



The hydrogen islands: putting EMEC research and development in context for an emerging North Sea cluster

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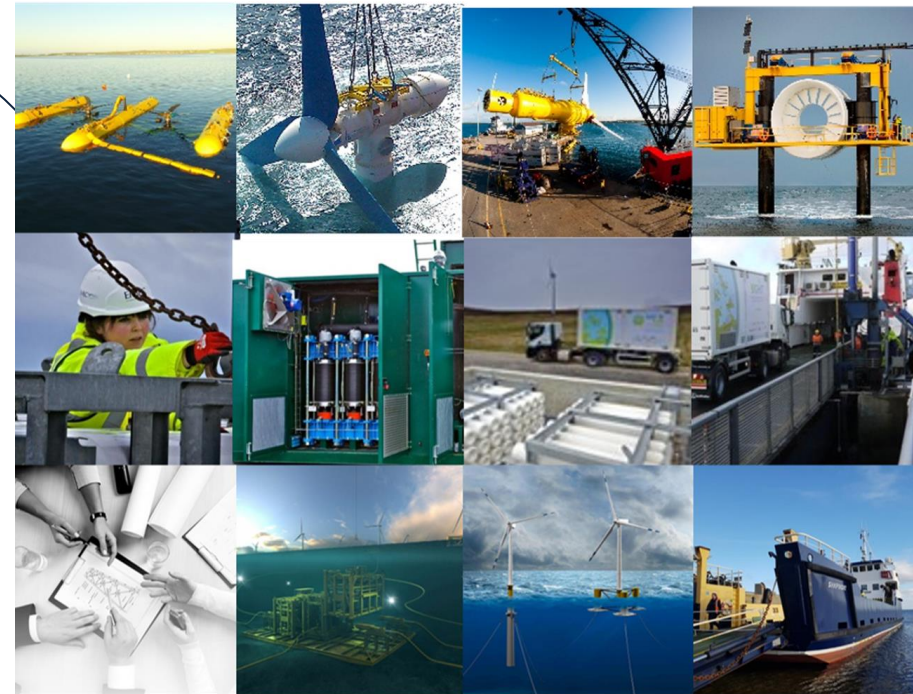
Introducing EMEC



Tidal test site,
Fall of
Warness

Wave test
site, Billia
Croo

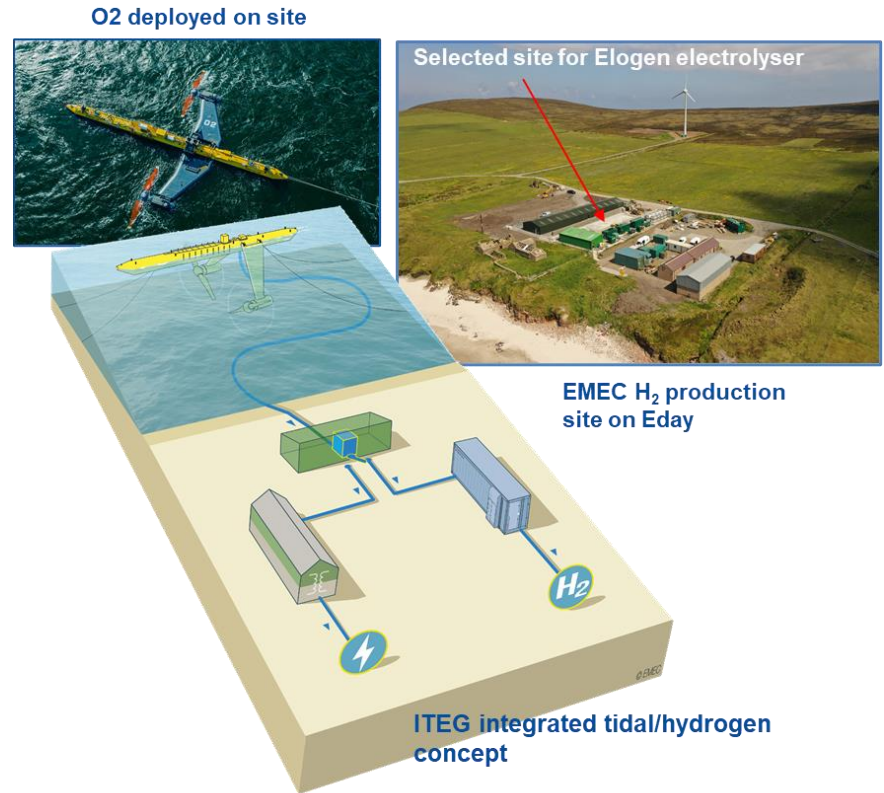
Hydrogen
production,
Eday



In Orkney, Power-to-X also means tidal-to-hydrogen

- Integrated tidal & hydrogen storage solution (ITEG)
- 2021/2022 deployment in Orkney
- 3 low carbon technologies
 - Orbital O2 **2MW tidal turbine** – **deployed April 2021**
 - Elogen **500kW electrolyser** – **due Summer 2022**
 - **Energy Management System (EMS)**
- €11m budget from Interreg North-West Europe
- 20 direct jobs maintained and 40 indirect jobs

EMEC HYDROGEN



Hydrogen R&D Programme



1. Producing hydrogen via electrolysis

We power our electrolyzers using **tidal and wind** generation co-located at our test sites



2. Storing and handling hydrogen

We have demonstrated inter-island transport of hydrogen, and developed **state-of-the-art mobile refuelling** equipment

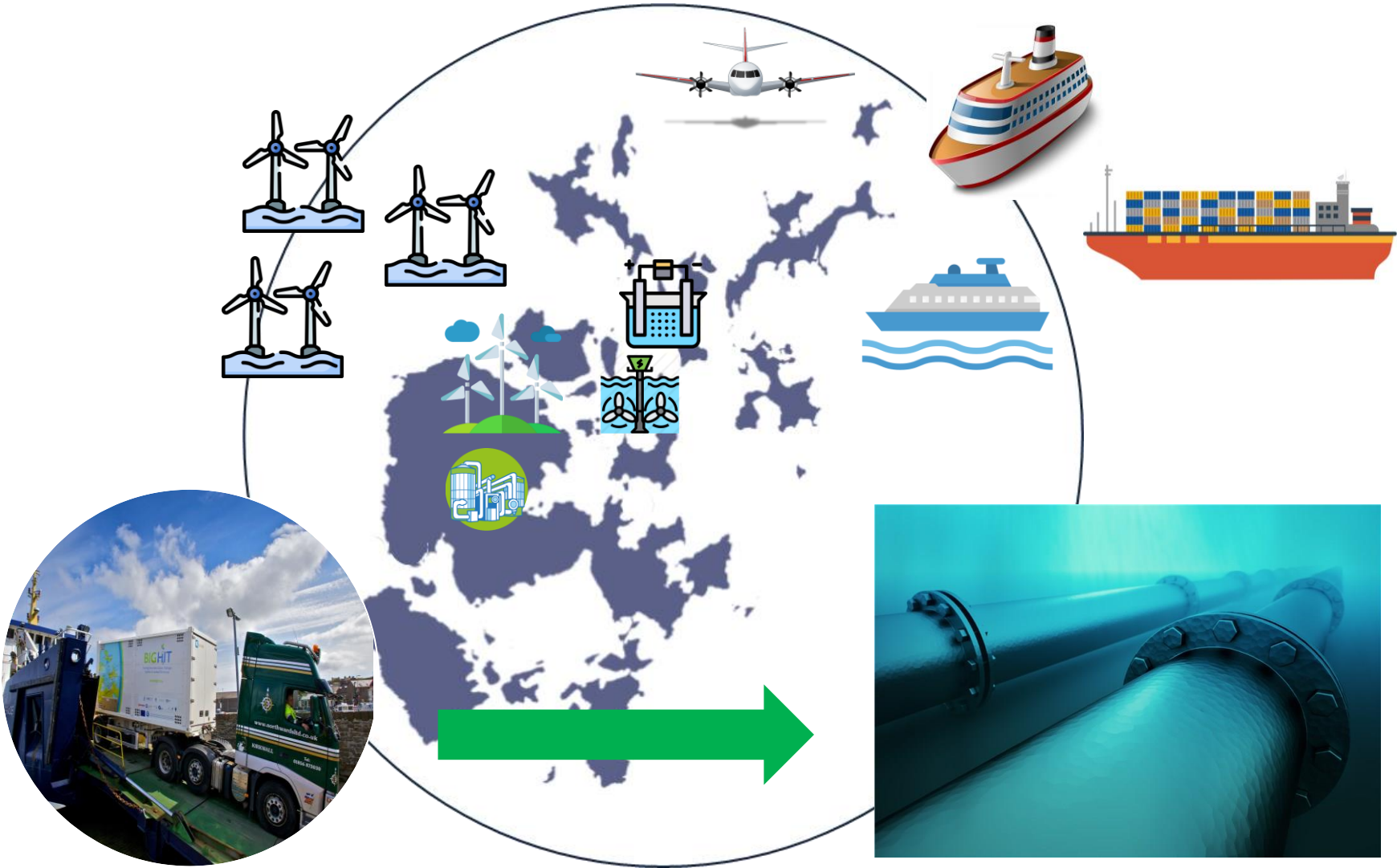


3. Developing hydrogen use cases to support decarbonisation activities

Our projects have tested new ways of using hydrogen, including in **transport**, in **vans, ferries and aeroplanes**, in industrial **heat**, investigating feasibility for use in **distilling**, and in providing auxiliary **power** to **ferries** while quayside



Innovation in hydrogen is shaping the future Orkney energy landscape





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