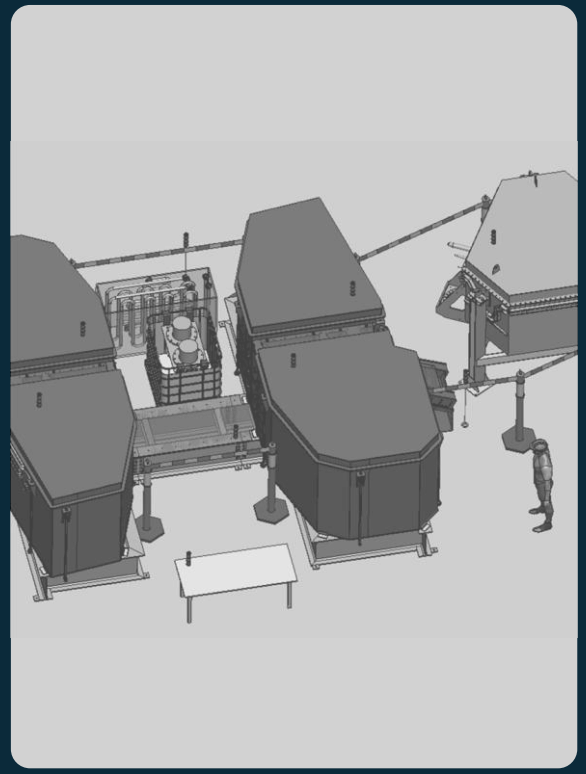


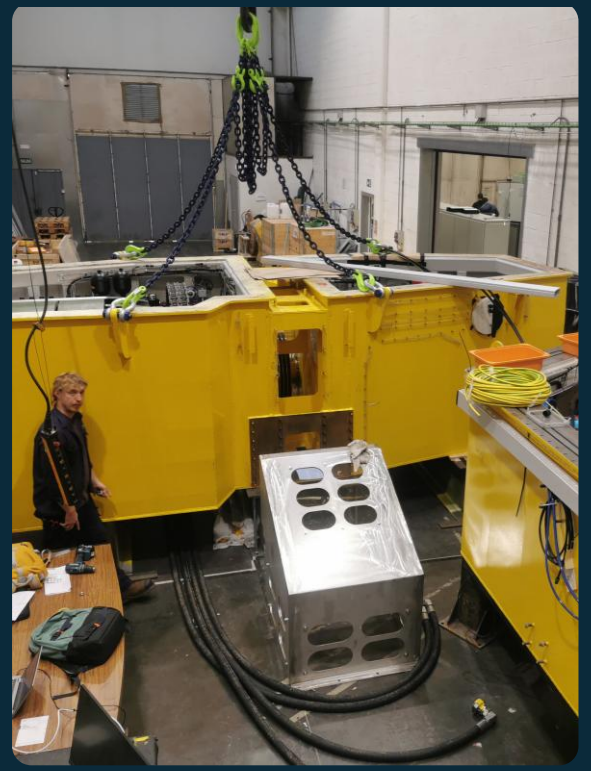
ACHIEVE PROGRAMME

PTO testing

Rigorous testing onshore to avoid surprises at sea

- Modules arranged back-to-back with one driving the other
- Simulates real motion using model data sets
- Conducted in Bilbao





STAGE 2 DEPLOYMENT

Full system deployment

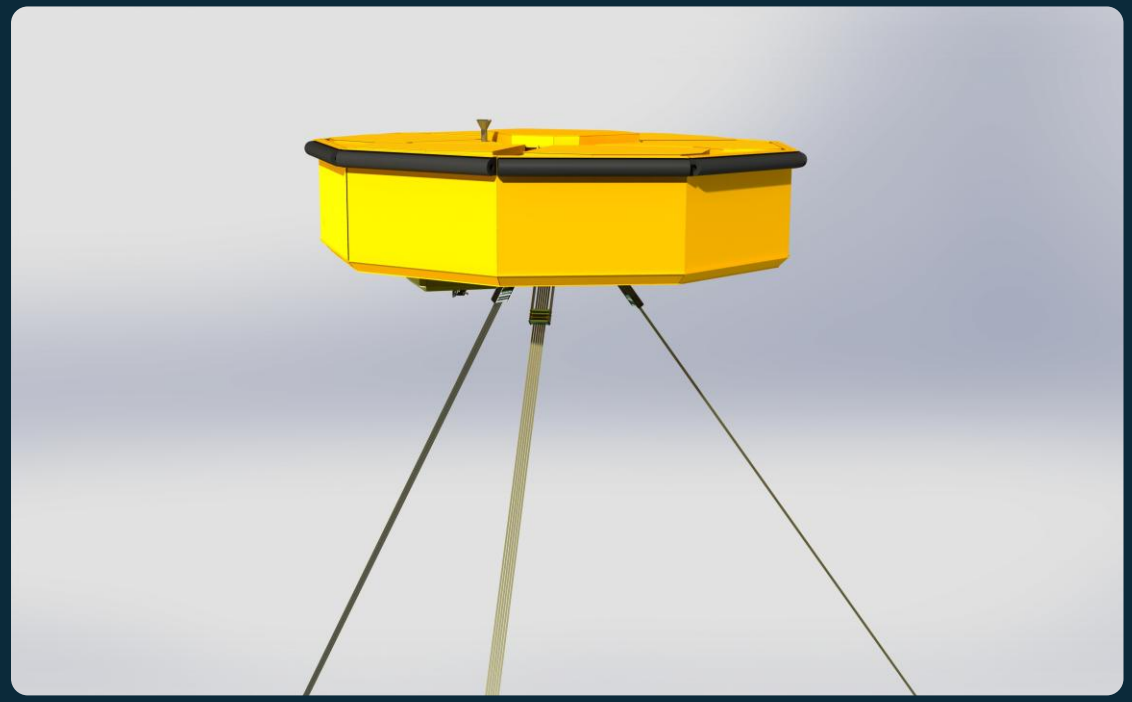
European Spring 2027

DEPLOYMENT SEQUENCE

1. **Moorings** – primary and secondary systems deployed first
2. **Dynamic cable** – connection to export cable
3. **Full system** with grid connection

Post-winter timing
Minimises commercial weather risk

Quick connect
System demonstrated

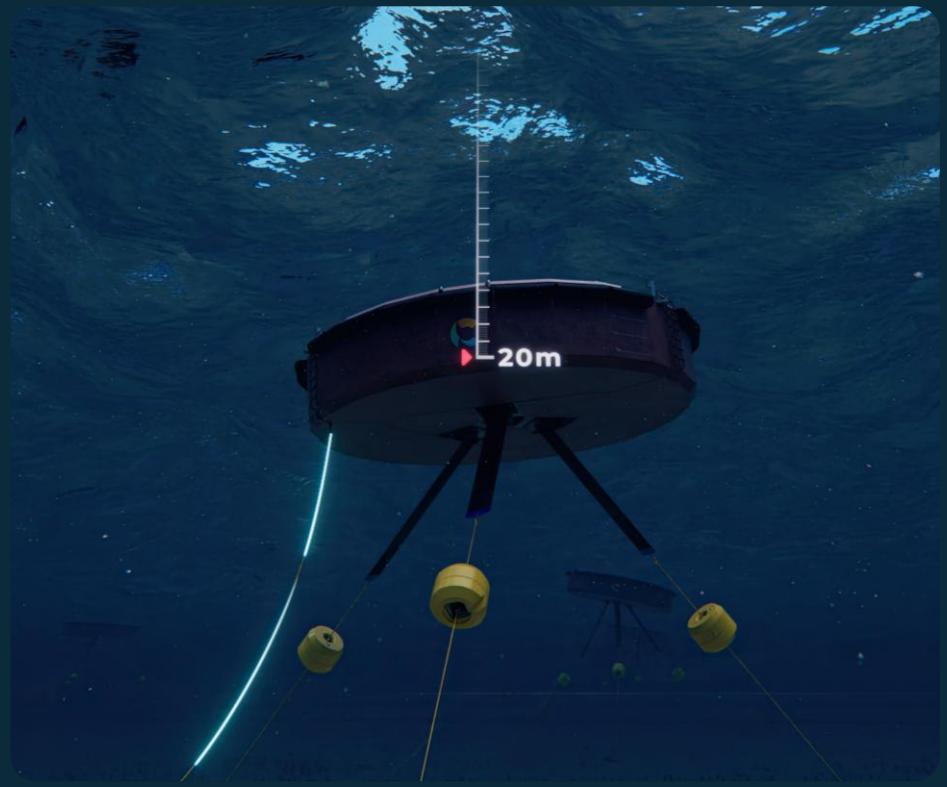


OPERATION VALIDATES

- Controllers
- Deep diving
- Power performance
- Reliability of components

CETO TECHNOLOGY

Features and specifications



FEATURES

Visual Impact	None – fully submerged (2 – 3 m)
Extreme Wave Survival	Deep diving to 20 m, power production continues
AI Control	Real time control to optimise energy generation
Installation & Recovery	Small tow vessels, diverless and rapid with quick connectors
Maintenance	Swappable WECs at sea and PTOs in port

SPECIFICATIONS

WEC Rating	1000 kW
Spatial Density	30 MW / km^2
Capacity factor	30 – 50%
Operational Wave Range	0.5 – 14 m significant wave height
Water Depth	> 40 m (130 ft), no max depth, deeper = longer ropes
Buoy Diameter	20 m
Buoy Height	4 m



GLOBAL FOOTPRINT

Carnegie's team and business footprint

CARNEGIE BUSINESS MODEL

How Carnegie generates revenue

An ocean energy technology developer and engineering services company



REVENUE GENERATION

1. **Sale of integrated CETO units**

2. **Sale of wave prediction and control system software**

3. **Engineering services**
   - Ocean energy project design, feasibility, permitting and approval
   - Project management of construction and engineering
   - CETO array maintenance and operations (20+ years contracted recurring revenue)
   - Software development and upgrades

MARKET OPPORTUNITY

Global potential of the wave energy market



40 GW

Ocean energy is coming. The European Commission has set targets of 1 GW by 2030 and 40 GW by 2050. With the right support, this could happen sooner

$60bn p.a.

Ocean Energy Europe forecast ocean energy to be a $60bn per annum industry, supporting 50,000 jobs

70%

The amount of the world's surface covered by our oceans. Absorbing energy from wind, it's known as the world's biggest battery

350 GW

The International Renewable Energy Agency's current estimate of ocean energy installed capacity by 2050

Source: oceanenergy-europe.eu/ocean-energy

OUTLOOK

Projects & funding

- ACHIEVE Programme deployment and grid connection in the next 6 months
- Work commenced on 6 MW (6 × 1 MW CETO array) project at BiMEP, off the coast of the Basque Country, Spain
- Other sites under consideration in the EU, UK, US and Australia



NEAR-TERM FUNDING STRATEGY

- Project consortiums to be predominantly funded by government and energy utilities
- Funding programs (equity, debt, grant and subsidies) underway or planned in the EU, UK and US, with significant capital available for projects
- CCE generates revenue from projects as equipment supplier/integrator and engineering services company



Question & Answer

Be part of the innovation that will unlock the power of the world's oceans

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CONTACT

Thank you

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EUROPEWAVE

Thank you!

RENOVABLES MARINAS DEMOSTRADORES

Funded by the European Union
NextGenerationEU

MINISTERIO PARA LA TRANSICIÓN ECOLÓGICA Y EL RETO DEMOGRÁFICO

IDAE

Plan de Recuperación, Transformación y Resiliencia

¡Gracias!

EUSKO JAURLARITZA
GOBIERNO VASCO

ENERGIAREN EUSKAL ERAKUNDEA
ENTE VASCO DE LA ENERGÍA

Eskerrik asko!