

Challenges of Operating on the Atlantic Margin

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Operations & Technology Director

The UK resource

50%

of Europe's
tidal energy



35%

of Europe's
wave energy



20%

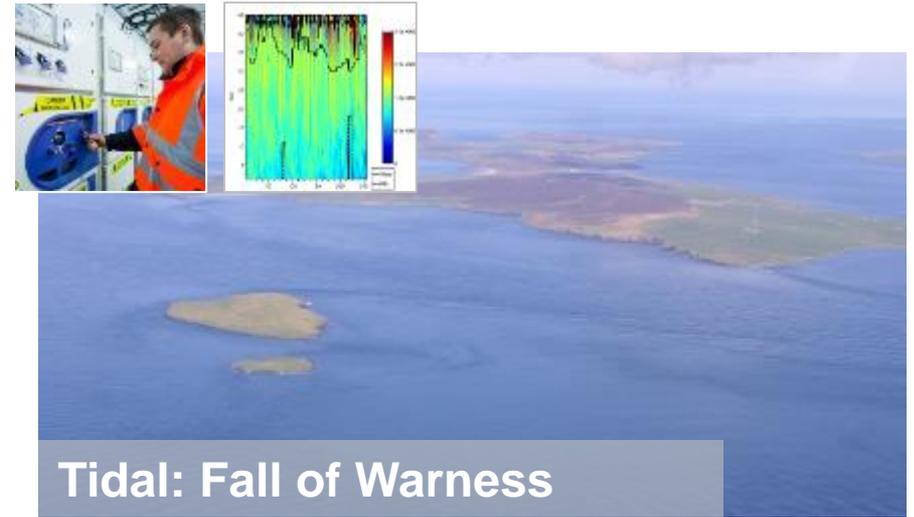
of UK's current
electricity demand
from our coastline



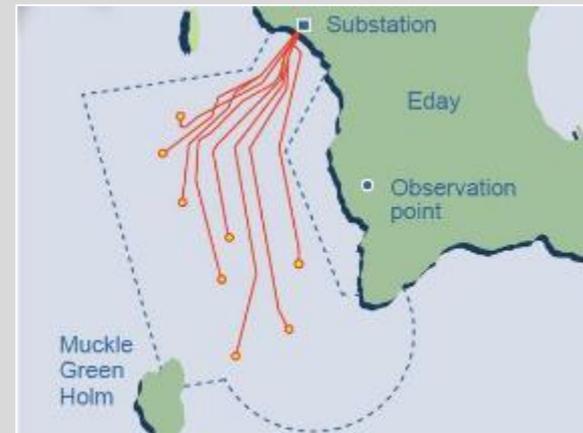
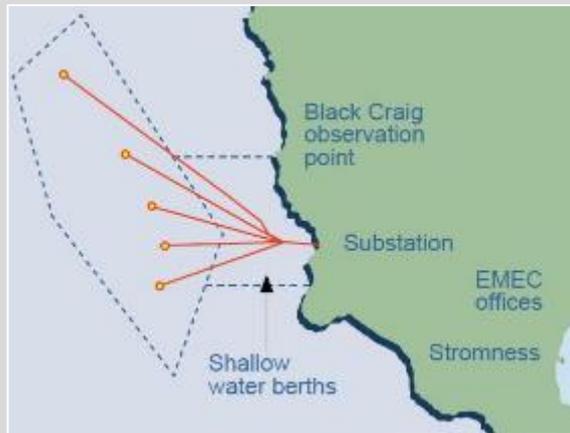
Grid-connected test sites for wave & tidal energy



Wave: Billia Croo



Tidal: Fall of Warness



Challenges learned

Weather



Location



Grid



People



Expertise



Equipment

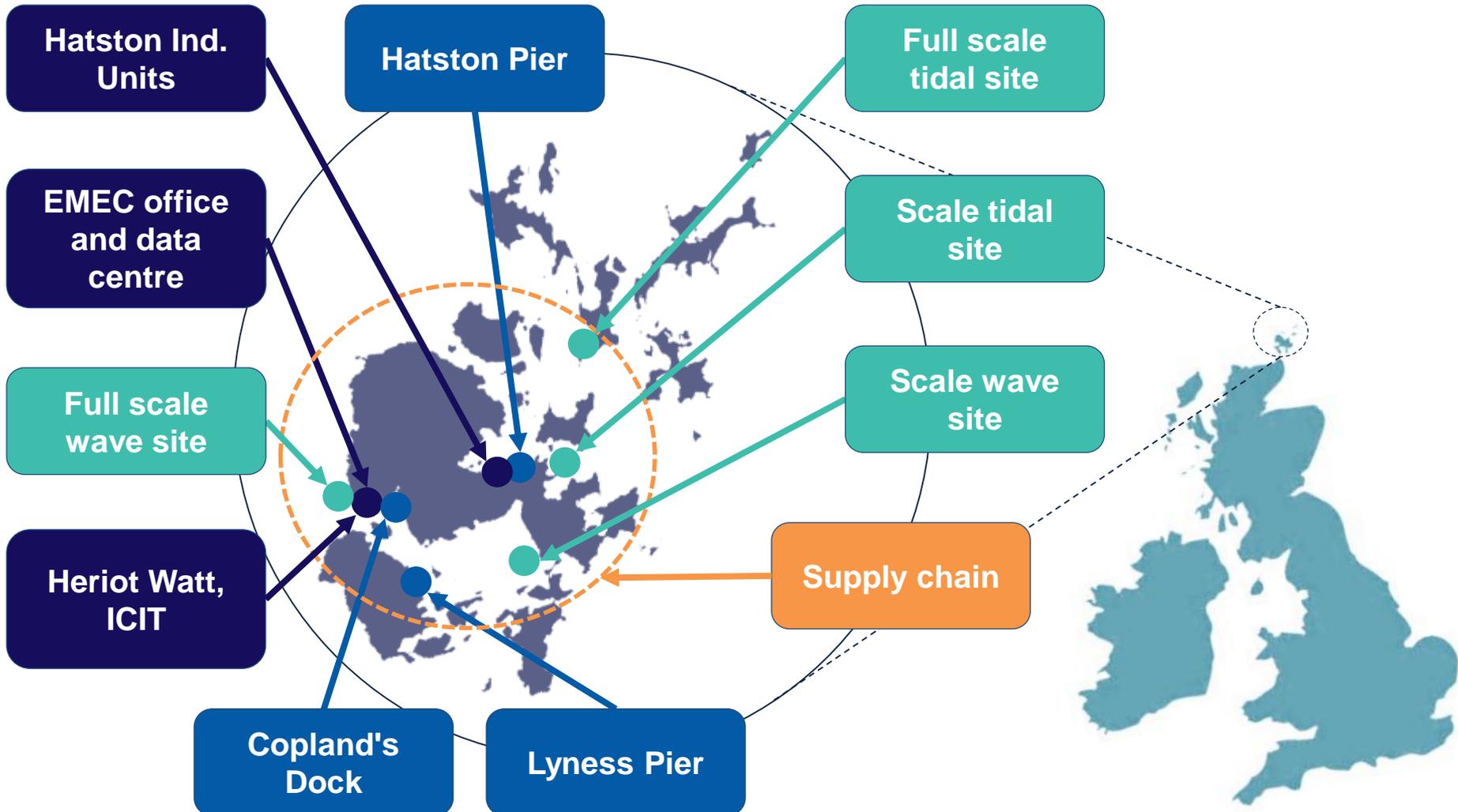


Why Orkney?

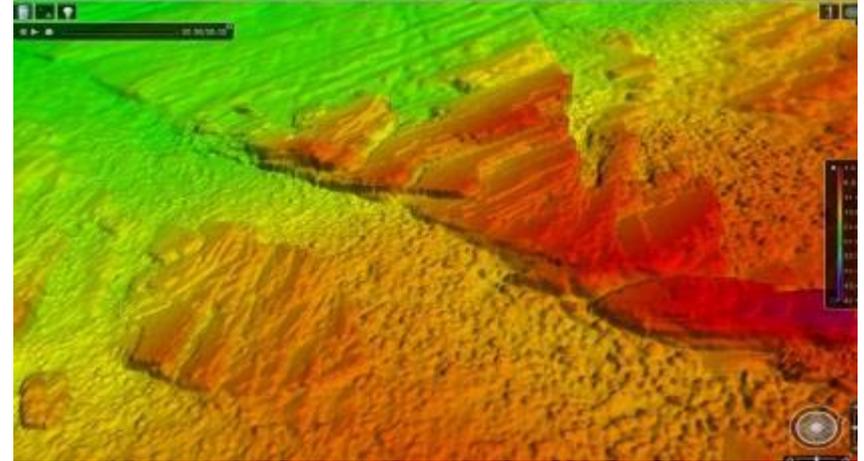
- Big waves & strong tides
- Close access to sheltered waters
- Most northerly point on national grid
- People/expertise:
 - Energy
 - Marine
 - Environmental



Orkney Clustering



Reality: It is hard out there



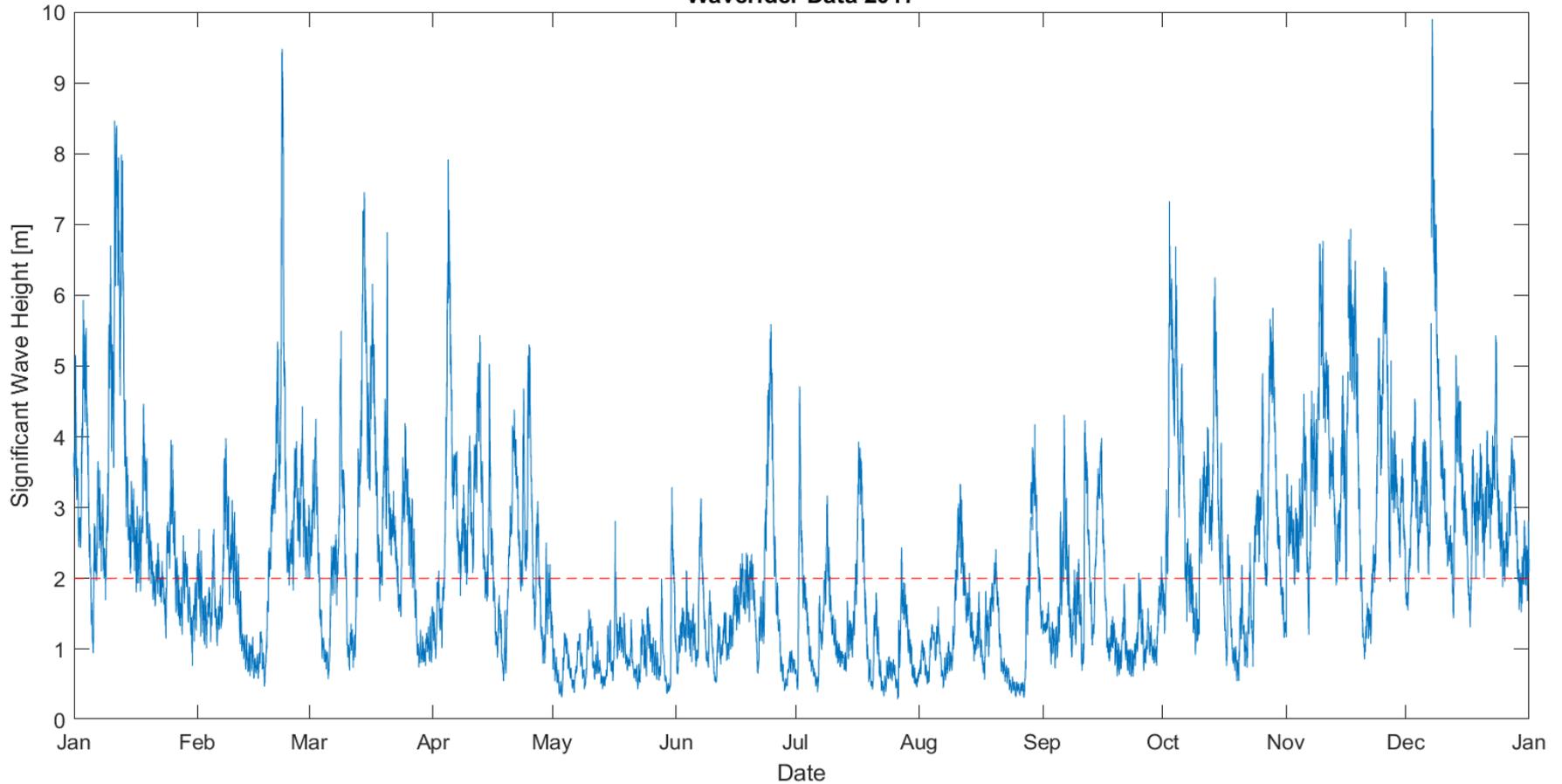
Failures

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



16 years' experience: Ocean energy projects



Interreg North-West Europe Marine Energy Alliance

Proto Atlantic

BLUEGIFT
Blue Growth and Innovation Fast Track

Interreg North-West Europe FORESEA

MaRINET2

Interreg North-West Europe Ocean DEMO



InToTidal

FIOTEC
Floating Tidal Energy Commercialisation

WaveBoost

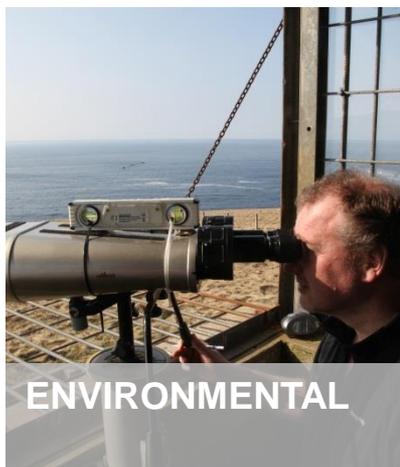
ocean_2G



Interreg Atlantic Area European Regional Development Fund

MONITOR

RiaSoR2
RELIABILITY IN A SEA OF RISK

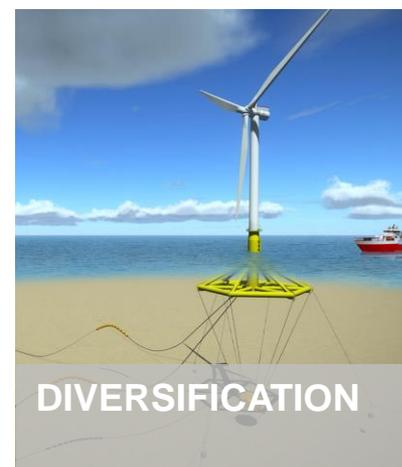


SEA Wave



Interreg 2 Seas Mers Zeeën MET-CERTIFIED

RESOURCECODE
MARINE DATA TOOLBOX



Interreg North-West Europe AFLOWT

ReFLEX
ORKNEY

AFLOWT

EMEC 
THE EUROPEAN MARINE ENERGY CENTRE LTD

Accelerating Market Uptake of Floating Offshore Wind Technology

Interreg 
North-West Europe
AFLOWT

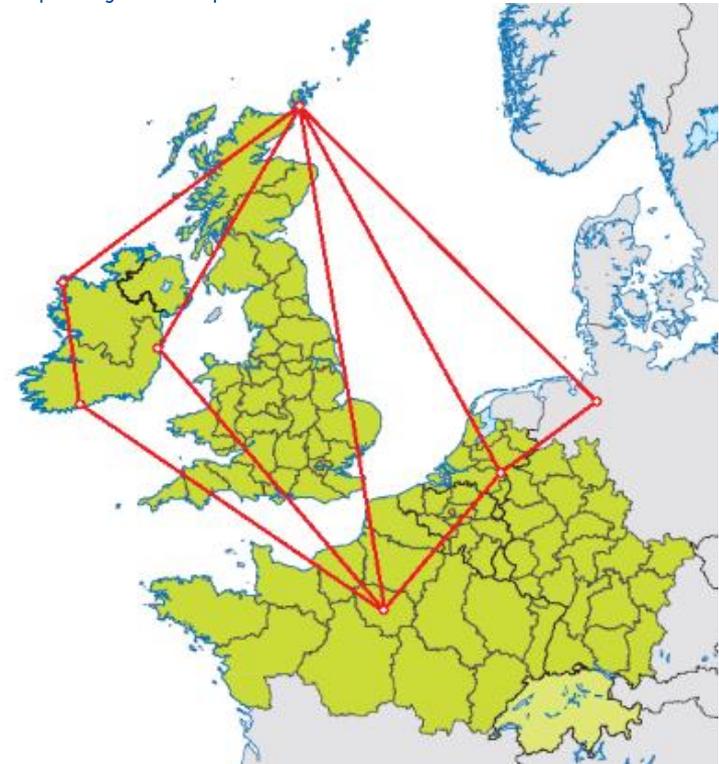
European Regional Development Fund

Olivier Diaz - 2019

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Project set-up

- Interreg NWE project
- Programme priority:
Low Carbon Economy
- Project lead: EMEC
- Project duration: 4 years
- Total budget: €31m
- Funding intensity: 40-50%



Site selection

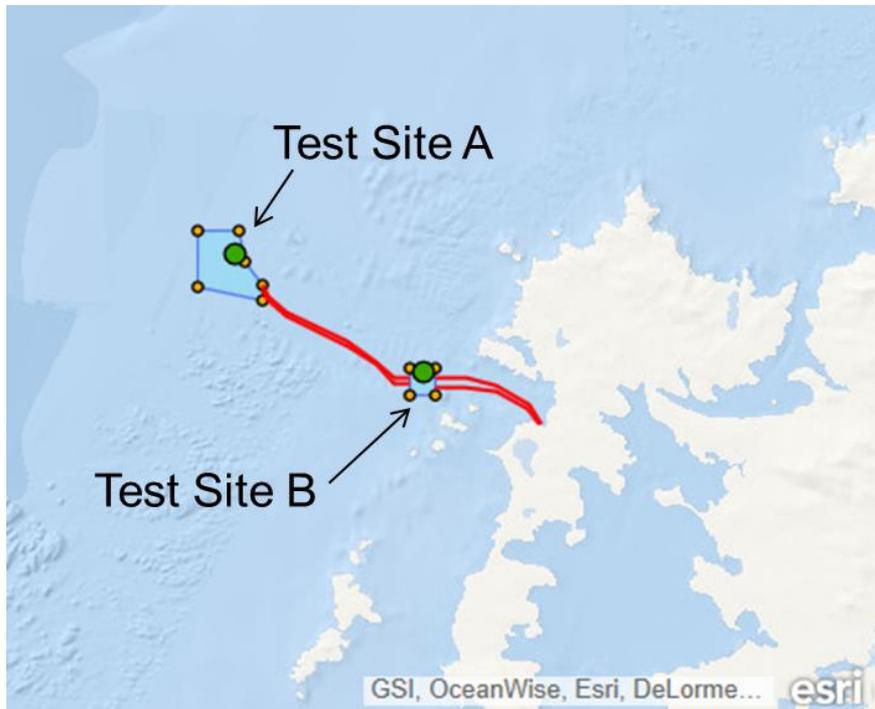
Atlantic Marine Energy Test Site (AMETS)

Test Site A

- 100 m water depth
- 16 km from Belderra Strand
- 6.9 km²

Test Site B

- 50 m water depth
- 6 km from Belderra Strand
- 1.5 km²



SAIPEM Floating Wind Solution

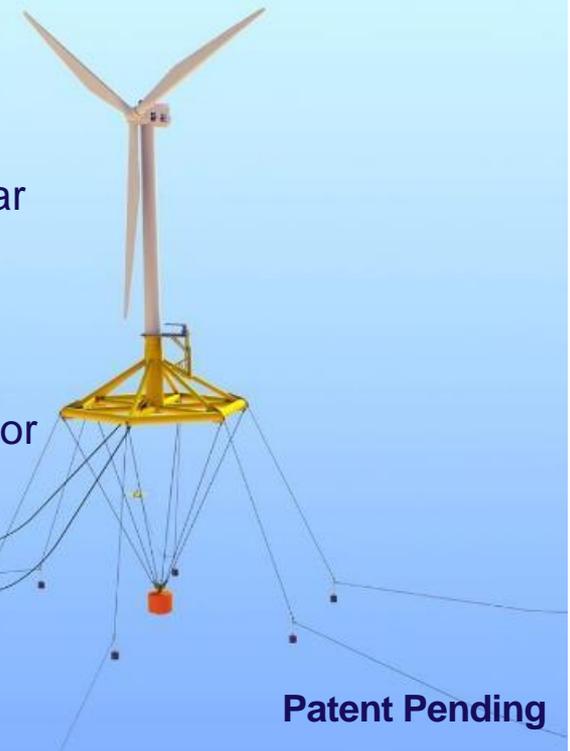


SAIPEM offshore wind floater is a pendulum lightweight structure composed by:

- A submersible floater made of tubular elements
- A counter weight connected to the floater with tendons
- Simple mooring lines with drag anchor
- Lazy wave dynamic cable



SAIPEM



Patent Pending

Thank You – any
questions?

