

# Marine Renewable Energy meets conservation in Welsh Waters

## Catapult, MEECE & Innovation Challenges

9<sup>th</sup> November 2020

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MEECE Programme Manager, ORE Catapult



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## Innovate UK

- Designed to transform the UK's capability for innovation
- Core grant leveraged with industry and other public funding

### Regional Centres

#### Satellite Applications

- North East
- Scotland
- South West
- South Coast
- East Midlands

#### Digital

- North East and Tees Valley
- Yorkshire
- Brighton
- Northern Ireland

#### Offshore Renewable Energy

- Glasgow
- Blyth
- Levenmouth

#### High Value Manufacturing

- AFRC - Strathclyde
- NCC - Bristol
- CPI - Wilton/Sedgefield/Darlington
- AMRC and NAMRC - Rotherham
- MTC - Ansty
- WMG - Coventry

#### Future Cities

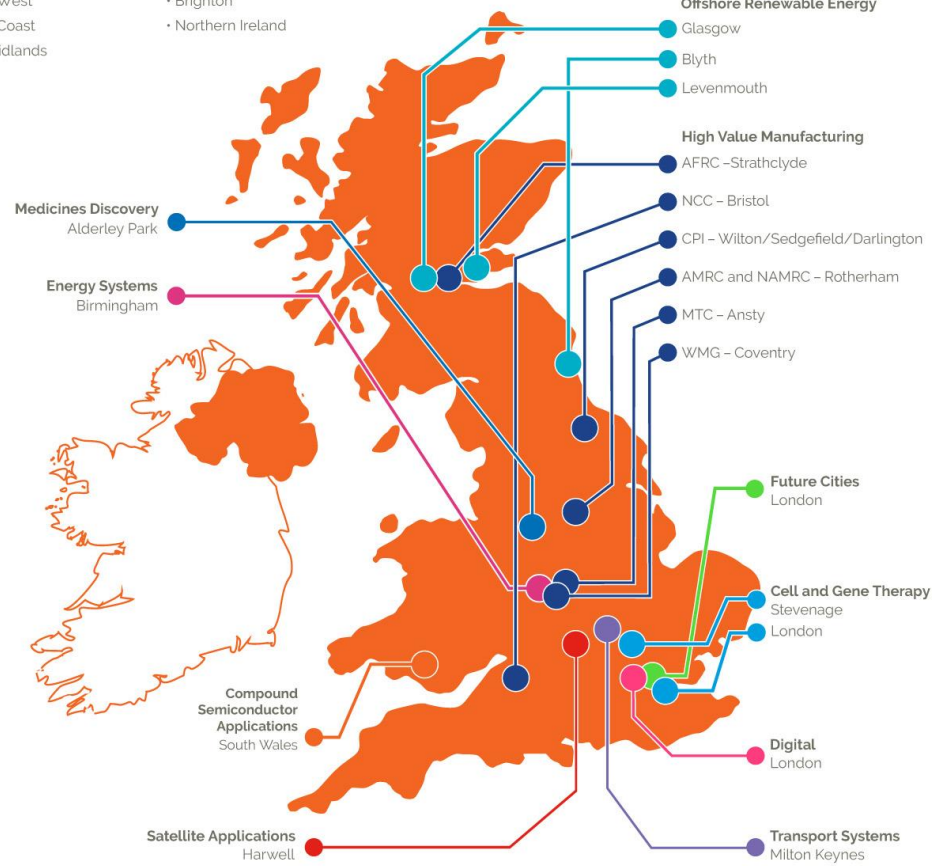
- London

#### Cell and Gene Therapy

- Stevenage
- London

#### Digital

- London



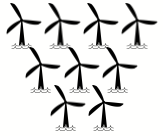
## Our Mission:

*Accelerate the creation and growth of UK companies in the ORE sector*

- Engineering and research experts with deep sector knowledge
- Independent and trusted partner
- Work with industry and academia to commercialise new technologies
- Reduce the cost of offshore renewable energy
- Deliver UK economic benefit



## Offshore Wind



**Thriving with low costs,  
but needs more UK content**

- Offshore Wind Sector Deal includes government commitment to future auction rounds every other year leading to: 40GW by 2030, 27,000 Jobs, 60% UK content
- Supply chain boost: OWGP is the programme to support supply chain growth £100m/10 years
- Government commitment to Net Zero 75GW by 2050
- Recent zero subsidy contracts at £39/MWh
- **We need the Celtic sea and floating wind to deliver this level of ambition**

## Tidal Stream Energy



**Moving to first  
commercial arrays**

- Making progress despite market support headwinds
- Cost reduction progress needs to be demonstrated.
- Industry needs to collectively work on common challenges in a highly visible way.
- Cost will reduce with volume (if we can get volume)
- International collaboration is needed to ensure tidal stream is developed in the fastest and least cost way.
- **Revenue support needed now!**

## Wave Energy



**Finding convincing concepts  
which can be cost effective**

- Still in the “discovery phase”
- Current promising concepts need to be proven and new ideas should be developed efficiently
- Huge global market
- Highly supportive environment in Wales for technology development, and excellent deployment potential (both prototypes and longer term)
- **Capital grant funding needed now, but credible policy support for future revenue support funding also needed.**



- **5-year project, £11M total costs, based in Pembroke Dock**
  - Collaboration with Swansea, Bangor, Cardiff and Cardiff Metropolitan universities
  - funded by Catapult, WEFO, City Deal, and the universities.
- **Carry out innovation projects to support Welsh companies**
  - No financial contribution needed from the company
  - Friendly approach to Intellectual Property, but...
  - Must comply with State Aid rules
- **Promote sharing of knowledge and lessons learned**



## MEECE – current status

- **Spending at risk since February 2019:**
  - Modern, open-plan office, furnished for 14 people
  - Team of 8 people, with more to come
  - Pipeline of projects generated
  - 1 project started, others very close
- **Drawing up collaboration agreement for Universities**
  - Need City Deal funding to be signed off
  - Universities bring:
    - ~10 FTE researchers to the project
    - Ad hoc access to other researchers as needed
    - Access to test facilities
- **Working closely with Marine Energy Test Area**
  - Key City Deal partner
  - Planning our first deployment in their 'zones'

### *The MEECE Team*

#### *Programme Manager*

Paul Ellsmore

#### *Professional Services*

Michelle Hitches – Finance & PM

Francesca Robinson - Procurement

#### *Innovation Managers*

Joseph Kidd (0.6FTE)

Magnus Harrold

+ 1 being recruited now

+ 1, Based in North Wales, 2021

#### *Research Engineers*

Arne Vogler – Lead Engineer

Rachel Dorrington – Mechanical Engineer

Deri Lamb – Coastal & Civil Engineer (placement)

+ 1 Electronic Engineer – being recruited now

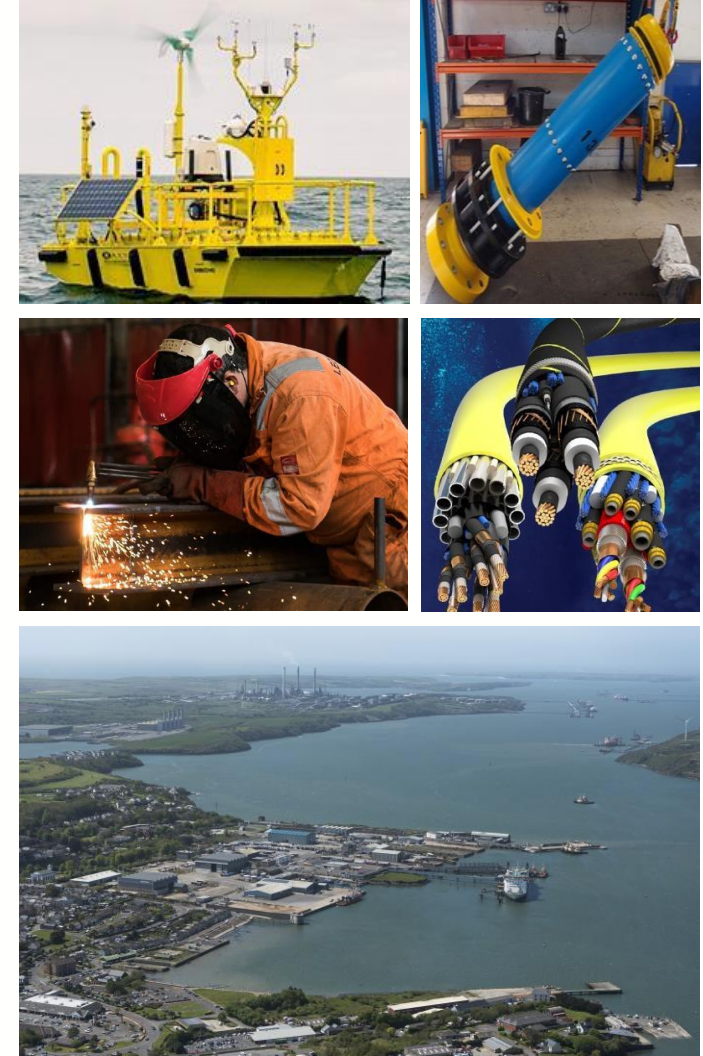
+ 1 Electrical – 2021

- **MEECE's first asset**
  - Donated by Marine Power Systems
  - To be deployed in META (hopefully before Xmas).
  - First project is to test a moorings 'peak load reduction' technology.
  - General platform for testing other components, subassemblies etc.
- **Plan a larger platform next year**
  - A 'barge' (or perhaps two)
  - Drop tests, dip tests.
  - Towing tests for turbines?





- **Building a portfolio of projects**
  - Milford Haven Energy Kingdom
    - Exploring the hydrogen economy around Milford Haven
  - TiGER (Tidal Stream Industry Energiser)
    - Largest ever Interreg project
    - Deployment in Ramsey Sound
- **MEECE is looking for:**
  - Welsh Innovators and the supply chain to bring us their ideas, we'll work together to develop them into products, demonstrate and validate
  - Industry to bring us problems to solve so we can link up challenge owners with "solution providers"
  - We don't give grants, but our support is free of charge
  - **Innovation Challenges...**

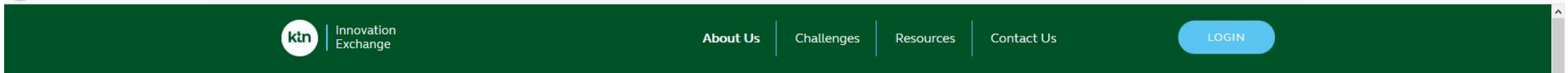
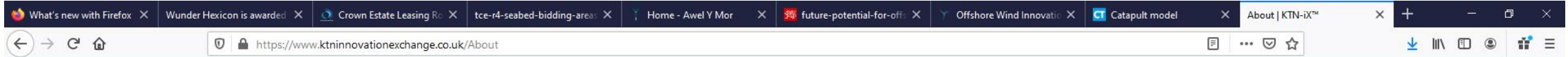


- **Very successful model for Offshore Wind.**
  - Offshore Wind Innovation Hub (OWiX)
    - 16 'Challenges' so far
    - 182 'solutions' offered
    - 71 solutions presented directly to the customers
    - 17 suppliers in active demonstration projects now.
- **A partnership with Knowledge Transfer Network (KTN)**
  - <https://www.ktninnovationexchange.co.uk/Challenges>



**Offshore Wind  
Innovation  
Hub**





## ABOUT US



### What is KTN-iX™?

KTN-iX™ (KTN-innovation eXchange) is a cross sector program supporting innovation transfer by matching industry challenges to innovative companies from other sectors. It does this through putting large businesses with technical needs in contact with companies who have the right innovative solutions, for faster development of novel solutions.

KTN-iX™ is delivered by Knowledge Transfer Network, who has worked with key industry stakeholders to identify specific innovation challenges through a series of 'guided innovation' workshops. The challenges predominantly focus on near-term issues that could provide incremental progress in the developments within these growing sectors.

### Who is Knowledge Transfer Network (KTN)

KTN helps businesses get the best out of creativity, ideas and the latest discoveries, to strengthen the UK economy and improve people's lives. KTN is a network partner of Innovate UK.



- **A good Innovation Challenge needs:**
  - A clear statement of the problem that needs solving.
  - An 'owner' for the Challenge (the customer).
  - What the market for a solution would be, how much is it worth?
- **Solutions can be at any stage of development, from concept to off-the-shelf.**
  - If it's a back of the envelope concept, we can help check feasibility
  - If it's off-the-shelf, but in a different sector, we can demonstrate it in our sector.
- **Solutions don't need to be 'complete'**
  - Can be part of a puzzle, we can help find the rest of the solution
  - We can find development or manufacturing partners
  - We can help to find further funding

- **We need to know how tidal turbines affect diving birds**
  - Key information for consenting bodies (a customer?)
  - Key information for other stakeholders (RSPB, local community)
  - Key information for turbine designers (is there actually a problem? Can it be designed out?)
- **Example solution: Lightweight 'pinger' that can be tracked underwater by microphones.**
  - **Issues:**
    - Small/light enough not to disturb behaviour itself
    - Battery life, durability.
    - Array of microphones needed. How to access the data?
    - Noise pollution?
  - **MEECE support:**
    - Desk studies, prototype design, manufacture, test.
    - Build and operate the array of microphones
    - Find partners.

- **What next?**
  - Still working with stakeholders to refine the challenge
  - Still engaging with KTN to understand their process
  - Developing a MEECE website (by end of year)
- **Workshop to develop the idea further?**
  - Circulate a note to establish appetite.
- **This challenge will be published through MEW as well as KTN and our website**
- **More challenges on a regular basis**
  - Please suggest any challenges you think would support the sector

# Contact us

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