SAOIRSE
WAVE ENERGY

Project Overview

Presentation to EUFORES

22nd May 2024

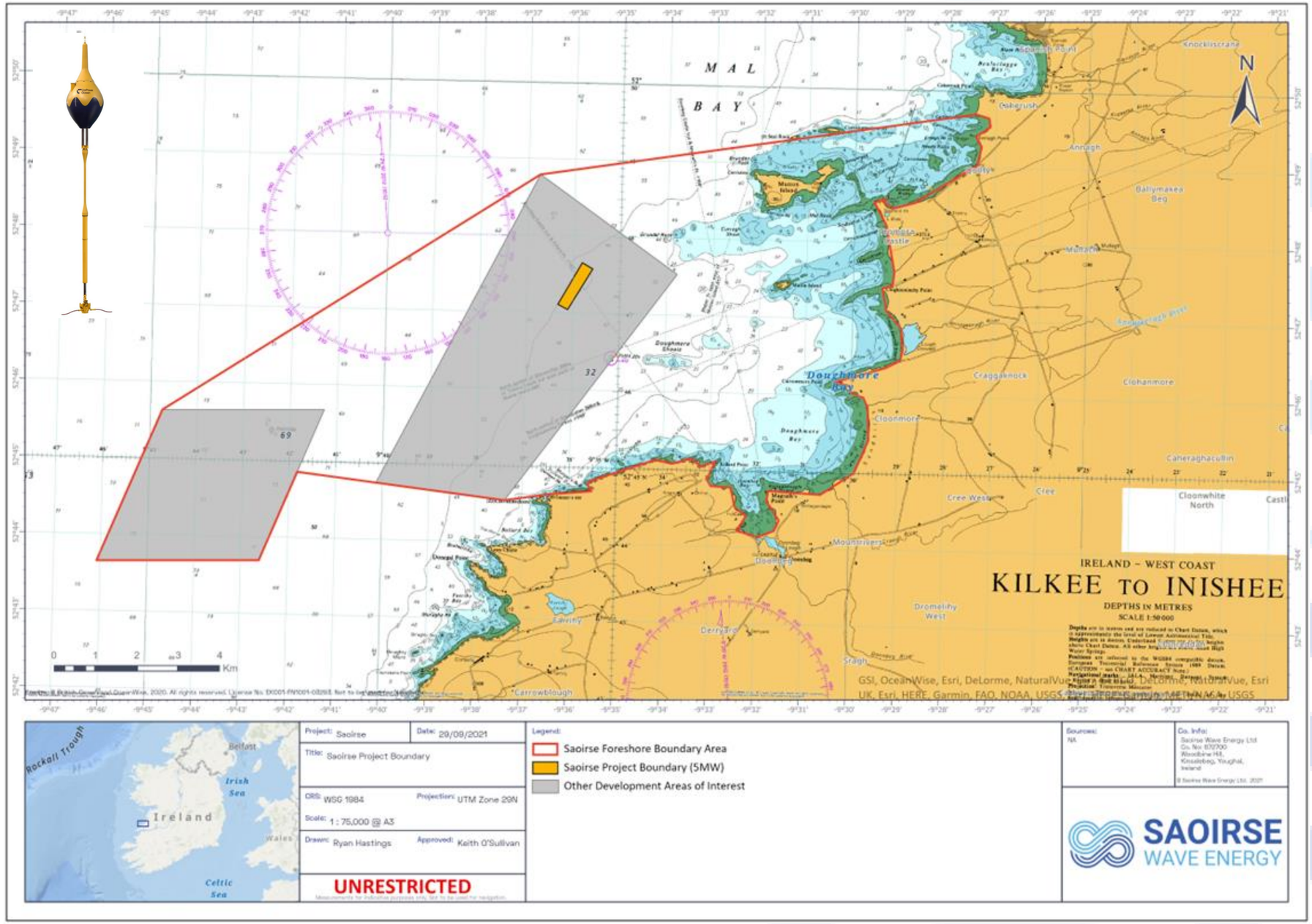
Patricia Comiskey
ESB Project Director – Offshore Policy and Innovation

Co-funded by the European Union
Emissions Trading System
Innovation Fund

SAOIRSE
WAVE ENERGY

Saoirse Project

- 5MW Pre-Commercial Demonstration Array
- Located c.4 km off Doughmore Bay on West Coast of Clare
- High Energy Sites for Wave Energy Converters (WEC) 40-50kW/m
- Project has the capacity to power 3,500 homes and will displace 10,868 tonnes of CO2 per year
- **EU Innovation Fund** awarded in 2023

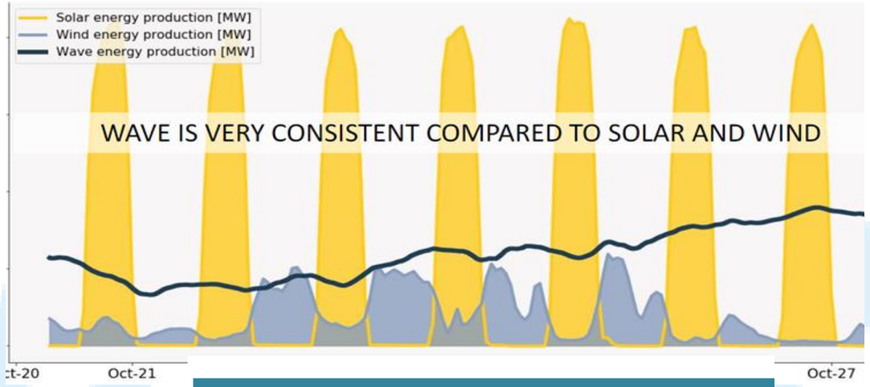


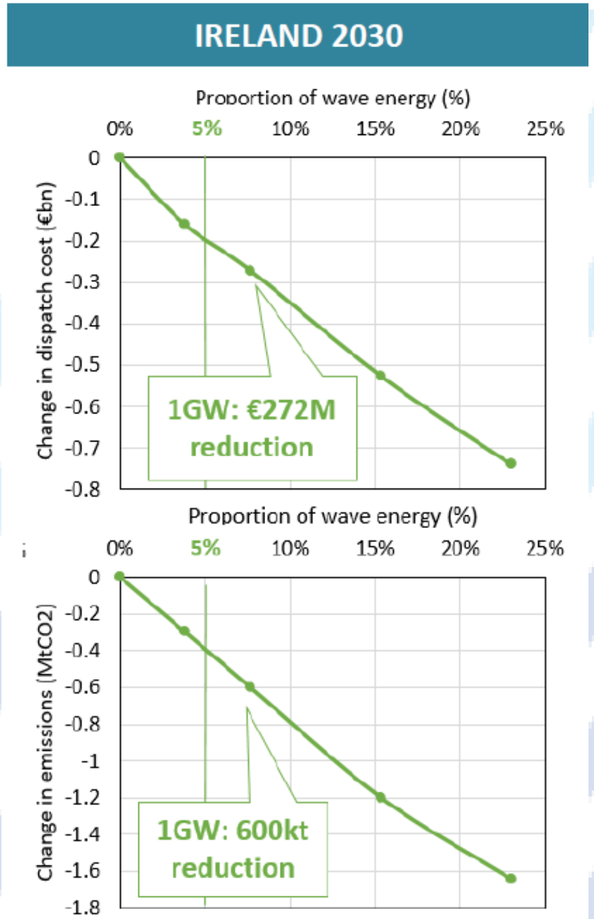
Co-funded by the European Union
Emissions Trading System
Innovation Fund

SAOIRSE
WAVE ENERGY

Why Wave

- High energy density – Ireland has some 31GW extractable resource – 75% of Republic requirements.
- EU ocean energy targets - 100MW by 2025, 1GW by 2030, 40GW by 2050
- Wave Energy Roadmap targets £90/MWh LCOE by 2035
- Combining wave into energy mix offers higher power capacity increasing continuity and reliable power supply.
- Multi-use of sea space with offshore energy arrays (wind, floating wind, sustainable aquaculture and wave) can lower cost of offshore energy.

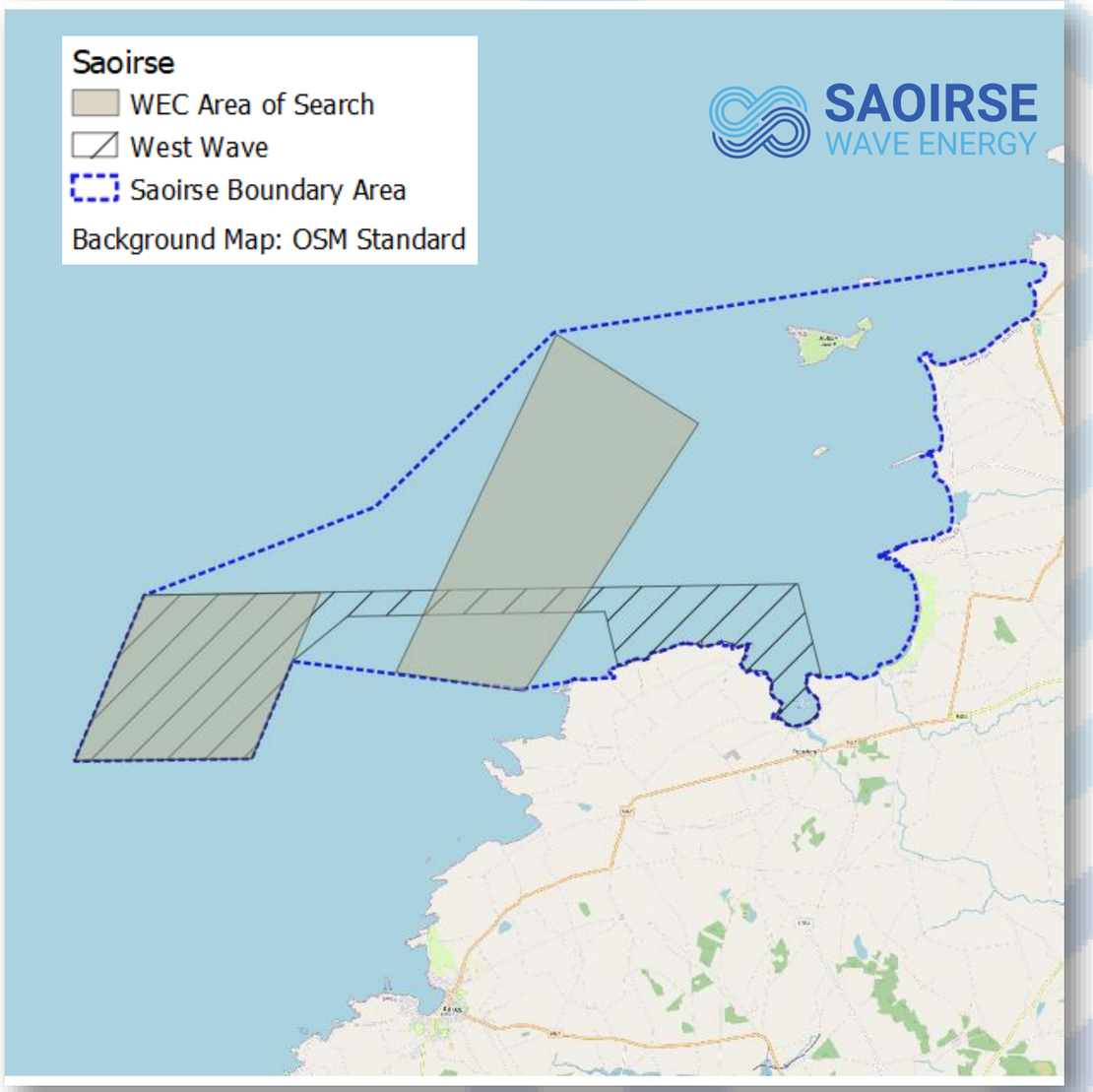




Co-funded by the European Union
Emissions Trading System
Innovation Fund

SAOIRSE
WAVE ENERGY

- Saoirse is building on years of previous work undertaken for wave in Ireland (ESB- WestWave site)
- Data collected for WestWave has been made available:
  - Geophysical data
  - Metocean/resource data
  - Ecological studies
  - Grid assessments
- Technology is now reaching pre-commercial stage.

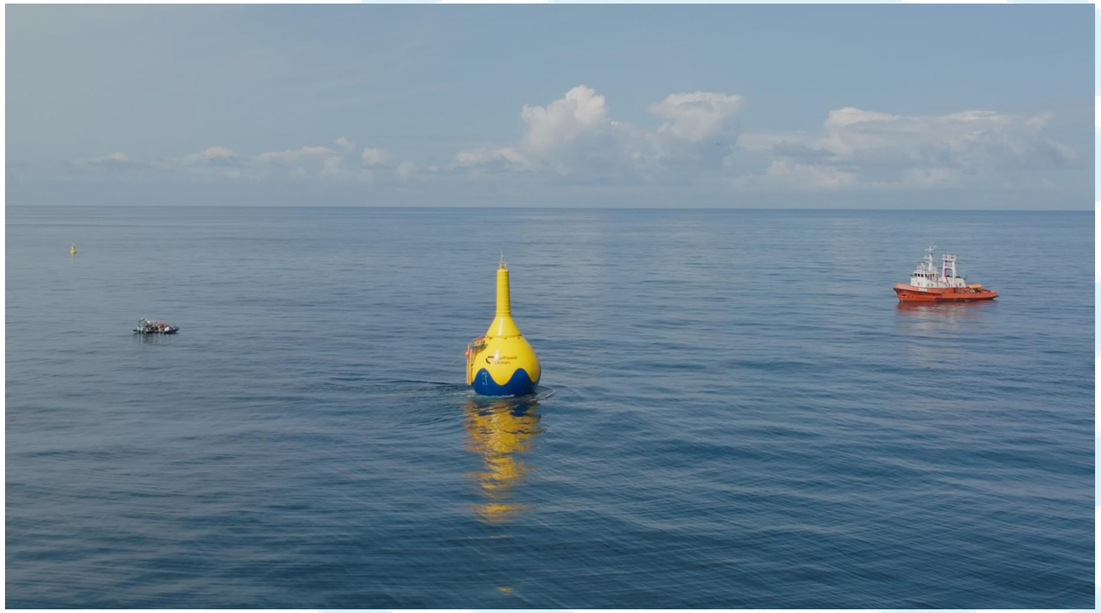


Co-funded by the European Union
Emissions Trading System
Innovation Fund

SAOIRSE
WAVE ENERGY

Saoirse Timeline

- Project awarded EU Innovation Fund in 2023
- Contracts initiated in 2024
  - Historical data compilation and gap analysis
  - Consenting pathway options
  - Grid Connection options
  - Technology review (Pre-FEED studies)
- Development Consent submission planned for 2026
- FID 2027



Q2 2021
Environmental Surveys commence

Q1 2022
Tech Due Diligence & Pre-FEED commenced

Q4 2023
Surveys complete (Offshore Bird & Mammal, Intertidal Ornithology)

Q2 2026
EIA/Development Consent Submission

Q4 2027
Financial Investment Decision (FID)

2030
Commercial Operations Date (COD)

Co-funded by the European Union
Emissions Trading System
Innovation Fund

Co-funded by the European Union
Emissions Trading System
Innovation Fund

CorPower Technology

SAOIRSE
WAVE ENERGY

CorPower Ocean

CorPower C4

300 kW
Power Rating

5-30 MW
Wave Cluster Size

40-60%
Capacity Factor

>40 M
Installation Depth

15MW/km²
Spatial Density

0.25-8 m
Operational Range (Hs)

CorPower Ocean

Structured product verification

5-stage program according to IEA-OES / ETIP Ocean best practice

2012—2013

Stage 1
Concept

Validation

2014—2015

Stage 2
Critical System tests

Dry and tank testing

2015—2018

Stage 3
1:2 scale device

Dry and ocean testing

2018—2023

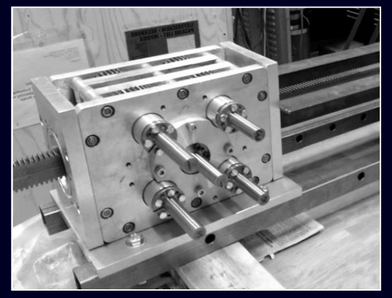
Stage 4
Full scale device

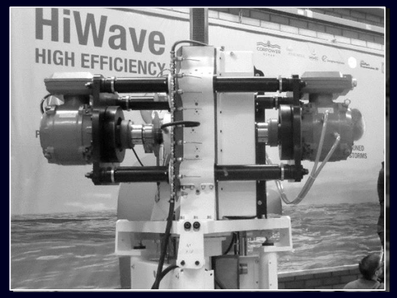
Dry and ocean demo

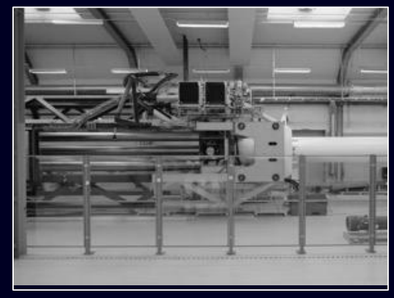
2023—2026

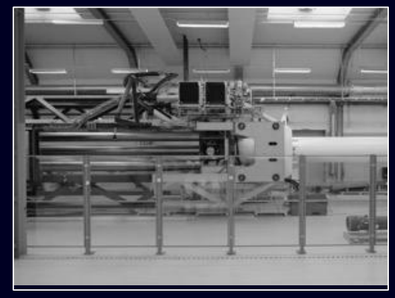
Stage 5
4 device array

Pilot array (4 WECs)







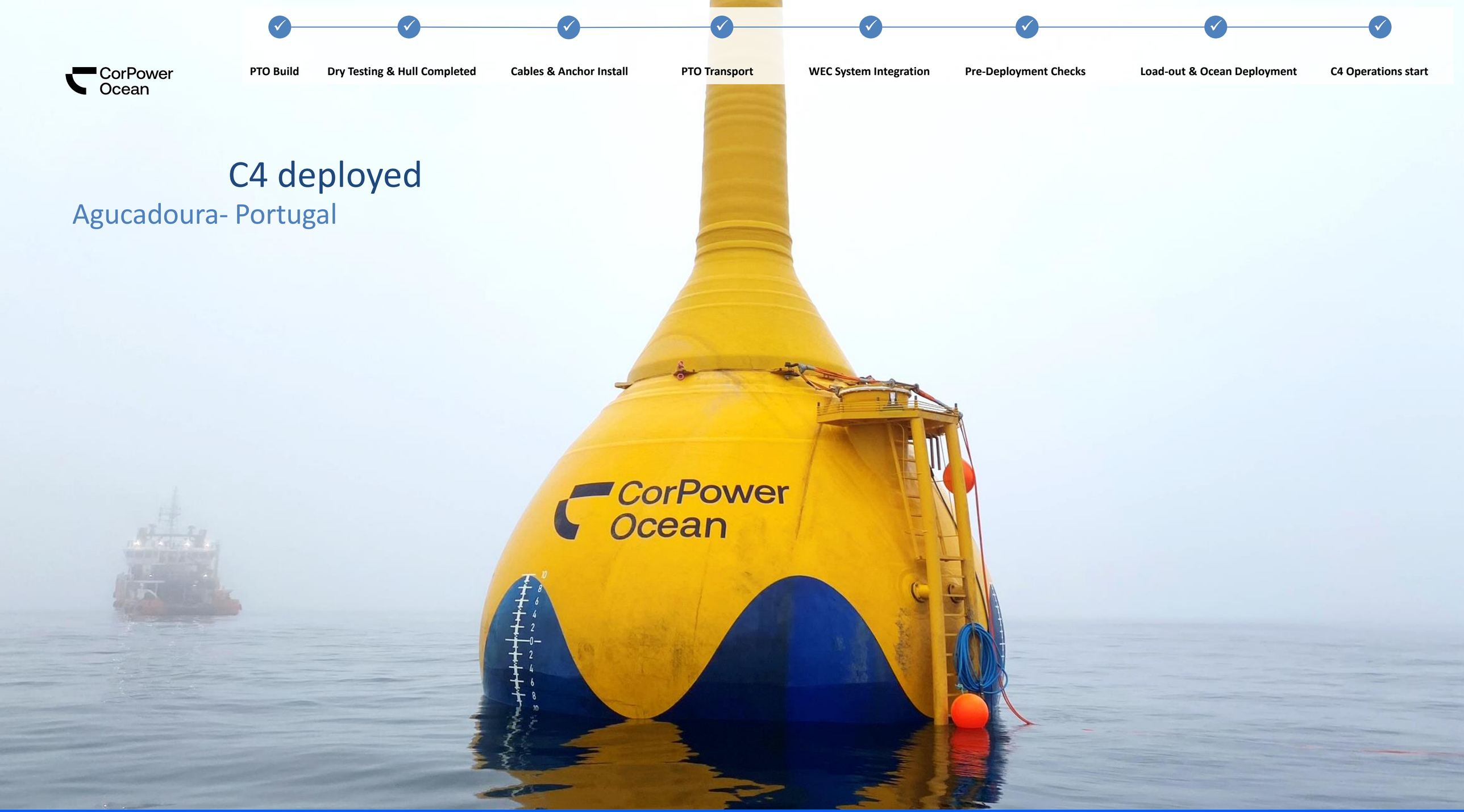


CorPower Ocean

PTO Build | Dry Testing & Hull Completed | Cables & Anchor Install | PTO Transport | WEC System Integration | Pre-Deployment Checks | Load-out & Ocean Deployment | C4 Operations start

C4 deployed

Agucadoura- Portugal



Using Small Local Ports
Viana do Castelo

System Integration in Viana do Castelo

C4 operations summary

Successful commissioning program

- Confirmed machine safety and survivability
- 24/7 shift in control centre during first month of operation -> autonomous operation.

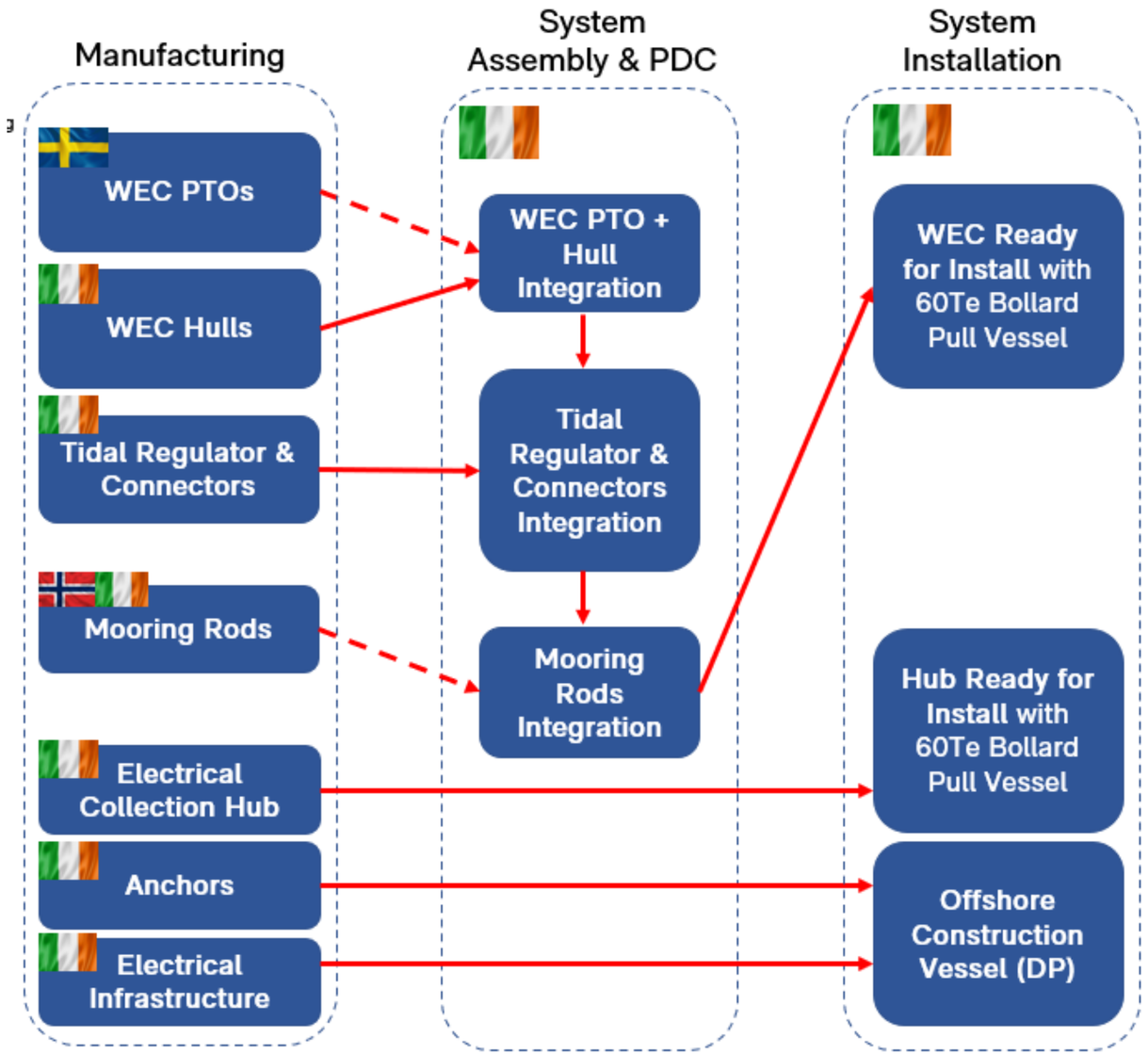
Verified

- Storm survivability: up to 18m waves
- Exporting power to the grid
- All system functions verified
- Model calibration for motion and power
- UMACK anchor: Stable station keeping verified.
- O&M: Offshore O&M access is C4 verified.
- O&M: disconnection / tow-back / 1st on-land O&M cycle

Ongoing: On-land O&M cycle, for 2nd deployment Q2 ‘24

Supply Chain Opportunities

- ✓ PTO –Assembled and tested in **Sweden** (With com- > shipped to Ireland for assembly with the WEC Hull.
- ✓ WEC Hull – Manufactured in **Ireland** using mobile composite manufacturing facilities.
- ✓ Anchors – Manufactured, assembled and tested in **Ireland**.
- ✓ Tidal Regulator & Connectors – Manufactured, assembled and tested in **Ireland**.
- ✓ Mooring Rod – Manufactured in **Portugal** or **Norway** and shipped to Ireland ready to use.
- ✓ PTO, WEC Hull, Tidal Regulator & Connectors & Mooring Rod – Assembled and tested in **Ireland** as complete system before being moved to the quayside or slipway for ocean deployment.



Co-funded by the European Union
Emissions Trading System
Innovation Fund

SAOIRSE
WAVE ENERGY

Project Opportunity

First Pre-Commercial Array

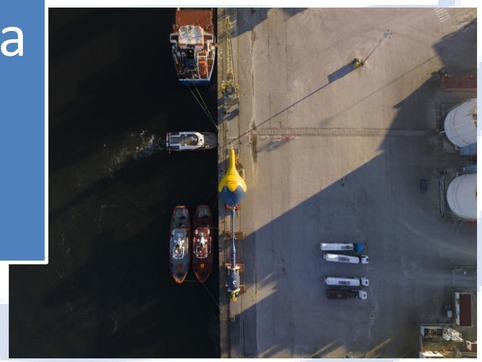
Provides a ‘First Mover’ advantage for Ireland

Expansion of knowledge and capacity

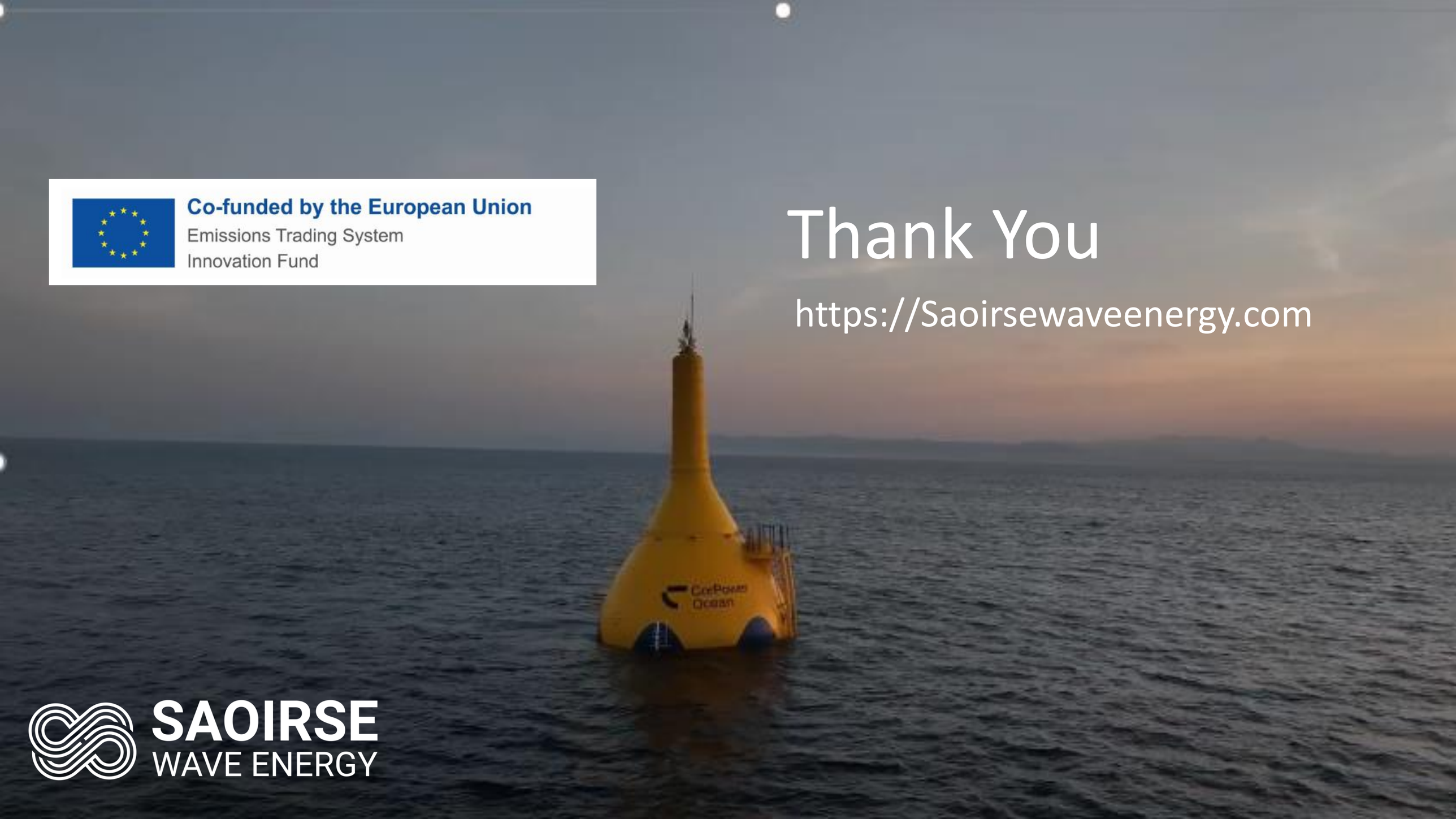
Stimulates local supply chain and local support – tangible opportunities for Irish companies and ports

Energy opportunity – improved energy mix resulting in better natural balance of the grid

Realization of a legacy project- decades of data and expertise leveraged.



Co-funded by the European Union
Emissions Trading System
Innovation Fund



Co-funded by the European Union
Emissions Trading System
Innovation Fund

Thank You

https://Saoirsewaveenergy.com

SAOIRSE
WAVE ENERGY