



Clean Energy for the Blue Economy

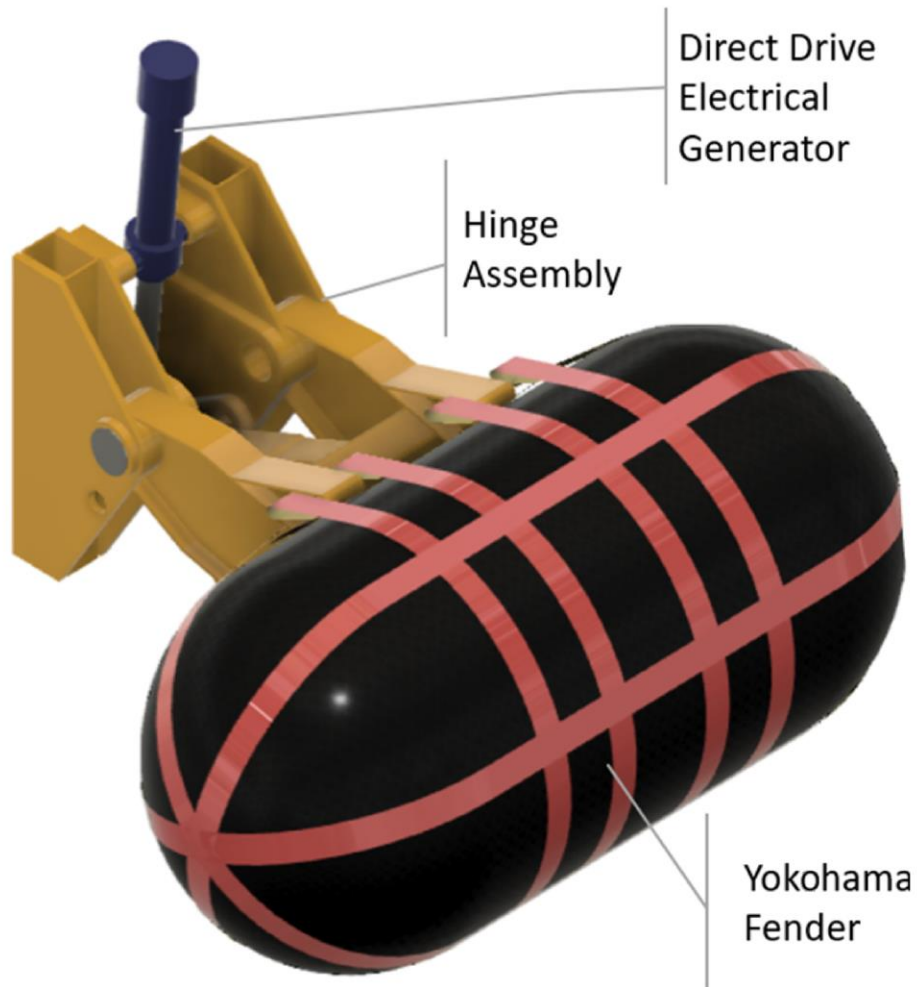


Contact:
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Executive Summary

- Aslihan Penley, an award-winning businesswoman with Masters degree in Chem. is the founder of ZOEX LTD, a clean technology, aiming to replace the diesel generators used in the Blue economy. Ash transitioned her career from offshore Oil & Gas to Renewables sector because of her passion for SCUBA diving as she witnessed the devastation in aquatic life due to climate change. She previously worked for FTSE 500 companies such as Subsea7, Technip and Worley, with global experience in Australia and America.
- ZOEX is a wave energy converter overcoming the biggest hurdle in the sector: cost. ZOEX cuts down the cost drastically by developing a wave energy technology that can be mounted on an existing marine structure.
- ZOEX is a modular wave energy device with 100kW peak power.
- Multiples can be installed to meet the customer demand
- It is easy to transport, install and maintain
- ZOEX found a penetration market in aquaculture sector by gaining support letters from Scottish Sea farms, Bakkafrost and AKVA Group
- The company secured Grant funding from Seafood Innovation fund and working towards a Demo project in 2024
- Further funding secured from Innovate UK Future economies to establish the company. Innovate UK funding can be unlocked by raising private equity investment and we currently raising Seed level investment with Equity Gap
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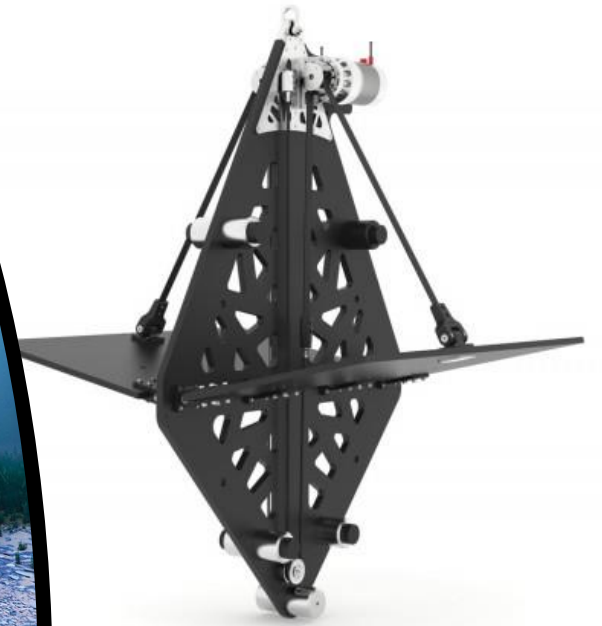
SPECIFICATIONS

Aspect	Details
Fender	Yokohama Fender 2.5m x 5.5m
Power Take Off	UMBRA Ball Screw Generator
Peak Power	100kW
Mean Continuous Power	15kW @ >Hs 1m
Minimum Sea State	~ Hs 0.3m
Capacity Factor	30 -60% Depending on location
Survival Sea State	>Hs 6m
Vertical Range of Motion	180°
Optimal Power Range	15°
Output Voltage	Configurable depending on application
Mass (unballasted)	< 5 tonnes
Power to Weight Ratio	15kW / 5.5 tonnes

How it works

- A compliant rubber Yokohama fender moves up and down as a wave actuated-body. The fender also protects the host structure
- The fender's movement is captured by Umbra Group's Electro-Mechanical Generator (EMG), which provides precise control, high efficiency, and reliability
- Hinge assembly on the arm works both as a mechanical intensifier mechanism so that the device generates at small Sea States with improved performance and utilisation and avoids mechanical end stop at storms

Others in the
market



Potential Markets

ZOEX has a business case at offshore off-grid applications where diesel generators are used

- Aquaculture fish farms
- Oil and Gas
- CCUS
- Offshore Wind
- Safety at sea
- Electric vessels charge -barge
- IoT (maritime sensors)
- Breakwaters
- Hotels on remote islands
- Utility scale amongst Offshore wind farms (once the cost is dropped to Offshore wind rates)

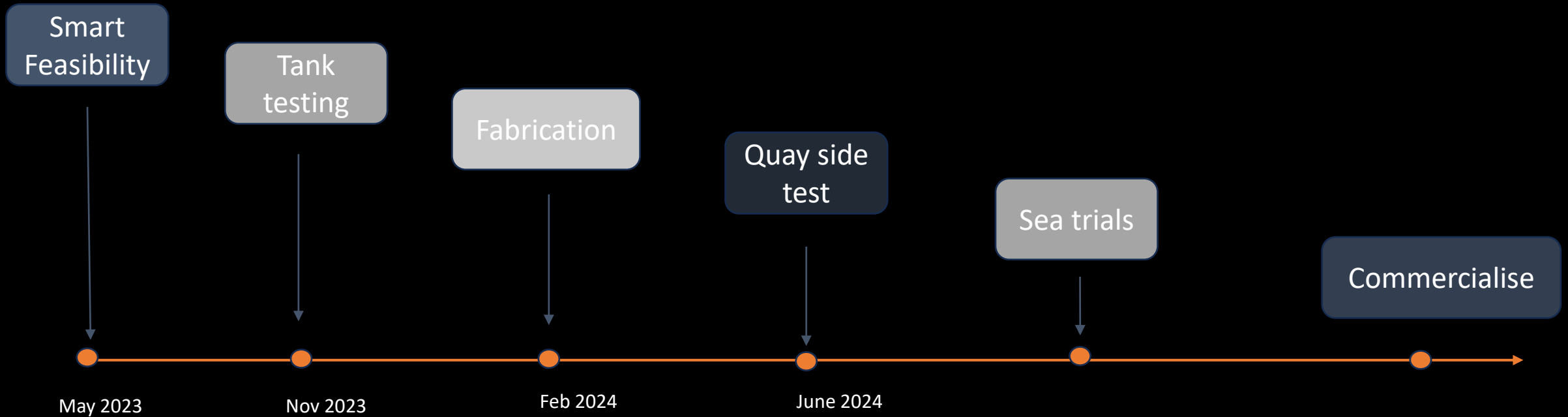


- Stand-alone power buoy supported with subsea battery storage would service IoT, marine sensors and Oil & Gas subsea infrastructure. We are already talking with Verlume and Krucial.



- Floats can be lifted-up for ease of transport, a vessel handler can carry 3-4 of these at its back-deck. Easy to install.

Traction: £600,000 secured from Grants



Funds in place for Demonstration and the project is on track

Note: £10m investment spent on ZOEX's components such as Generator/ Fender/ from Wave Energy Scotland Grants & Private sector in the past 5 – 6 years

We can replicate the success of our competitors



13m valuation



63m valuation



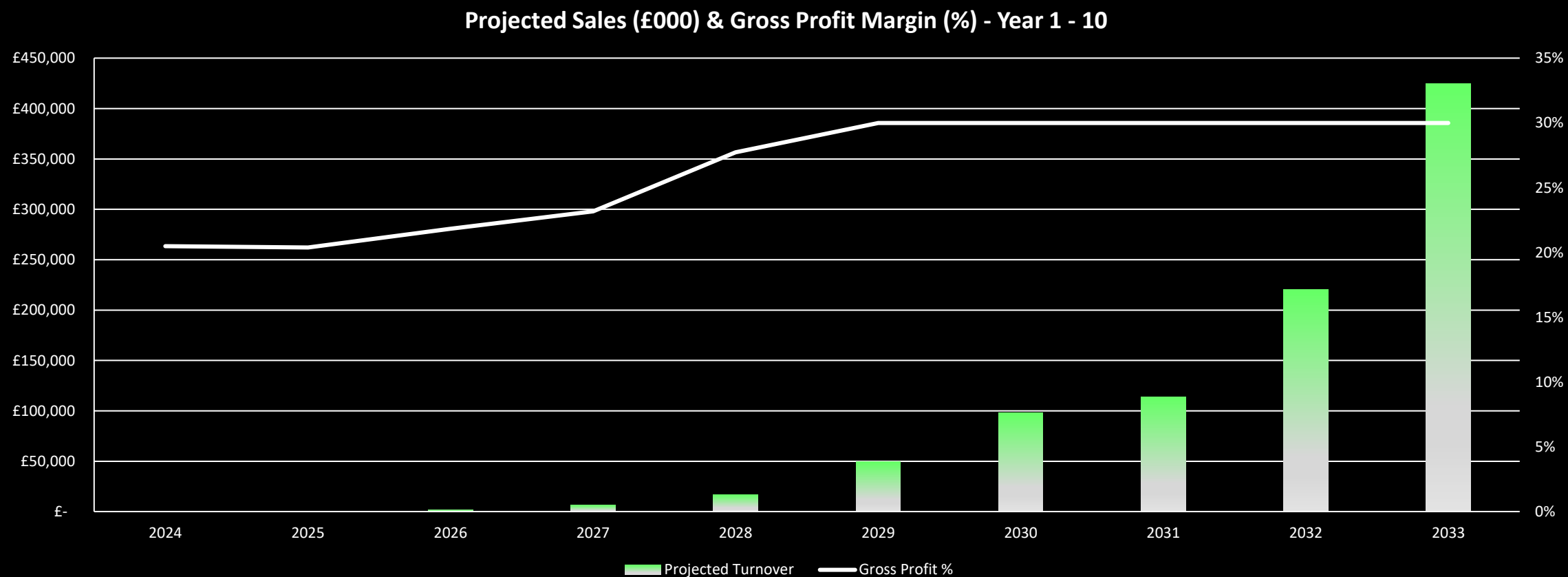
13m investment

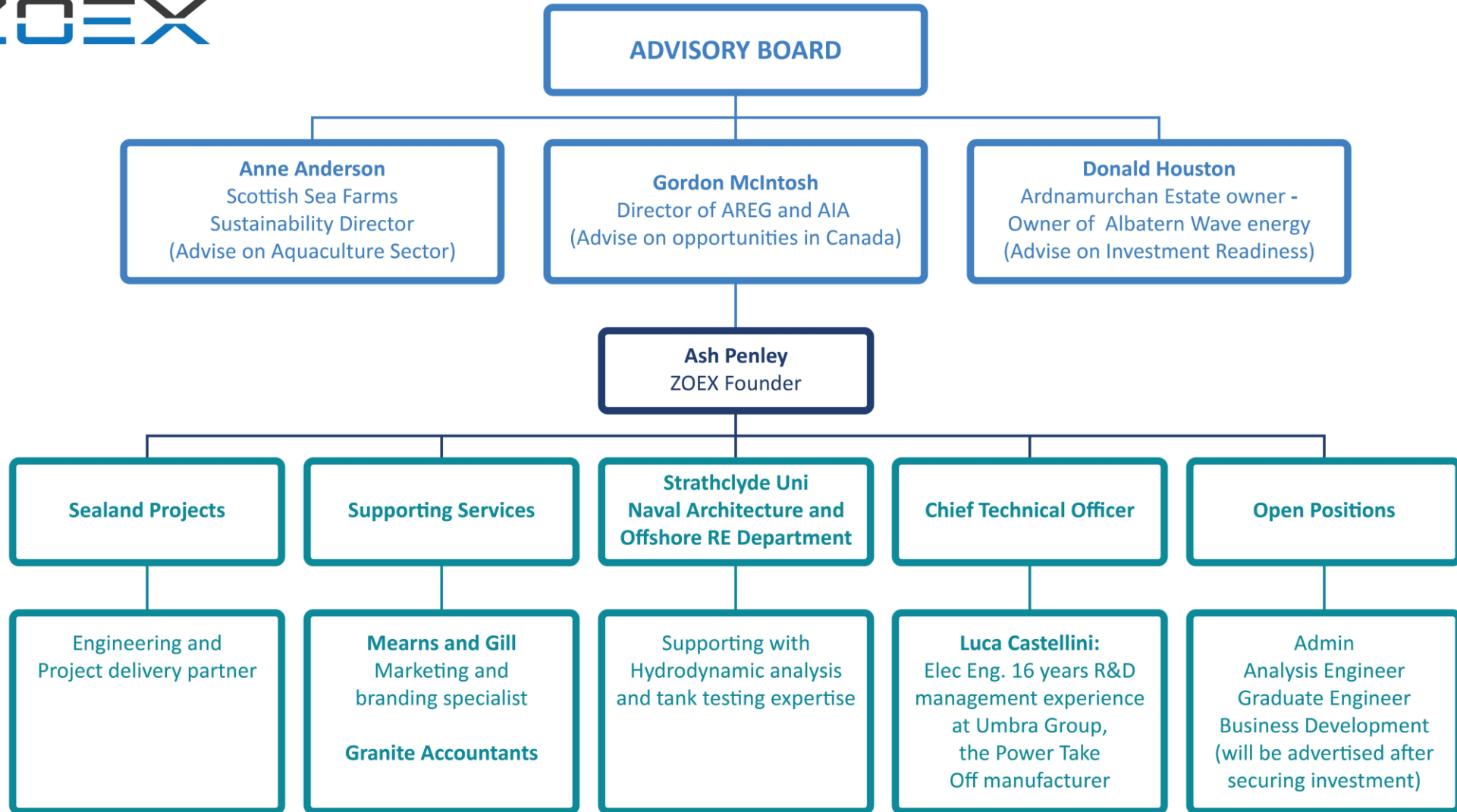
WES funds



ZOEX can enter any
of these competitor's
market better and
lower cost

Financials, by AAB (Financial accountants) showing £420m turnover in 10 years with a conservative approach





ZOEX

Clean Energy for the Blue Economy

Supported by UK Government:

TIMELINE



2016

ALBATERN WAVE ENERGY

Hinge mechanism (the yellow part inside the blue elbow) which was developed for Albatern is adapted in ZOEX. This has been in water in West coast of Scotland to date. This mechanism overcomes the biggest challenge in Wave Energy sector; prevents mechanical end-stop and acts as an intensifier, which makes it work effectively at small sea states while surviving storms

£2m Private / Gov



2019

UMBRA GROUP

Power Take off System adapted in ZOEX Concept is Electro Mechanical Generator (EMG) developed by Umbra Group SpA by WES funds.

This is a cutting-edge tech which has increased reliability and low maintenance. Small pic shows the EMG's sea-trials in Orkney on a single point pivot steel float

£6m Private / Gov



2020

ZOEX Concept Born TRL=5

ZOEX concept was born during SE:SMART Peterhead Harbour Feasibility study. Numeric models were built to identify the power generation and stress analysis.

LCOE was identified as £170-400/MWh for prototype level. SE: Unlocking Ambition Product-market fit study done and identified offshore-off-grid applications such as the aquaculture sector

Patent Pending

£500k Private / Gov



2021

NETBUOY

Net Buoy Project funded by WES, tested a Yokohama fender as a wave absorber.

Pic showing the fender during sea-trials at Cromarty Firth

£1.5m Gov



2023

ZOEX for Aquaculture

ZOEX PCT registered.

Agreement signed with Sealand Projects Ltd.

SE:SMART Scotland feasibility and Seafood Innovation funds won to replace diesel-gens used on feed-barges.

Works commenced in May 23 to overcome techno-economical challenges to adapt the solution onto a typical aquaculture barge

£550k Private / Gov

Who is



Founded 2007

Dynamic and sustainable solutions
for the world's ocean economy.

ISO 9001
ISO 14001



Renewables



Oil & Gas



Ocean Systems



Pathway to
Net Zero

50 **PERSONNEL**

A row of 50 small white human figures arranged in two rows of 25.

Our Services:

PROJECT MANAGEMENT
ENGINEERING
CONSULTANCY

Connecting capability with opportunity



Concept



Feasibility



Define &
Visualise



Design &
Engineer



Install



Maintain



Retire



Business
Assurance



Package
Management



Engineering
Design & Analysis



Carbon
Management



Marshalling, Transport,
Installation &
Field Support



Energy
Transition



Floating systems,
Towing, Mooring &
Hook-up



Visualisation



INNOVATION



RESILIENCE



EFFICIENCY



SUSTAINABILITY

Global Experience
drawing on local
knowledge, supported
from central
engineering hubs

City Centre locations

📍 **ABERDEEN**

📍 **GLASGOW**

