

## Innovation Challenge

# Tracking underwater species behaviour and movements in and around tidal stream turbines

As part of efforts to make the consenting of tidal stream arrays quicker and simpler, the Marine Energy Engineering Centre of Excellence is supporting an Innovation Challenge.

## Background

### Challenger:

This challenge is sponsored by Natural Resources Wales (NRW) and the Royal Society for the Protection of Birds (RSPB).

### Background:

Whilst very few collisions have ever been recorded between underwater species (birds, mammals or fish) and tidal turbine blades, still not enough is known about these interactions. The consenting and licensing processes for installation of tidal stream projects are, as a result, onerous and currently represent a major barrier to commercialisation. Prior to consenting, project developers must collect a large amount of baseline data on abundances and behaviours, which is time consuming and expensive. Post deployment observations must continue to ensure that the devices are not damaging their environment.

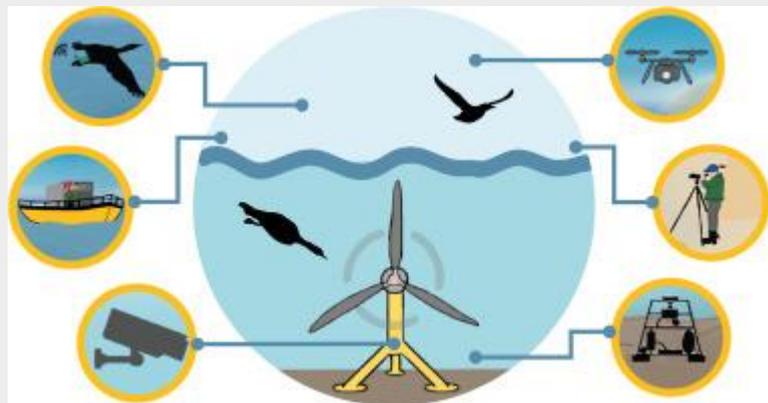


Image credit: [Natalie Isaksson / Benjamin Williamson](#)

### The Challenge:

This challenge is two-fold – we need to gather data more efficiently, and we need to gather better data. The data we gather must allow us to understand the species' behaviour better – if they avoid blade impacts, then why and how? If they leave the area, where do they go? How far away from the turbine is their behaviour altered, and what is the impact of that?

### Technology Scope:

This is a broad challenge, and innovations could come from a range of technology areas. While not wanting to limit the scope in any way, it is expected that solutions would involve innovations in some of the following areas:

- Sensors and electronic devices (including battery or other energy storage systems).
- Data and image processing.
- Robotics and autonomous systems.

## Rewards and benefits

Up to six responses will be selected to receive support. Successful applicants will be given an opportunity to pitch to the Challengers. The package may also include:

- Support (where the company is eligible) from MEECE. Up to £35k of effort by the MEECE team, per innovation, to develop and demonstrate the innovation.
- Support in the development of bids for further funding to validate the innovation.

- Technical support from the wider ORE Catapult team.

## Other Considerations

### Completeness of solution:

It is unlikely that this Challenge will result in complete solutions. We will consider innovations that promise to be part of a solution, and are at any TRL level.

### Challenge Timescale

- Launch of the Competition: 16<sup>th</sup> June 2021
- Deadline for applications: 11<sup>th</sup> August 2021
- Selection and notification of successful innovations: 8<sup>th</sup> September 2021.

### Cost requirement and market opportunity

Current solutions available in the market are developed in one-off, bespoke fashion. An opportunity exists to standardise designs and introduce serial manufacture, to reduce unit costs. Systems that gain acceptance from NRW, RSPB and other stakeholders are likely to be in demand, possibly even mandated, for tidal stream developments around the world.

### Eligibility and assessment criteria

*Entrants to this challenge must be:*

- *Established businesses, startups, SMEs or individual entrepreneurs*
- *UK based or have the intention to set up a UK base*
- *MEECE is an ERDF funded Operation. Companies that receive MEECE support need to have a base of operations in the West Wales and the Valleys region.*

*Applications will be assessed on:*

- *Relevance to the topic*
- *Innovative nature of the subject*
- *Coherence of the proposed business model*
- *Feasibility/ economic viability*
- *Development potential*
- *Maturity of project/solution*
- *Ability to launch project quickly/Ease of implementation*
- *Price/quality ratio*
- *Suitability for the UK and European Market*

### IP and Potential Commercial Route

- *Existing background IP associated with a potential solution will remain with Solution Provider(s). Where any new IP generation is envisaged, it will be subject to the mutual IP agreement of the Solution Provider(s) and ORE Catapult, and will comply with State Aid rules.*
- *Where necessary, a non-disclosure agreement (NDA) may be signed to uphold confidentiality in the engagement between the Solution Provider(s), Innovation Challengers and ORE Catapult.*