



# ocean\_2G



## OCEAN\_2G PROJECT

The OCEAN\_2G (second generation technologies in ocean energy) project aims to test, validate and pre-certify an innovative second generation (2G) 2MW tidal energy platform solution, progressing it towards commercialisation.

The project is based on further developing a tidal energy platform - the ATIR - conceived by Magallanes Renovables who have already tested a 1:10 scale tidal energy platform in open water conditions at the European Marine Energy Centre (EMEC) in Orkney, Scotland.

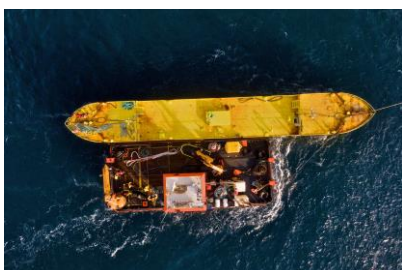
The data obtained during the initial testing programme has been fed into the design of the second generation device which was launched in Vigo, Spain, in April 2017.

The project will undertake a number of key innovations to take the full-scale prototype from technology readiness level (TRL) 6 to TRL 8, readying it for market.

## OCEAN\_2G OBJECTIVES

1. Validate the full-scale (1:1 size) prototype in a controlled marine environment through a structured test programme;
2. Demonstrate the operational performance of a grid connected full-scale prototype in a real open sea environment;
3. Improve the prototype for cost competitive energy generation with a target of 2MW;
4. Pre-certification of the full-scale prototype with an independent electrical power performance assessment; and
5. Develop a business strategy and marketing approach according to the projects outputs and identify potential customers.

[WWW.OCEAN-2G.COM](http://WWW.OCEAN-2G.COM)





“Magallanes Renovables’ patented floating design has been developed specifically to address the considerable issues surrounding the cost and complexity of installation and maintenance of seabed mounted tidal turbines. We believe that this project will result in a step change for the tidal energy market.”

**ALEJANDRO MARQUES**  
**MAGALLANES RENOVABLES**

## OCEAN\_2G CONSORTIUM

The OCEAN\_2G project brings together **Magallanes Renovables** and their parent company **SAGRES, EMEC, Leask Marine** and **IM Future**, to help develop the second generation Magallanes Renovables tidal technology.

## TESTING AND VALIDATION

The second generation ATIR device has been validated in a controlled environment in Vigo, Spain, where the device was manufactured. The device was then towed from Vigo to Orkney in September 2018 and installed at EMEC’s grid-connected Fall of Warness tidal test site in February 2019. The ATIR will now undergo commissioning on site prior to being connected to the national grid, where it will then demonstrate its operational performance in open sea conditions.

When deployed, the ATIR technology is fixed to the seabed using two anchors, one in the bow and another on the stern, with two counter-rotating three-bladed rotors situated below the hull.

The movement of the rotors is transformed into mechanical energy which is subsequently converted into electricity by a generator. The blades have a variable pitch system to allow blade configuration and pitch to change according to the current.

A powerful control system manages the onboard systems and enables remote connection and communications with the ATIR technology.



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