



Technical and logistic SUMMARY

SEABREATH SRL
130 feet PROTOTYPE

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DESCRIPTION

Seabreath is a new high efficiency technology producing energy from the sea

Seabreath wave energy is a new floating high-efficiency modular multi-chamber technology for wave energy conversion by oscillating water column (OWCs-WEC), developed by Seabreath LLC.

Its high efficiency and exploitation of a large portion of the wave, combined with other interesting features, make it a flagship in the industry

It takes the form of a floating pontoon anchored close to the coast, creating usable space, easily transportable, installable, modular, scalable and with virtually no environmental impact, if not positive for fish restocking and for combating coastal erosion as a **breakwater**

The structure is designed to be made from **recycled containers**, used both as a oscillating chambers and for transport.

It is extremely resistant to adverse weather conditions and has an automatic, non-electronic **emergency system**.

The noise pollution typical of other oscillating water column devices is practically reduced to a whiff of the external valves, hence the name.

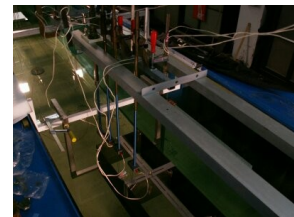
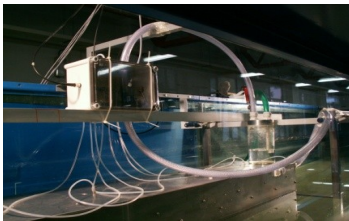
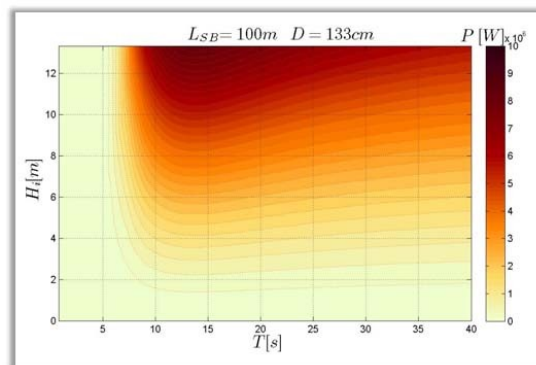
The project is starting TRL7 and needs a financial partner to design, build and sea-test the 1:1 scale prototype.

The system produces a **unidirectional, continuous air flow** that allows the use of a single unidirectional turbine for all rooms (multi-chamber OWC), with approximately twice the efficiency of other systems using the oscillating water column with Wells turbines, without acceleration and deceleration and using a large portion of the wave. **External compensation valves** increase efficiency by up to a further 30%.

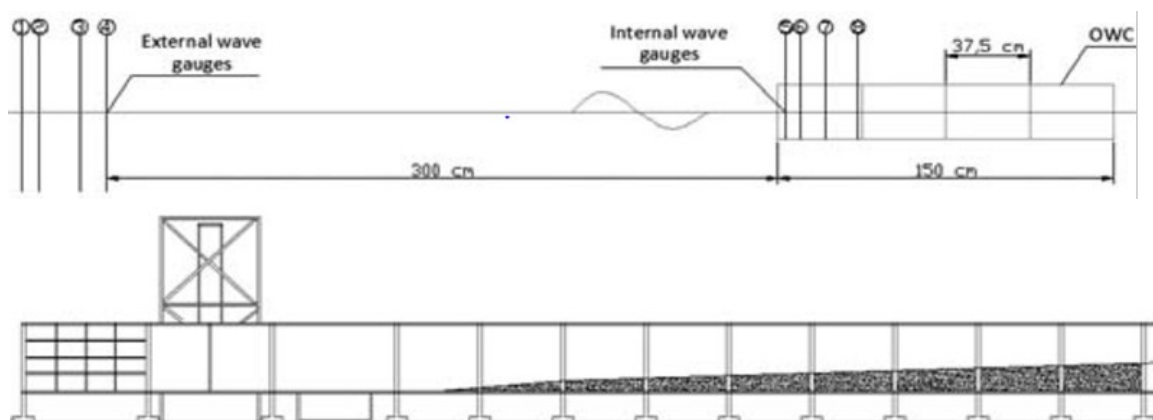
STUDY AND TESTS University of Padua



Relazione-Test SEABREATH - Dip I.M.A.G.E Università di Padova.pdf

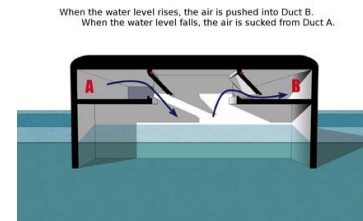
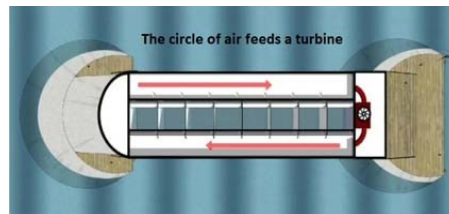
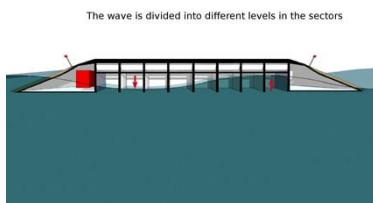


test set up



HOW DOES IT WORK

OWCs WEC



Images do not show structural particularities

ENGINEERING AND PROTOTYPING

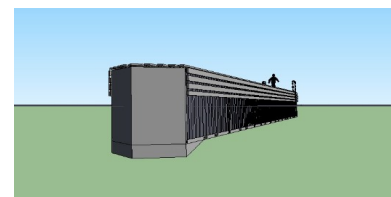
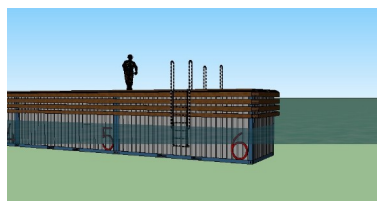
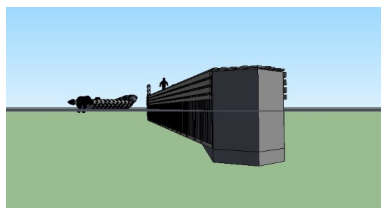
We estimated to develop a 1:1 prototype in **17 months** with 20-foot recycled containers, used as chambers and packaging, and eco-friendly materials.

The strength of the project is the use of a **highly efficient unidirectional turbine**, which combined with the low cost and other features make this solution a promise in the wave energy sector. We already have contacts to carry out a preliminary study on a **dedicated turbine** and to mould it.

The design identified should make the structure extremely durable, stable, ensure survivability in extreme conditions, and provides low-cost solutions for fabrication, transport, maintenance, installation and de-installation that make the technology more competitive.

An automatic non-electronic **emergency solution** has been identified to reduce loads in critical conditions.

A new **intelligent anchorage**, a new **modular reticular and tubular structure** and a new **type of swing-stop** will also be tested.



PLANNING

Plans call for the construction of a prototype of approximately 30 metres, consisting of a load-bearing modular structure in which recycled containers will be used, prepared for assembly and protected from corrosion in various ways.

General management, administration and design supervision will be carried out by Dr. Luigi Rubino (visionary, inventor and promoter of the device, graduate in Economics. Independent wave energy researcher for 40 years with decades of administrative and legal experience).

The **technical direction** and design of the floating system will be entrusted to a Senior mechanical engineer. (inventor, sailor, former submariner, scientist and builder with multiple experiences in mechanical and shipbuilding).

The **design** of the structure will be carried out in cooperation with a Naval engineer. (ship designer, test engineer and partner in a ship design company) with whom a draft executive design of the structural and material characteristics and the creation of a 3D design will be defined.

The **electrical and electronic design** will be handled by a Mechatronics engineer, who already has significant experience in Wave Energy.

He will work in collaboration with a **Research Center** that is already developing a Wave Energy project, which is willing to share its electronic design and lend an experimental site in the sea it co-owns. It will begin a study to equip the turbine with electronic control to maximize torque and efficiencies. An already commercialized turbine has been identified.

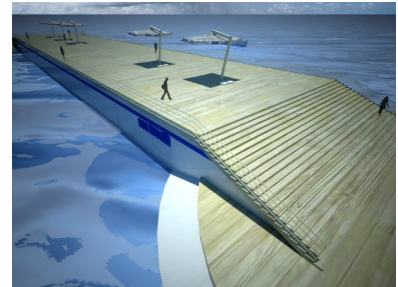
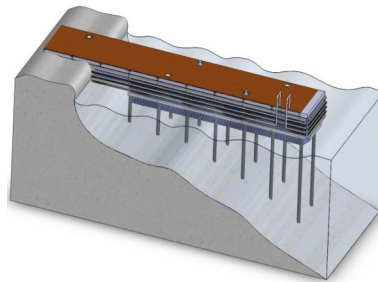
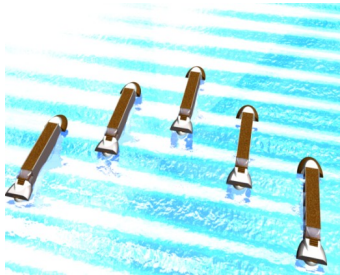
The 3D draft will define the geometry and mass and inertial characteristics of the system, the identification of any critical issues/optimizations, with particular reference to hydrodynamic and structural aspects, modifications, optimization and comparison with them, preliminary analysis of the system, and evaluation of operability and productivity. will be reviewed in collaboration with a **Special marine design Company** partner

As anticipated, the following will be tested: a new smart anchor, a new modular and reticular structure, a new swing-stop, and a dedicated and molded turbine

The various parts will be made in collaboration with an already identified **Metalworking company**

FUTURE DEVELOPMENT

- Factories of multiple devices
- Long-size devices
- Fixed devices connected to the coast (piers)
- Large industrial type oceanic device
- Non-anchored oceanic devices for **hydrogen production**



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