

## Research priorities

**Rob Flynn**  
**Commercial Manager**

# EMEC Overview



THE EUROPEAN MARINE ENERGY CENTRE LTD

**Purpose-built, open-sea performance testing facilities for ORE technologies**

**First in the world, established in 2003**

**£34 million of public funding**

**Only IEC designated marine energy test centre in the world**

**One of the harshest marine environments**

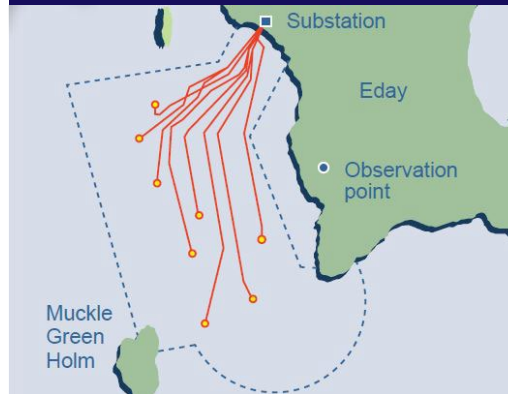


# Testing infrastructure

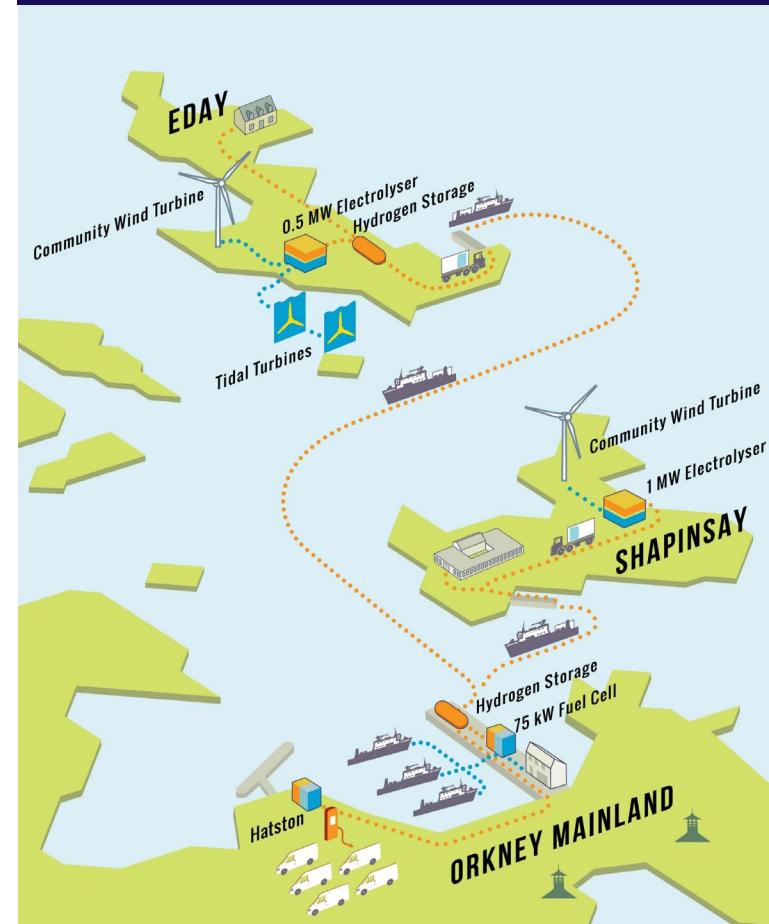
## 7 MW wave site



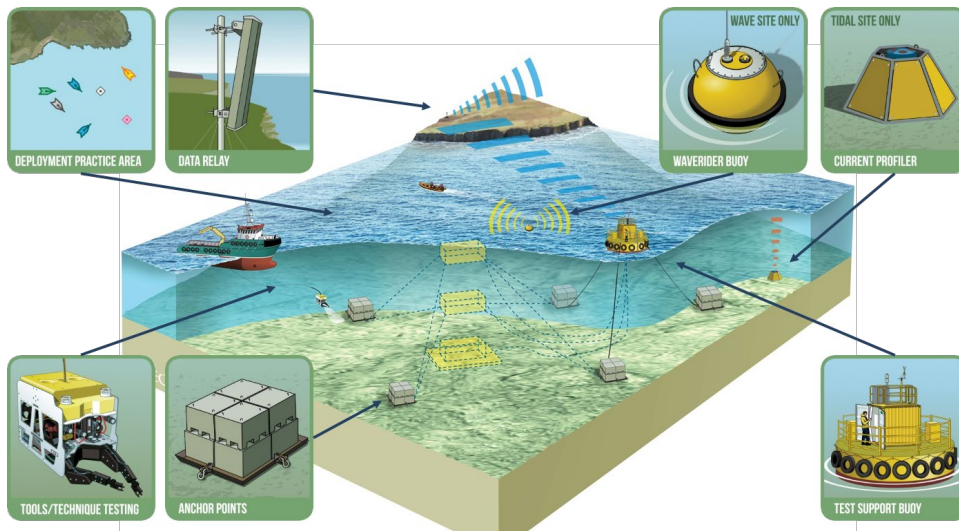
## 4 MW tidal site



## Orkney hydrogen test bed



## Scale test sites



# Deployment



**34**

**devices**



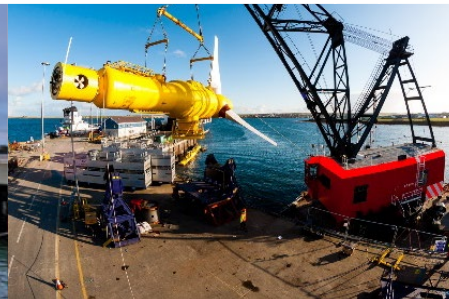
**21**

**developers**



**11**

**countries**



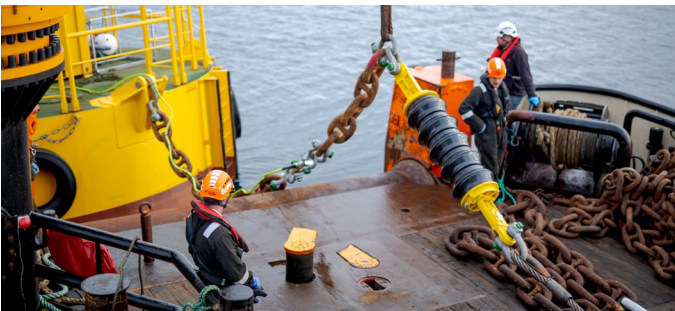
# Recent Deployments

# EMEC

THE EUROPEAN MARINE ENERGY CENTRE LTD



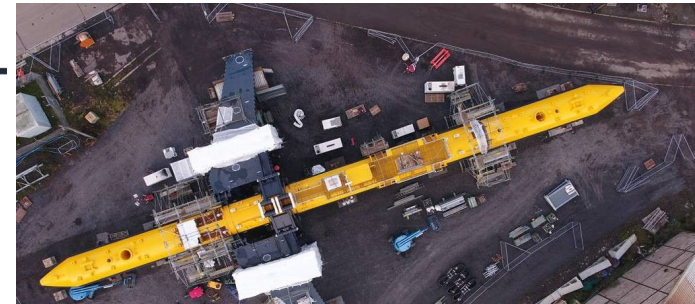
Half scale WEC – Q4 3 2021



Floating wind moorings – Q4 2021



Half scale WEC– Feb 2022



2MW floating tidal turbine – Summer 2021



1.5MW floating tidal turbine – Summer '21



1.8MWh Flow Cell Battery – Q1 2022

# Priority: LCOE reduction

## Overall LCOE Trajectory - Tidal System

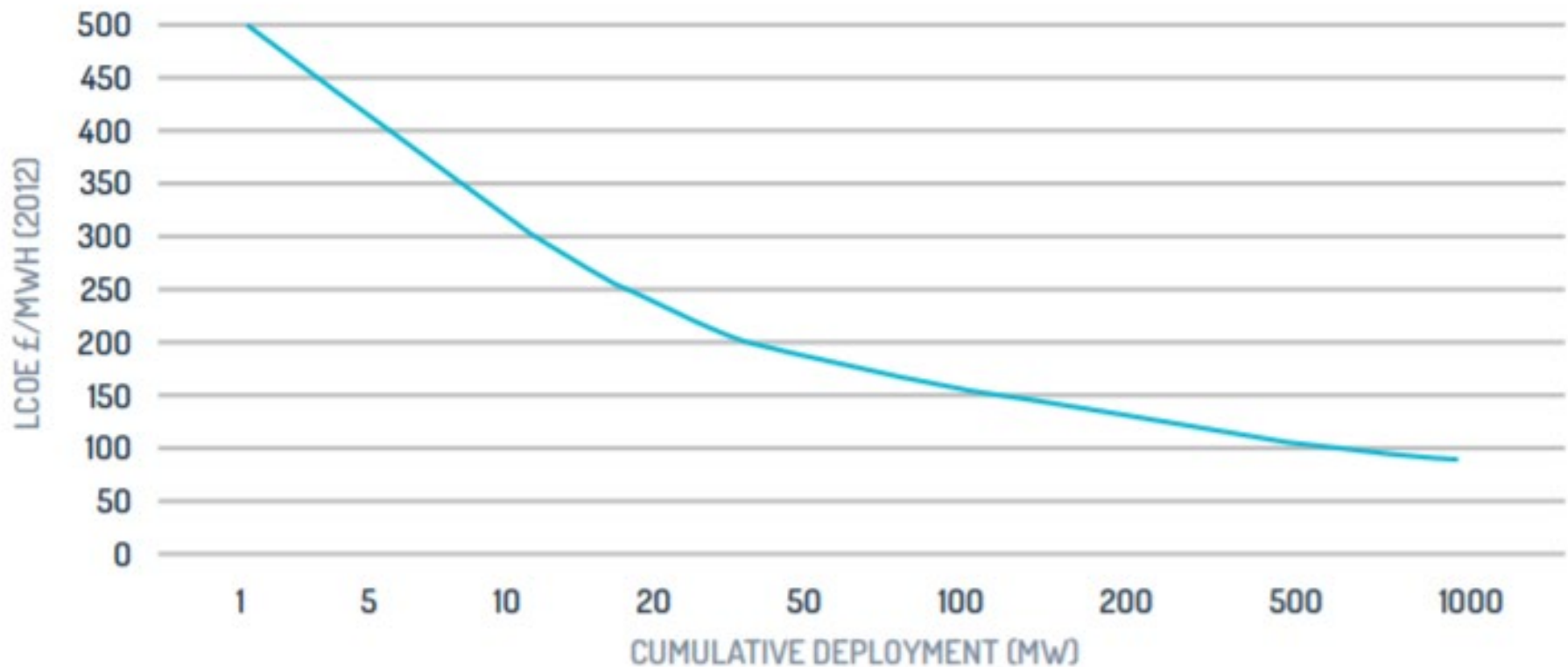
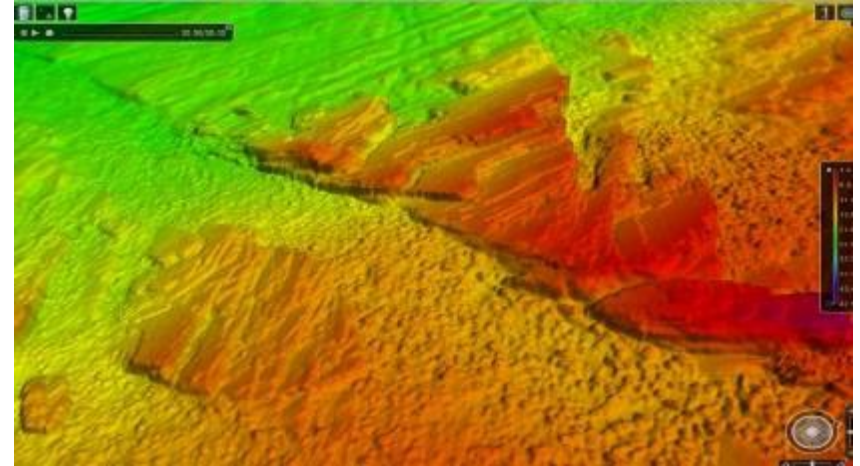


Figure 2: Tidal stream estimated LCOE trajectory to 1GW

# Reality: It is hard out there



# Lesson learned: Stuff breaks

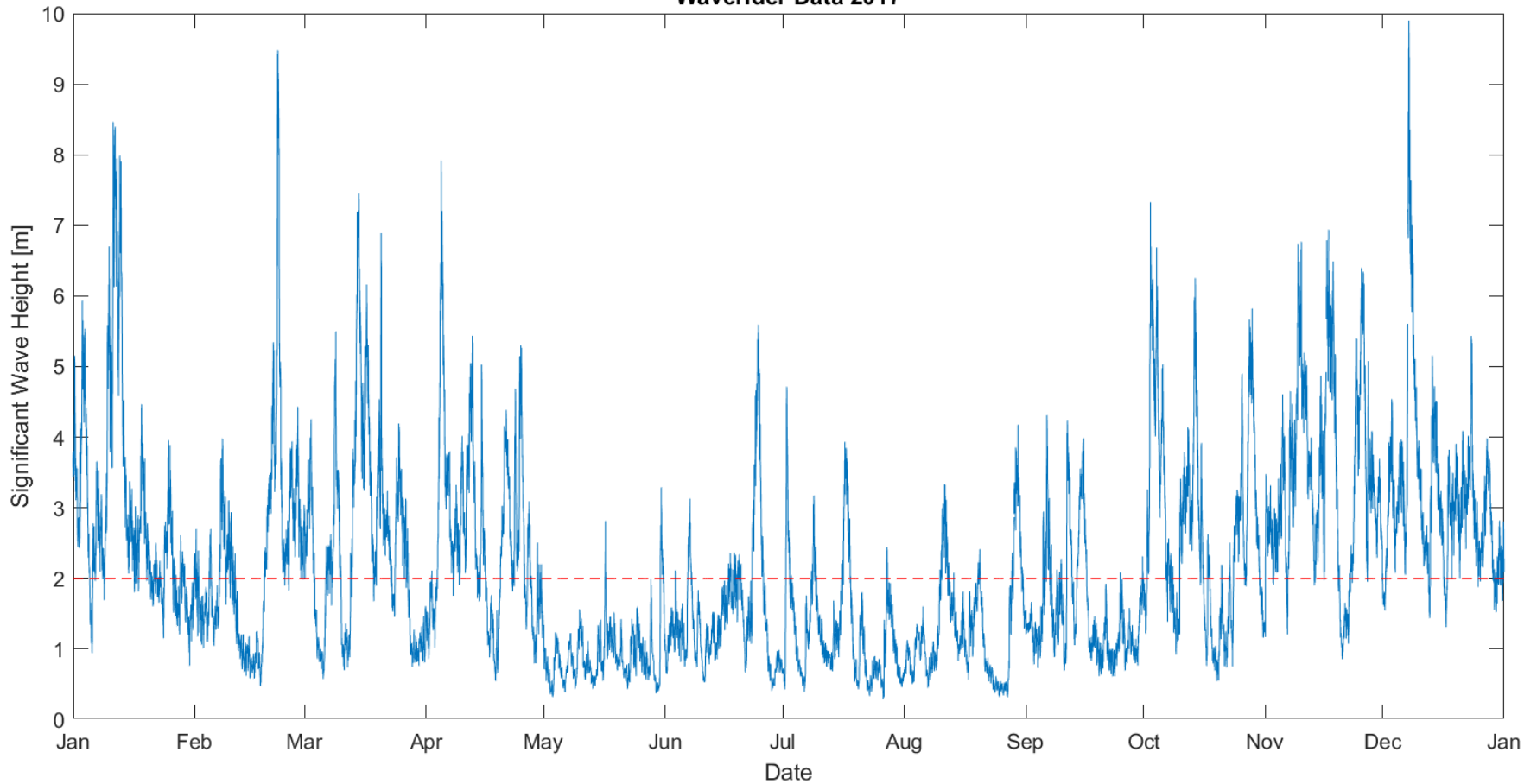
1. TSB cable
  - Corrosion
2. Shackle component
  - Failed after 2-3 weeks
3. Brake caliper bolt
  - Sheared 24 hours after torques
4. Fibre optic cable
  - Detached from nacelle's cable connector
5. Waverider buoy spring
  - Sheared





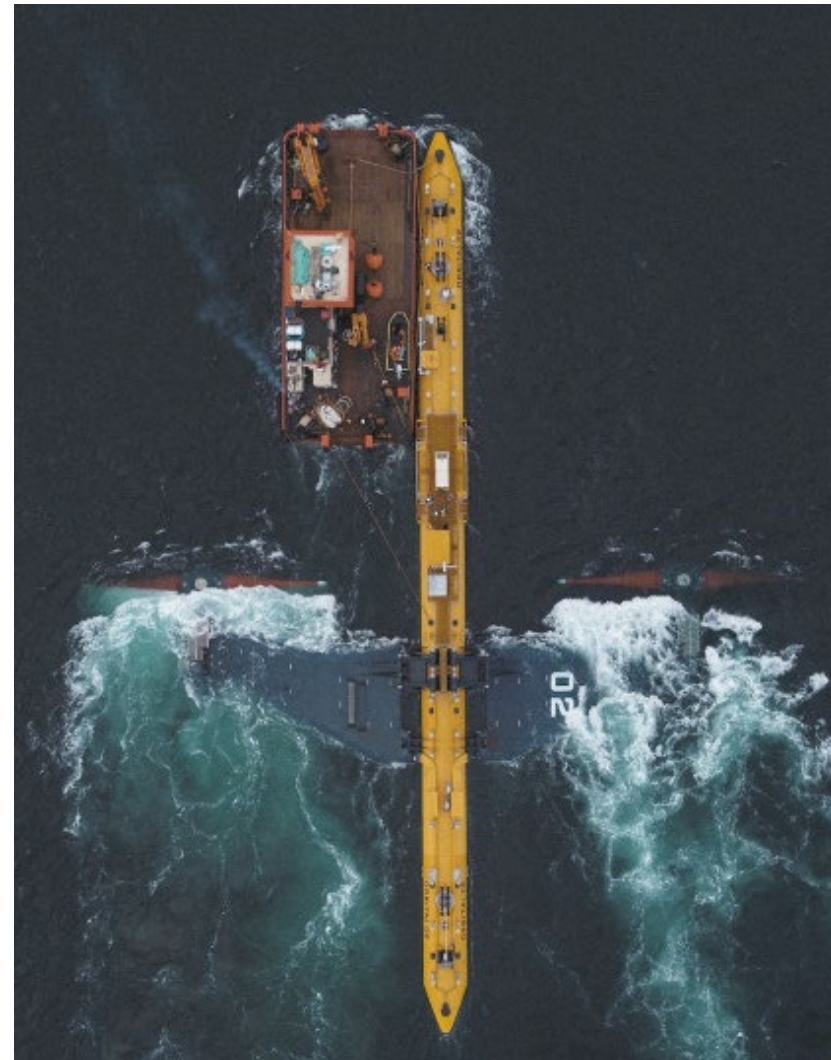
# Accessibility

Waverider Data 2017



# R&D Priorities

- Dynamic cables
  - Fatigue of cables
  - Validity of motion inputs
  - Marine growth impacts
  - Access upon faults
- Innovative moorings for floating structures
- Fixed foundations (they're back)
  - In the right place: good In the wrong place: bad
  - Better understanding of interaction between devices needed also
- Decommissioning
  - A massive challenge for projects. Better planning and innovation needed
- Reducing uncertainties in power capture
- Marine mammal interactions





Thank you & best of luck!

[Rob.flynn@emec.org.uk](mailto:Rob.flynn@emec.org.uk)

Follow us:    