

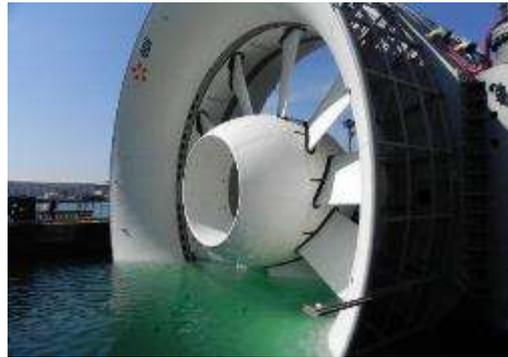


Copernicus Marine Service – Informing ocean energy

Rémi Gruet, CEO, Ocean Energy Europe

Ocean Energy

5 Resources – 5 technologies – 5 opportunities



Tidal stream



Ocean Thermal Energy Conversion



Salinity gradient



Wave



Tidal range

Ocean Energy Europe



118 members - Lead Partners:



Tidal take-off in Northern Europe

- Scotland
- Wales
- French Channel
- Netherlands



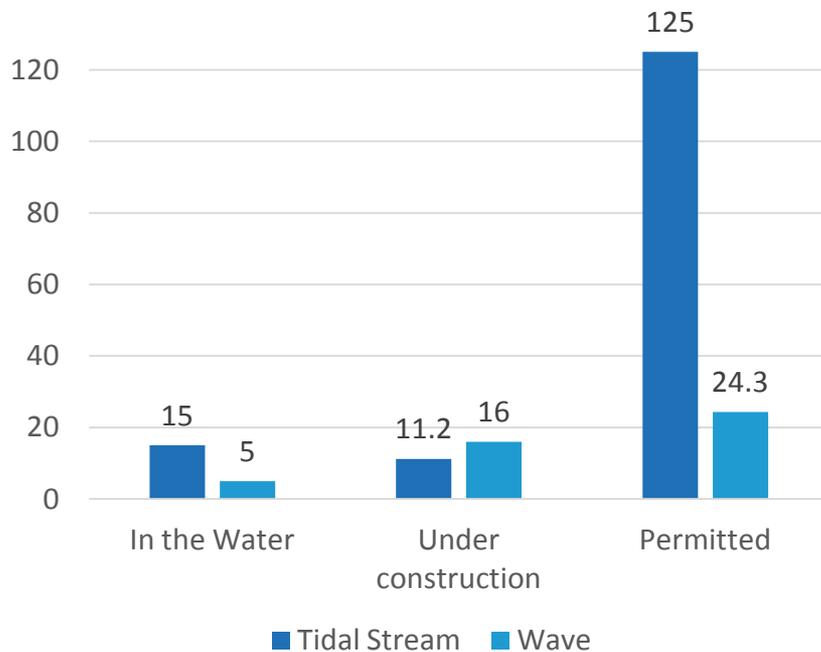
Early wave potential across Europe

- UK
- Ireland
- Portugal
- Spain
- Italian islands

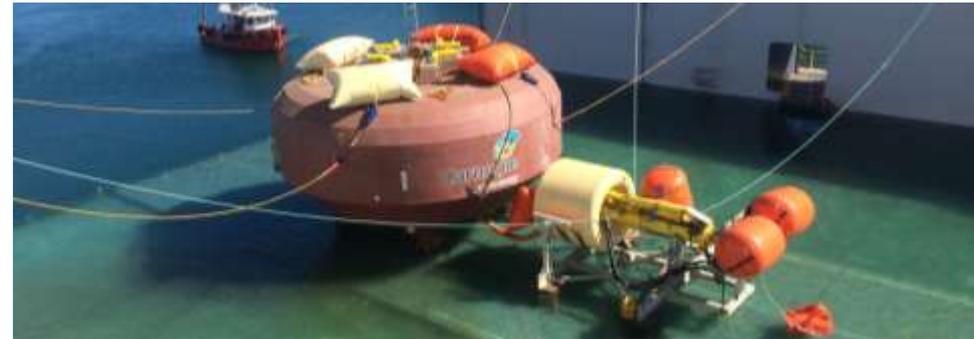


2017 Ocean Energy is setting sail

Capacity in Europe (MW)



**2050: 10% of EU
electricity, 400.000 jobs**



Setting sail, first Tidal farms connected

France

- DCNS/EDF at Paimpol-Bréhat, 1MW (2 x 0.5 MW)



Scotland

- Nova Innovation in Shetlands, 0.5 MW (5 x 0.1MW)
- MeyGen at Pentland Firth, 6 MW (4 x 1.5 MW), biggest tidal energy farm to date.



Setting sail, further MW-size tidal turbines

France

- Sabella 1 MW
(Ushant Island)



Scotland

- Scotrenewables 2MW
(Fall of Warness)



Netherlands

- Tocardo 1.25 MW
(Eastern Scheldt dam)



Setting sail, Wave technology progressing



United Kingdom

- Orkney: Wello, 1 MW



Portugal

- Peniche: AW-Energy, 0.35 MW

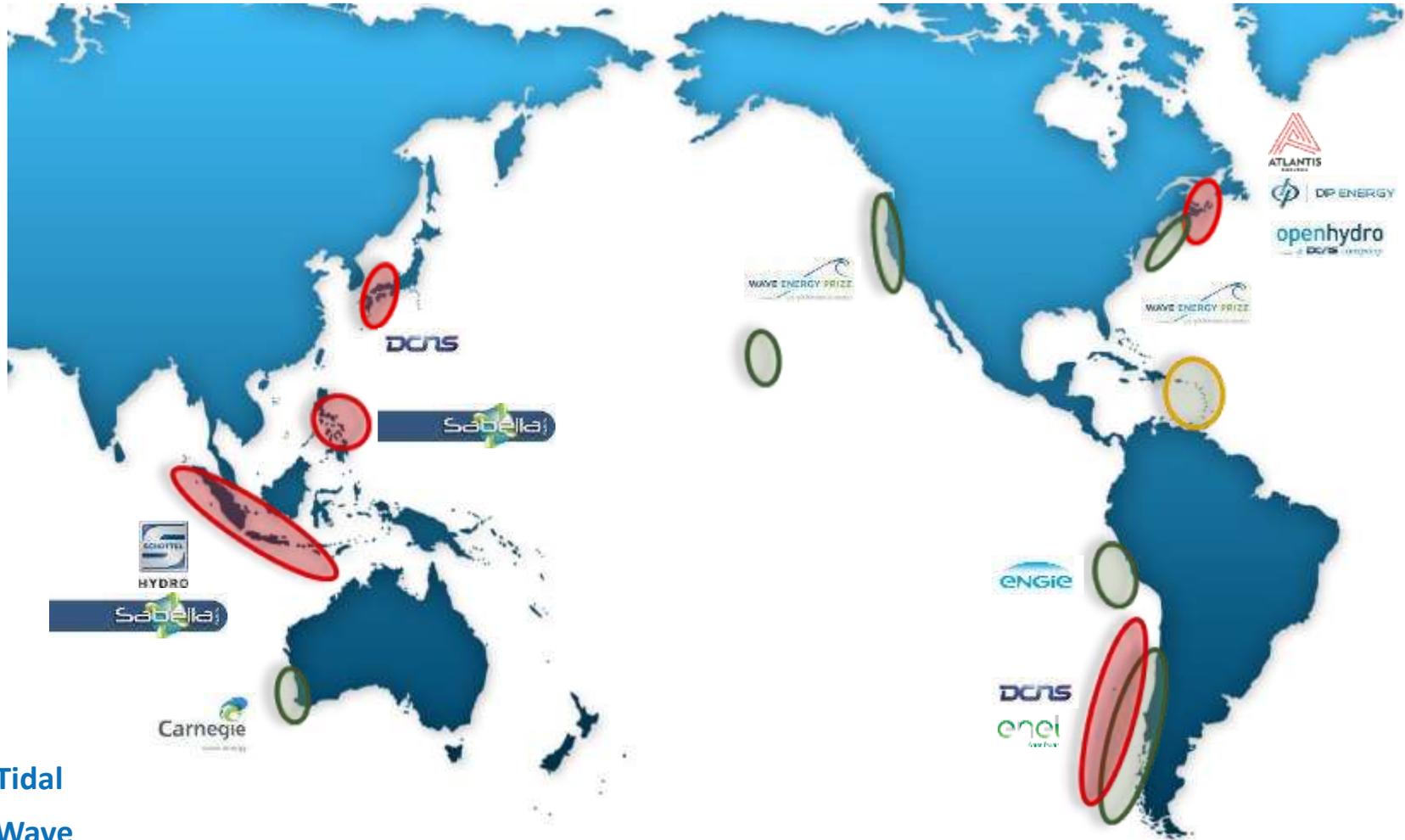


Italy

- Pantelleria: ENEL GP and Wave for Energy, 0.2 MW



European companies are already present on export markets

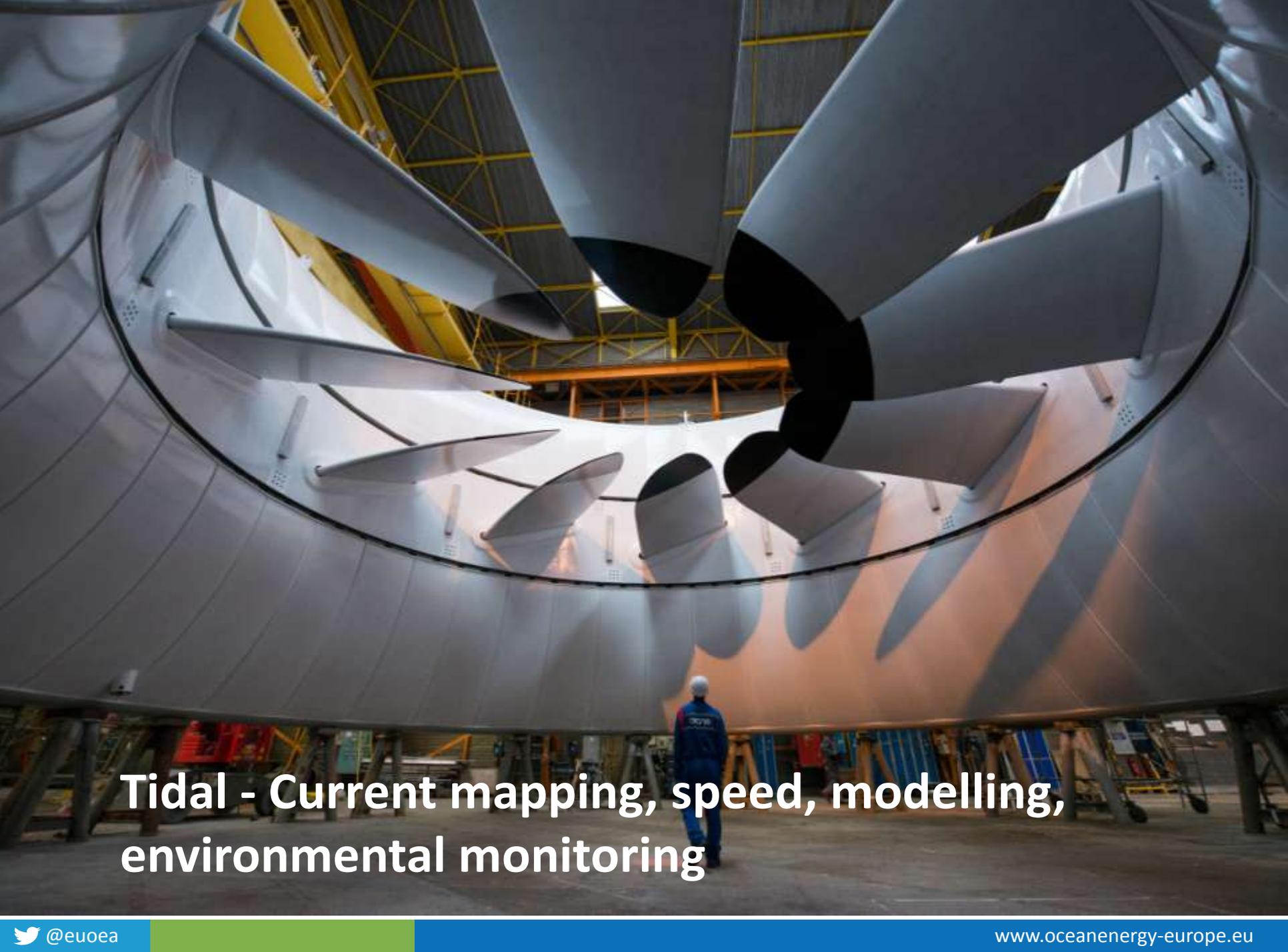


- Tidal
- Wave
- OTEC

Copernicus benefits

- Free – Innovation is expensive enough...
- Covering gaps in existing data
- Downloads for modelling
- Long Time / Real Time





**Tidal - Current mapping, speed, modelling,
environmental monitoring**

Wave Energy

Wave height & frequency, siting, operations





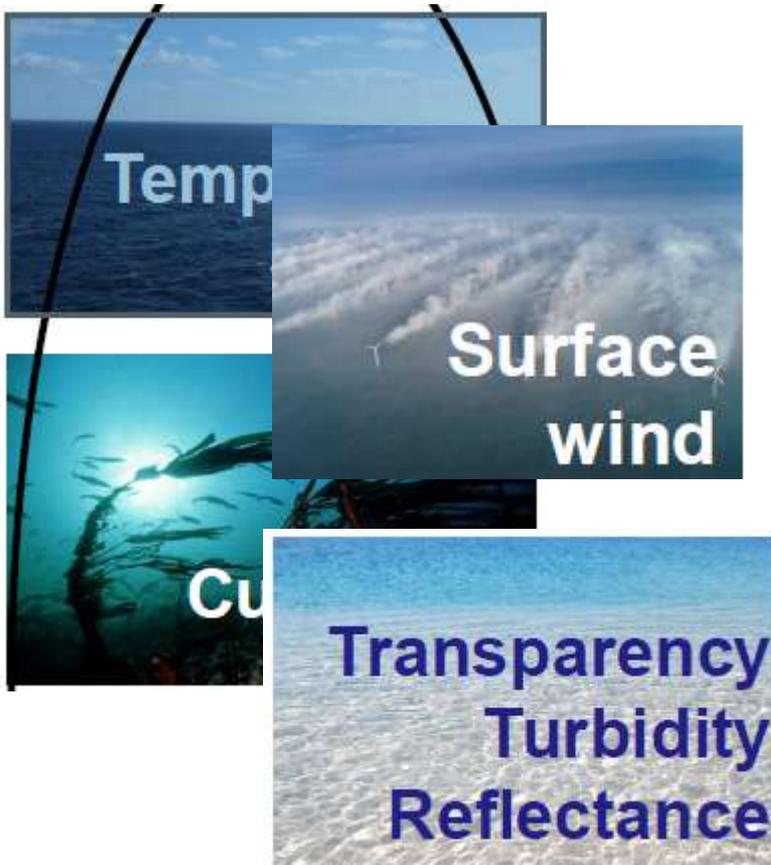
Salinity gradient – Resource evaluation, impacts of currents/waves



OTEC - Sitting, temperature evaluation, securing operations at sea

NEMO project, Naval Energies, La Martinique (NER300)

More than resource assessment

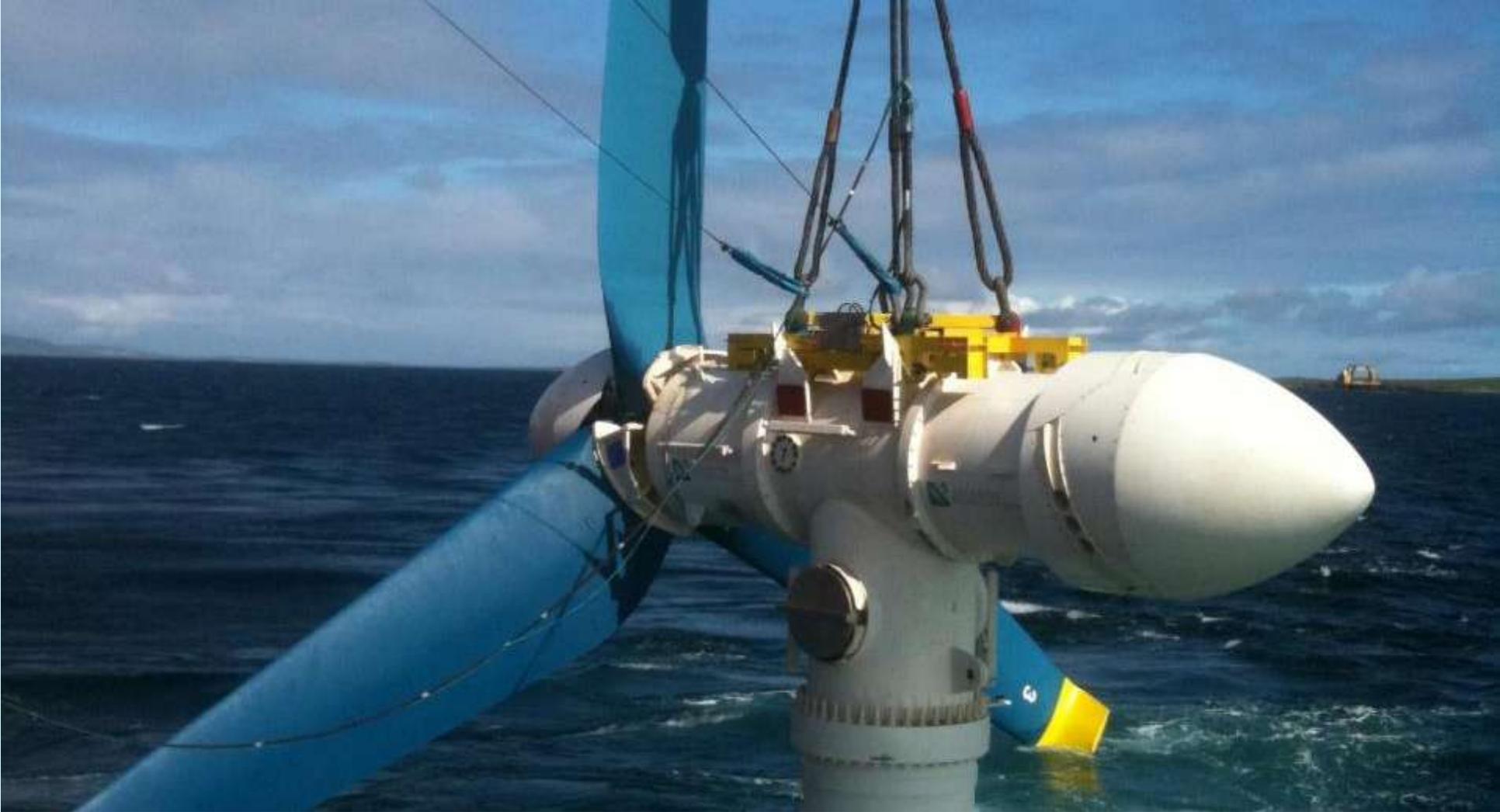


- Weather forecasting
=> installation & maintenance
- Turbidity
 - => “Flying” rocks ?
- Surface wind
 - => surface waves

Future evolutions

- More granularity – mapping the resource with more data points
- Data closer to the coast to cover more potential sites
- Export markets
 - Low availability of information
 - Export investment already significant





 @euoea

www.oceanenergy-europe.eu



Thank you