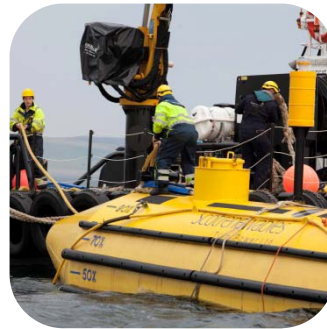
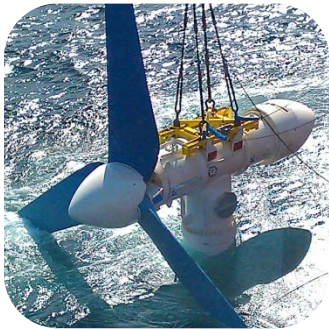


A GLOBAL CENTRE OF EXCELLENCE IN
MARINE ENERGY TESTING AND RESEARCH



Now and the Future

Oliver Wragg
Commercial Director

Why Orkney?

- Harsh conditions
- Close access to sheltered waters
- Most northerly point on national grid
- Energy expertise
- Marine expertise



EMEC funding

- £36m public funding
- Not-for-profit organisation
- Self-sufficient since 2011



SCOTTISH EXECUTIVE



EMEC journey

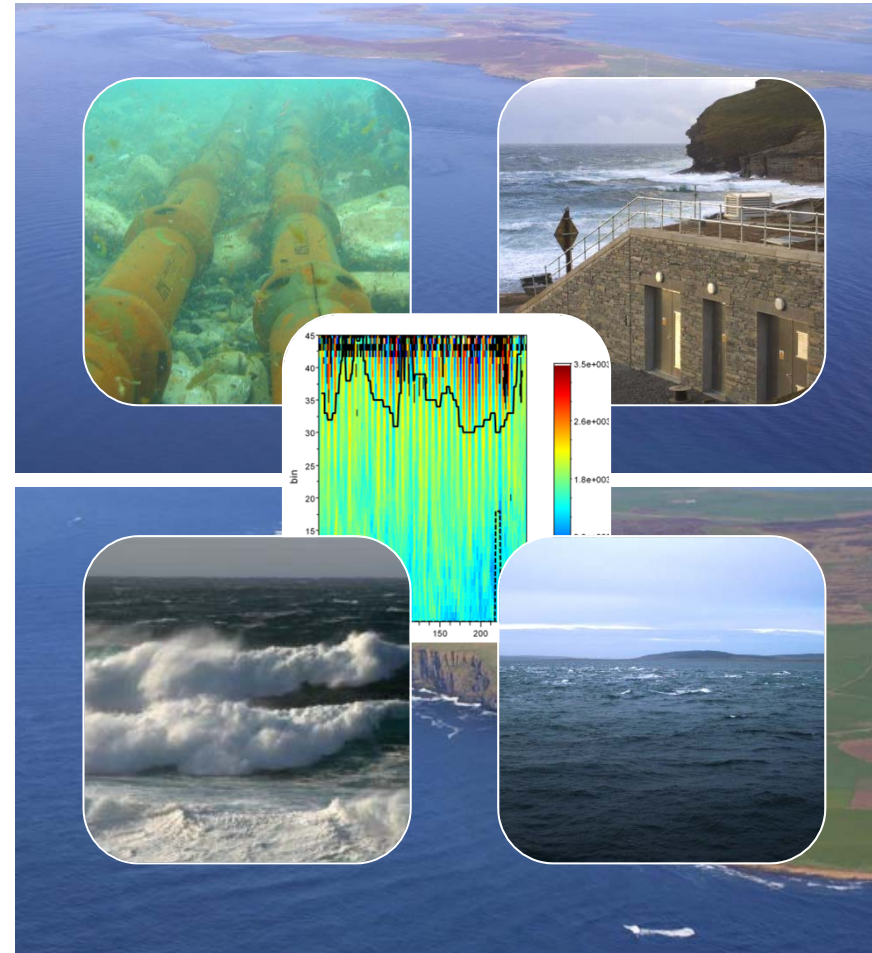


2014:
**10 wave & tidal
devices in Orkney**

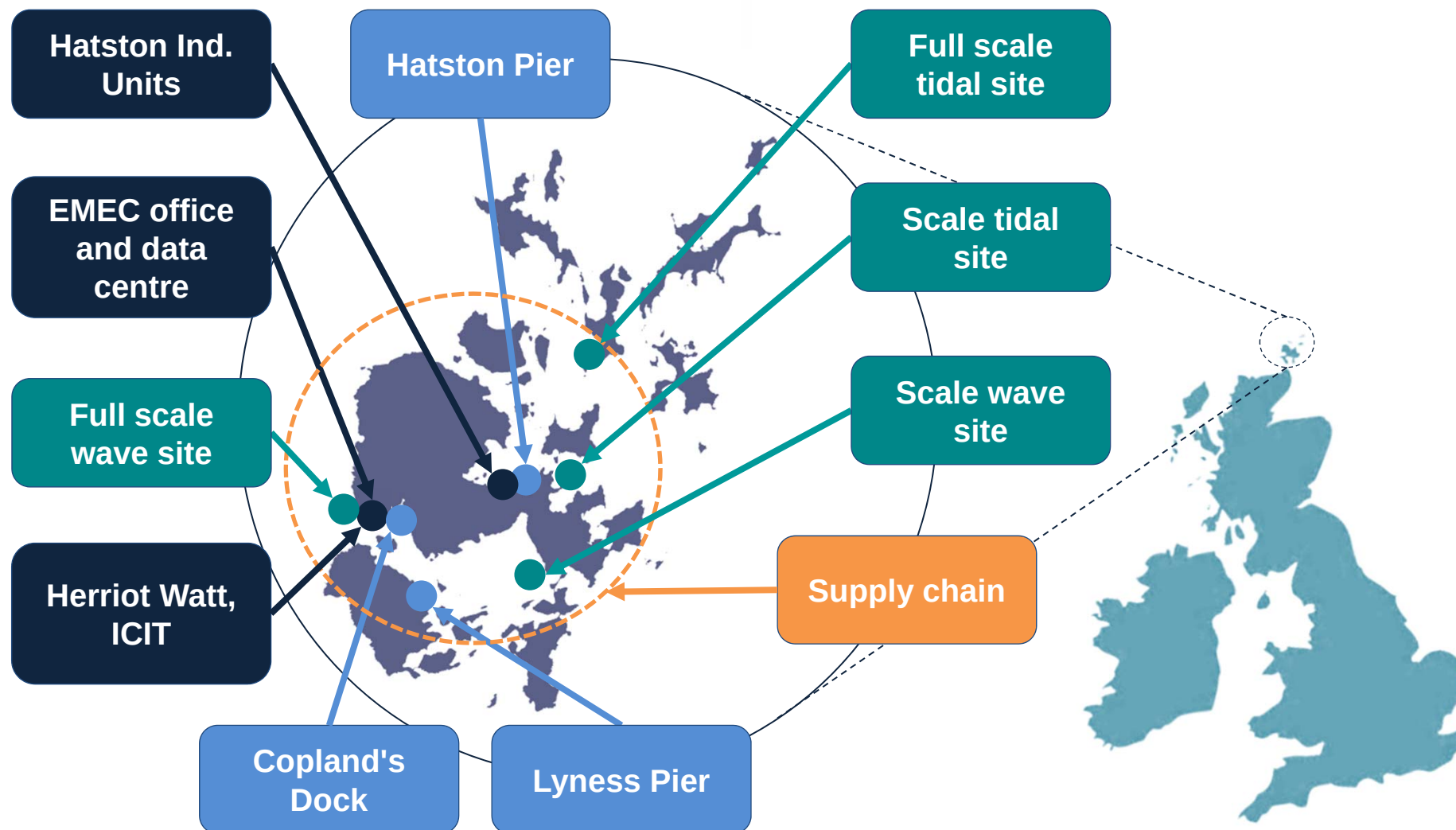
EMEC facilities

**WORLD'S FIRST & ONLY
accredited, grid connected
wave and tidal test
laboratory.**

- Independent facility
- 'plug & play'
- **Hard infrastructure**
(cables, grid connection, substation)
- **Soft support services**
(consents, environmental monitoring, data analysis)

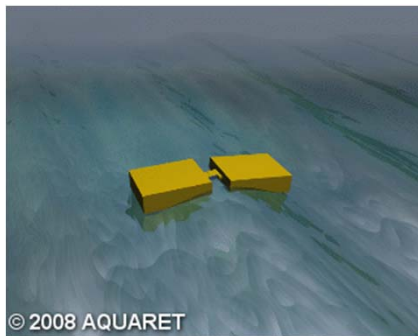


Orkney Clustering

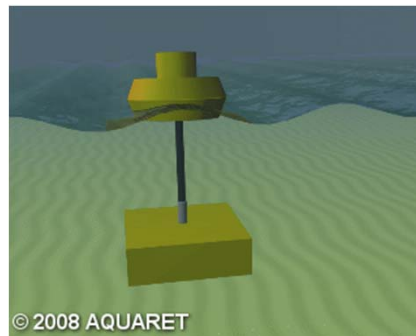


Wave energy devices

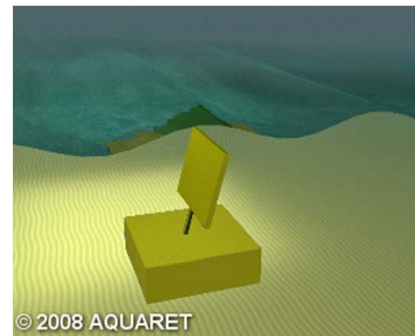
Attenuator



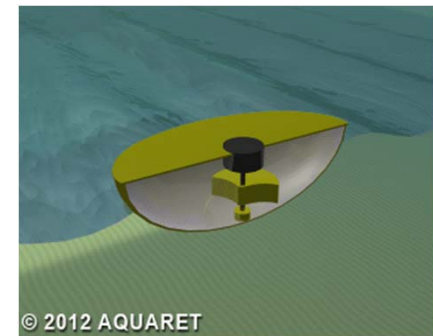
Point absorber



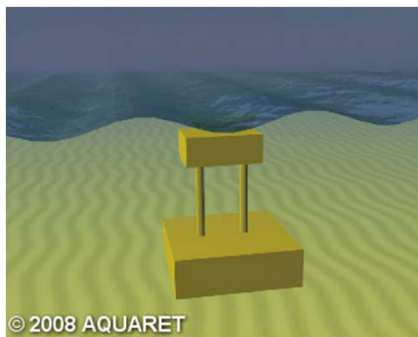
Oscillating wave surge



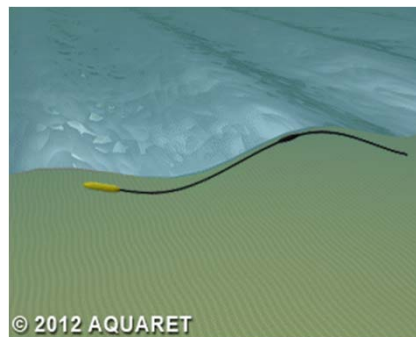
Rotating mass



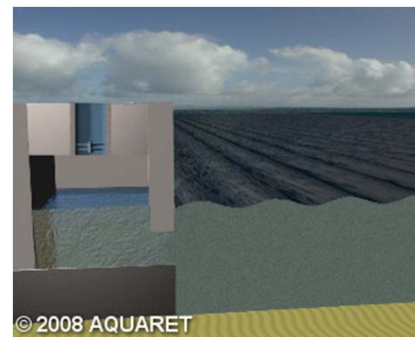
Pressure differential



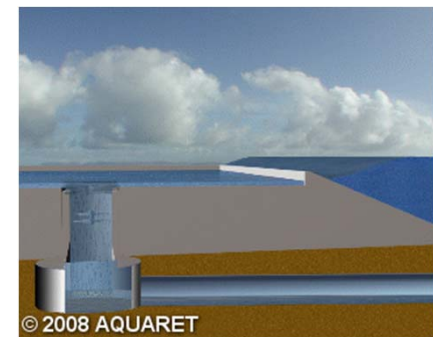
Bulge



Oscillating water column

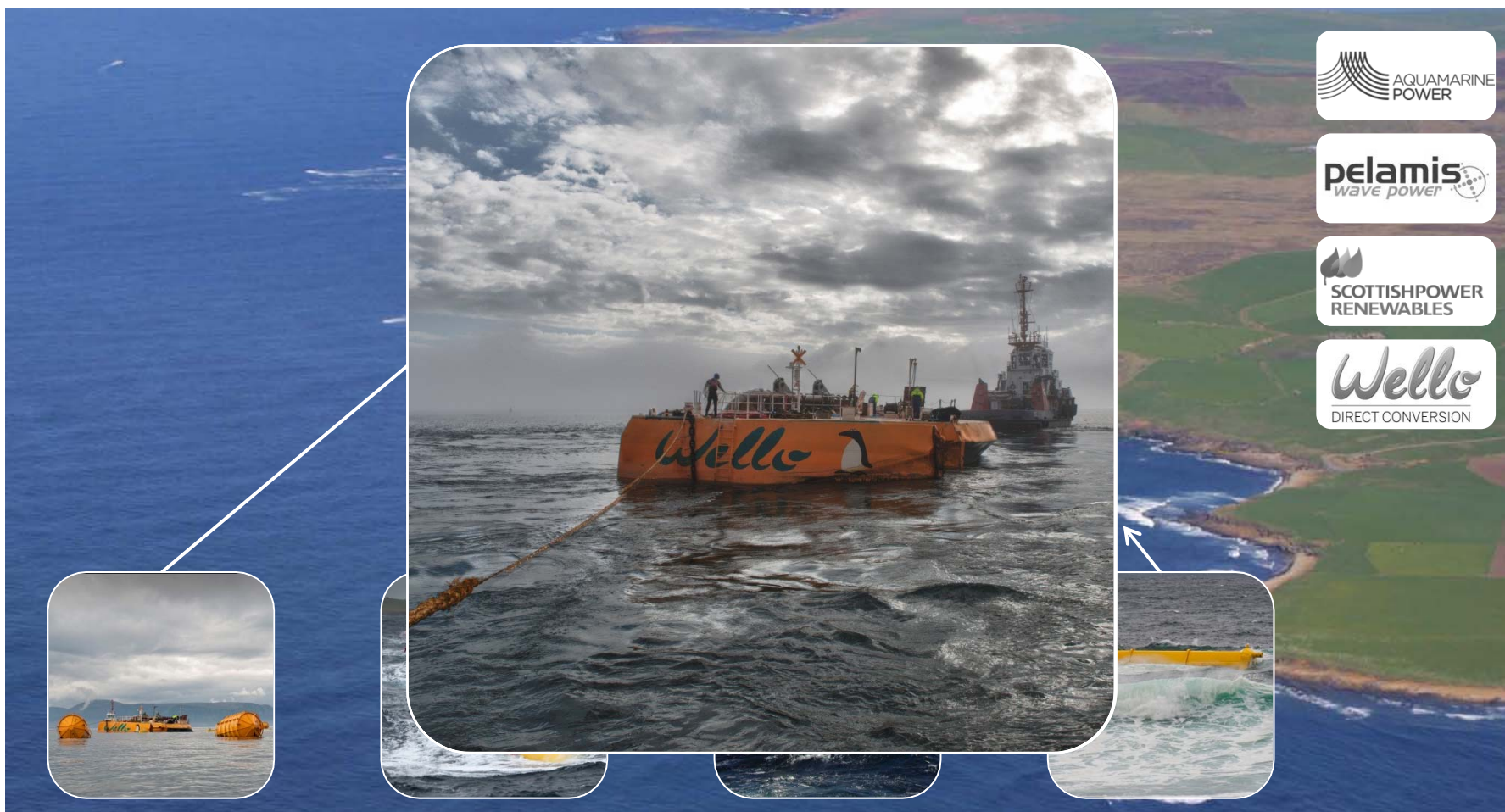


Overtopping



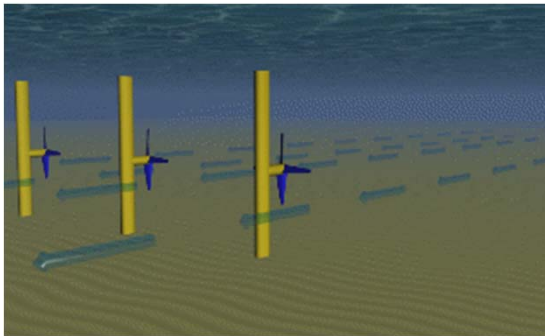
Wave test site: Billia Croo

EMEC 
ORKNEY
THE EUROPEAN MARINE ENERGY CENTRE LTD

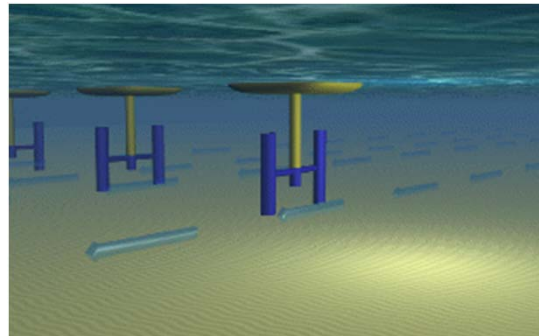


Tidal energy devices

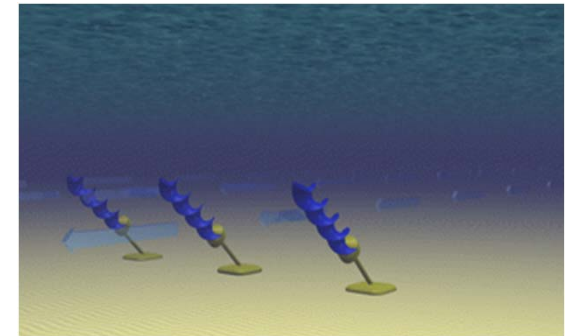
Horizontal axis



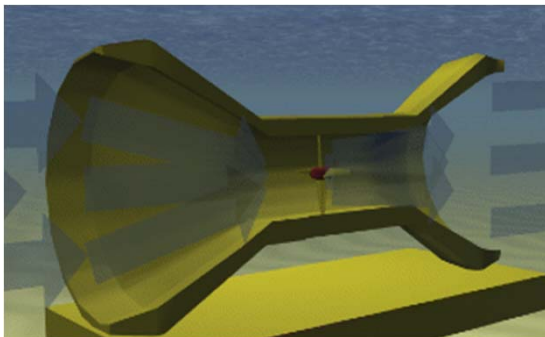
Vertical axis



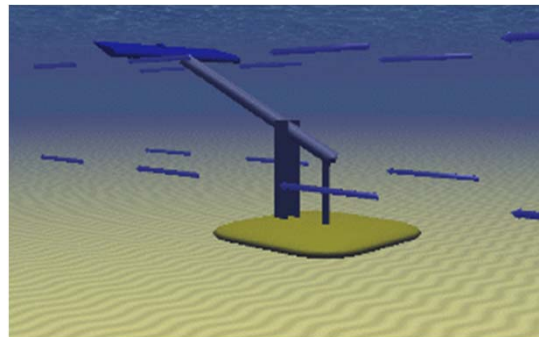
Archimedes screw



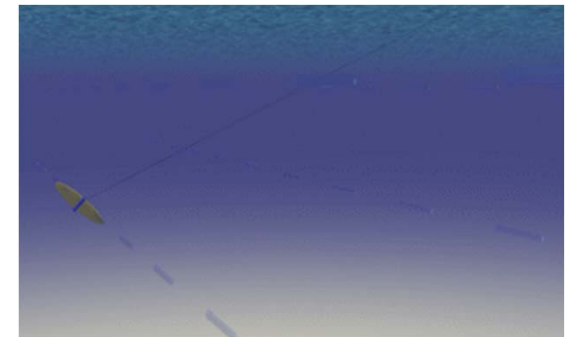
Venturi effect



Oscillating hydrofoil

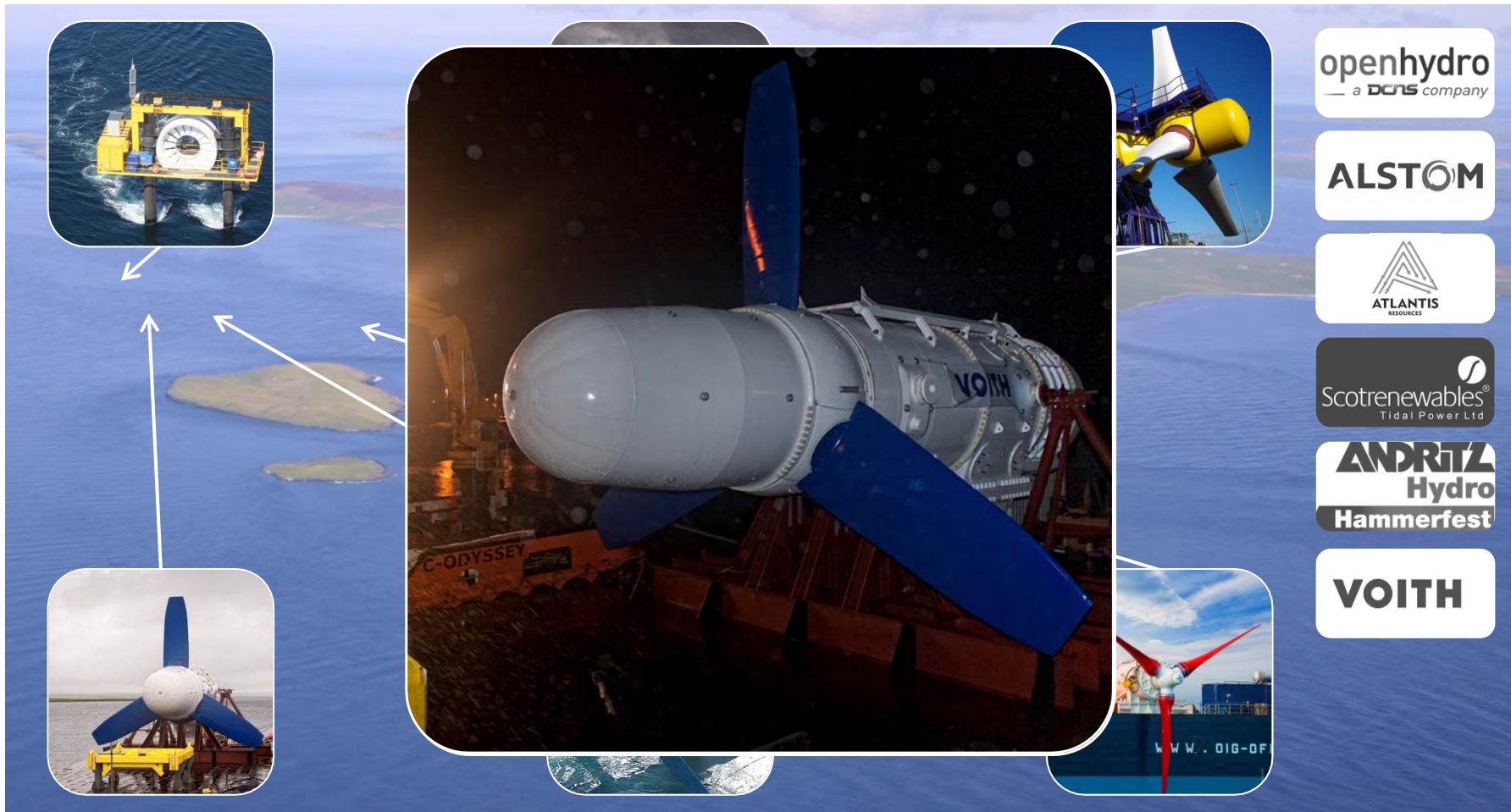


Tidal kite



Tidal test site: Fall of Warness

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Oliver Wragg

IWS-MARE, Tokyo 2014

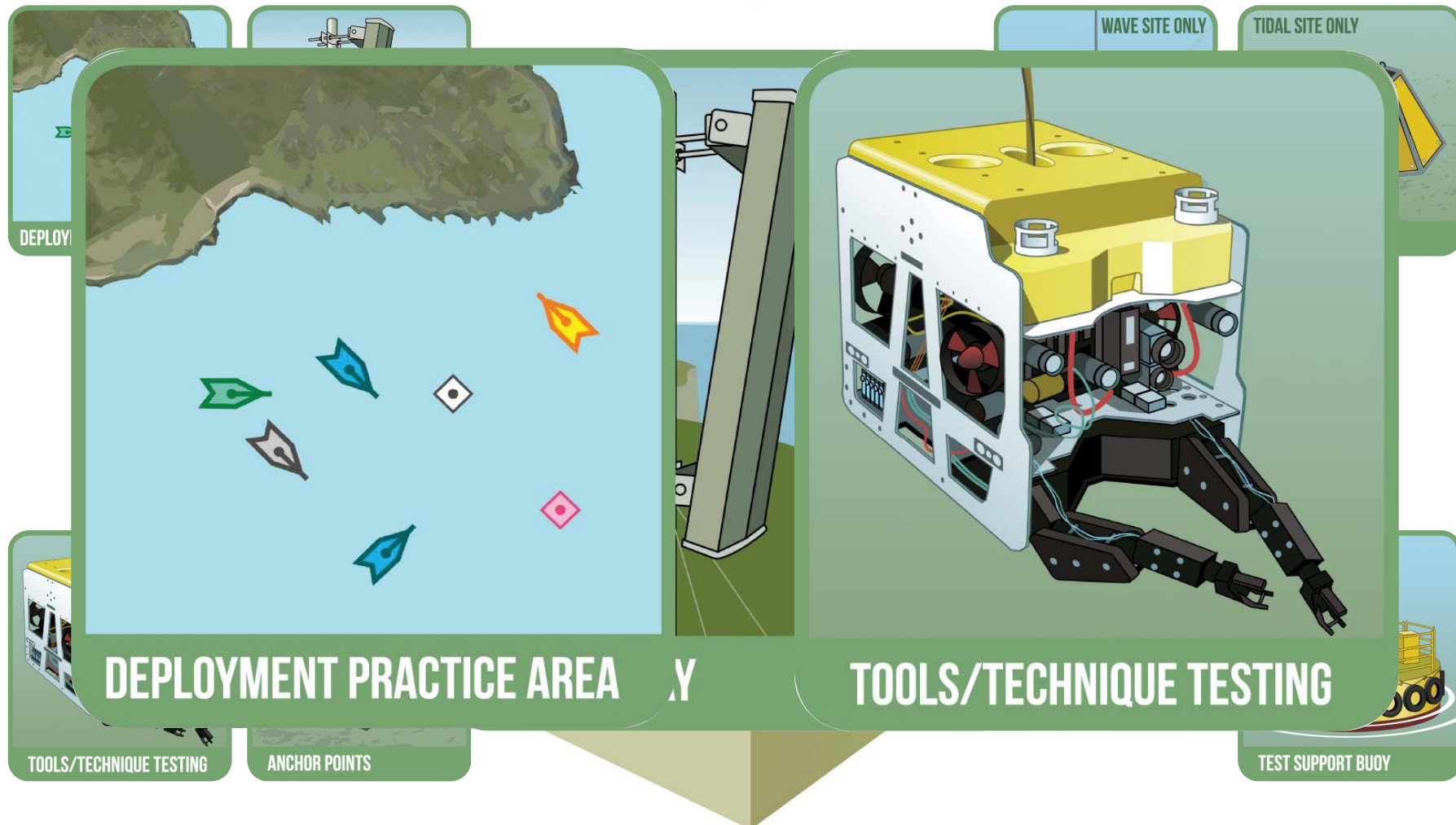
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Real-sea testing

- Installability
- Survivability
- Reliability
- Maintainability
- Operability
- Cost effectiveness



Scale test sites

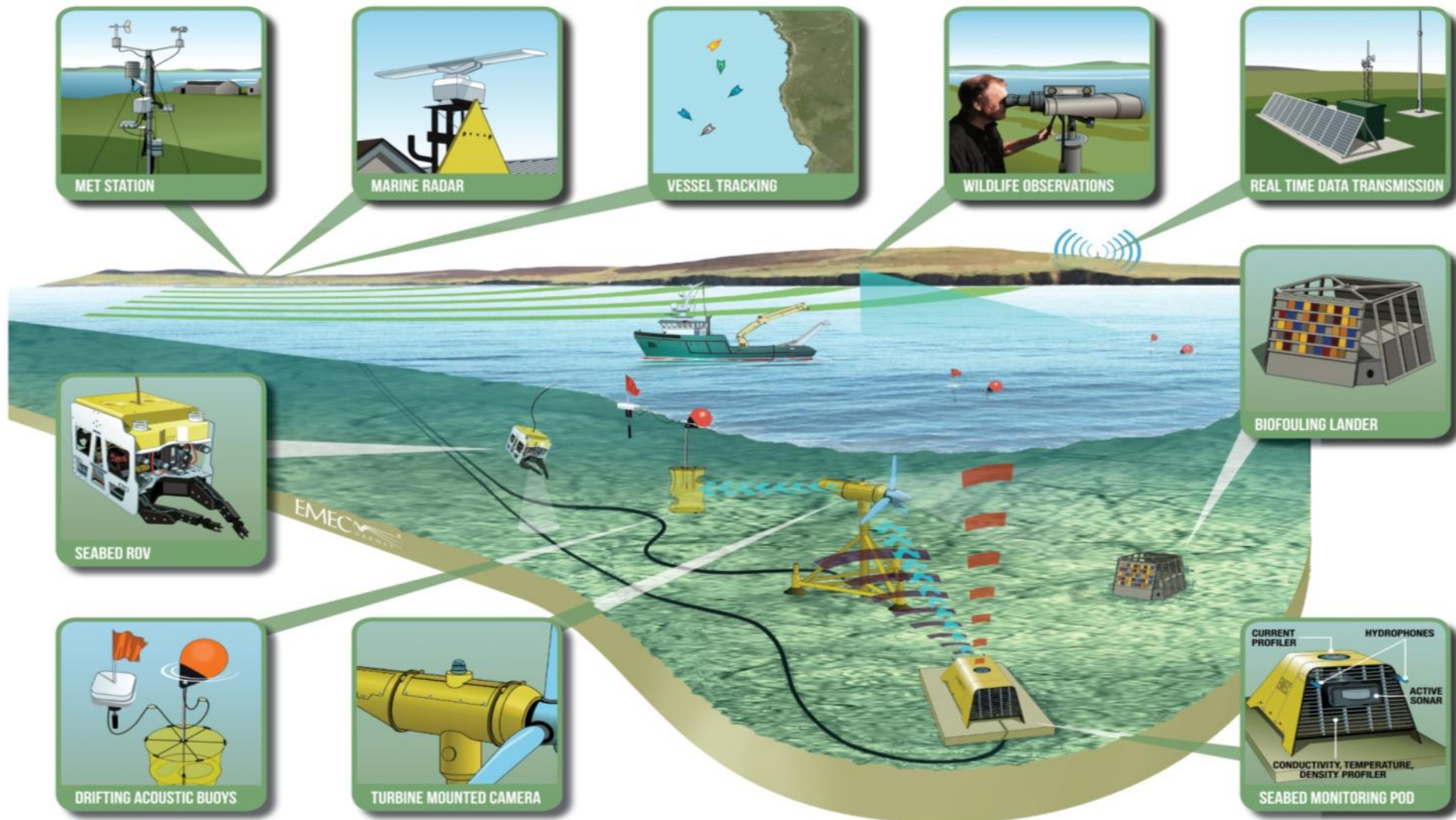


Scale site deployments

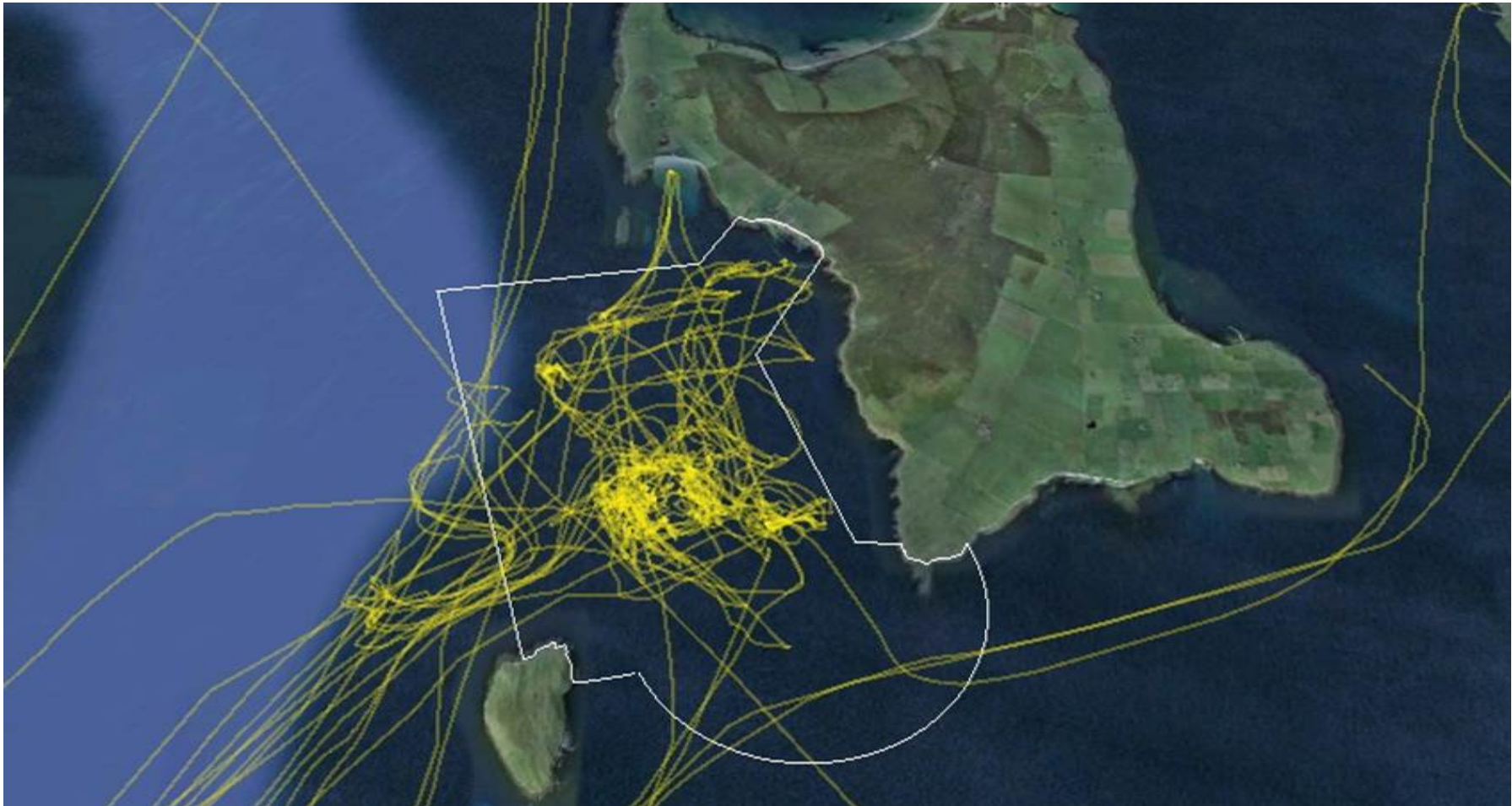


Integrated Environmental Monitoring (Fall of Warness)

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Tidal Site Activity



Achievement



Latest highlights



Oct 2013:
International symposium



Nov 2013:
Singapore MoU



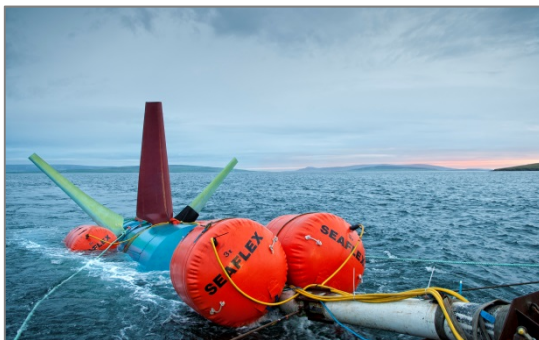
Feb 2014:
MRCF funding for pod



Mar 2014:
Study on subsea cables



May 2014:
Nautricity deployed



June 2014:
Orkney Ocean Energy Day



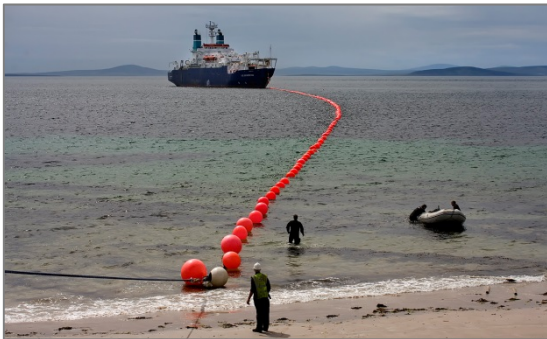
Oliver Wragg

IWS-MARE, Tokyo 2014

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Future Programmes

Planning for future berths and array test site



R&D projects



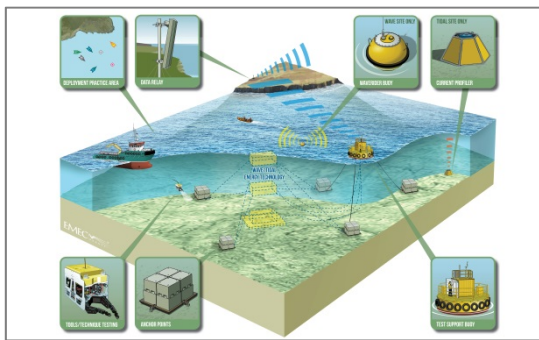
Guidelines and Standards



Energy storage systems



Studies re integrated sites



Collaborative ventures



Making of Standards – Structure

- International Body
- Technical Committee
- Project Teams
(draft standards)
- National Committee
(nominate experts)
- Mirror Committees



International Electrotechnical
Commission (IEC)



TC/114 – Ocean Energy



e.g. PT 62600-200 The assessment of
performance of tidal energy
converters



PEL/114 – Ocean Energy (UK)

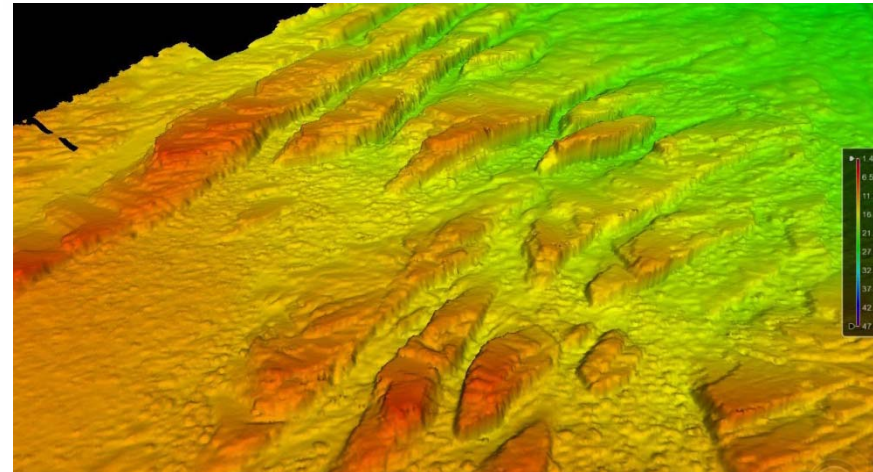


Support National Experts

10 years experience

Beyond device testing,
EMEC provides:

- Assistance for other testing centres
- Off site performance assessment
- R&D project involvement
- Consultancy support
- International alliances



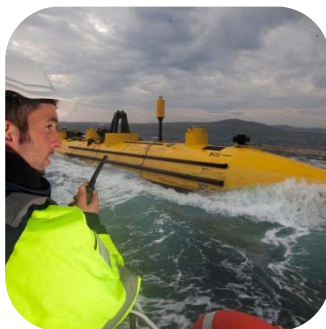
Is it worth it?

- 20% of UK's electricity from marine energy
- Local/national industry development
- Develop technology for export
- Transition to post-carbon
- Security of energy supply
- Job creation



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Thank you

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