



ITEG: Integrating Tidal Energy into the European Grid

Project overview

- 3 low carbon technologies demonstrating combined tidal energy and hydrogen production solution for remote areas with grid export limitations
- 3-year project ending December 2020
- € 11m budget until 2020
- Project consortium of research institutions, regional development agencies, tidal energy and hydrogen infrastructure developers from UK, France, Netherlands and Belgium.



ITEG outputs

- 20 maintained direct jobs
- 40 maintained indirect jobs
- 3 low carbon technologies deployed
- 3000 tonnes estimated reduction in GHG
- 15 enterprises cooperating with research institutions

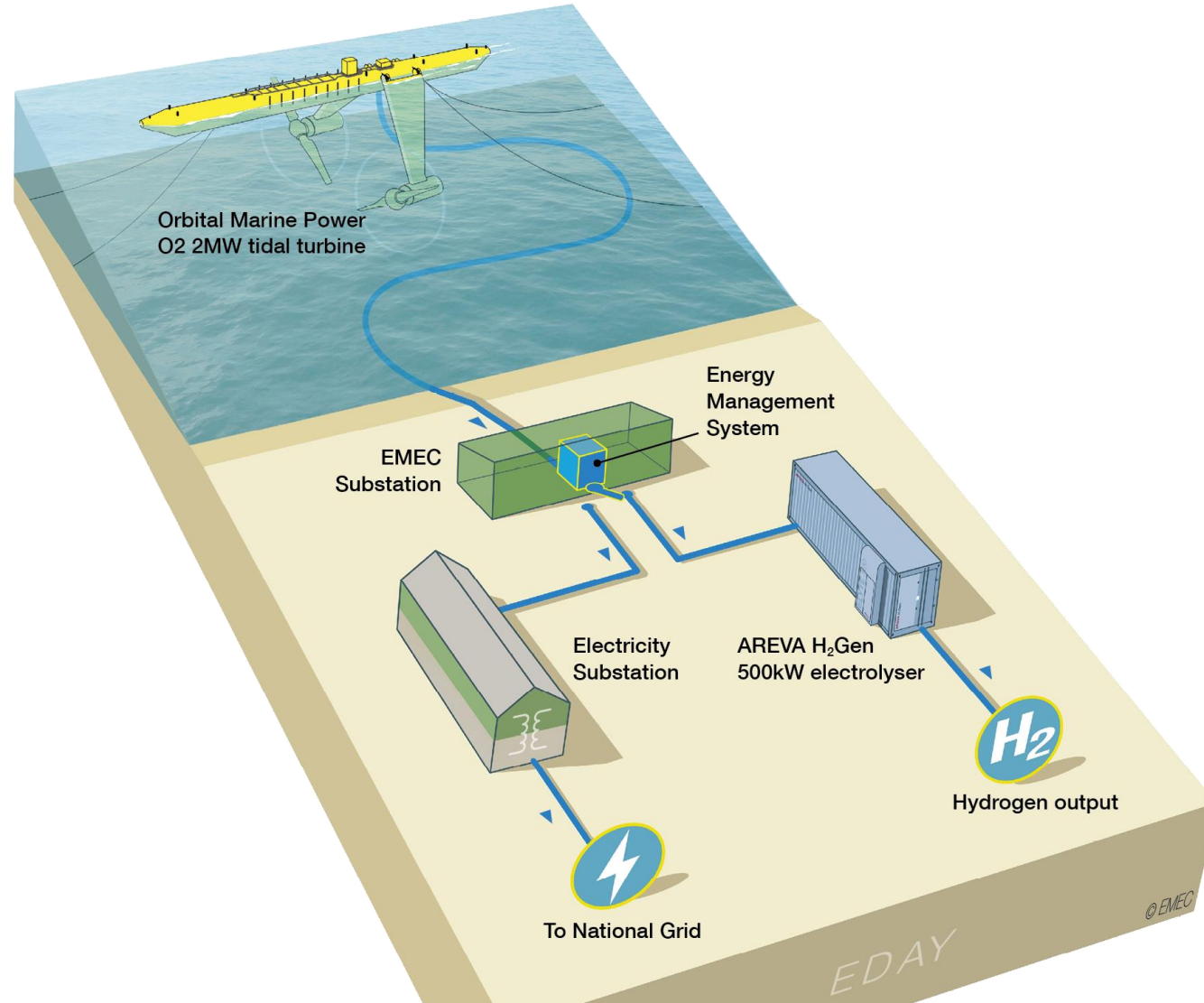


Location

- Fall of Warness, tidal turbine substation
- Connectivity infrastructure
- Predictability of tides
- Tidal flow up to 7.8 knots



Tidal energy and hydrogen solution

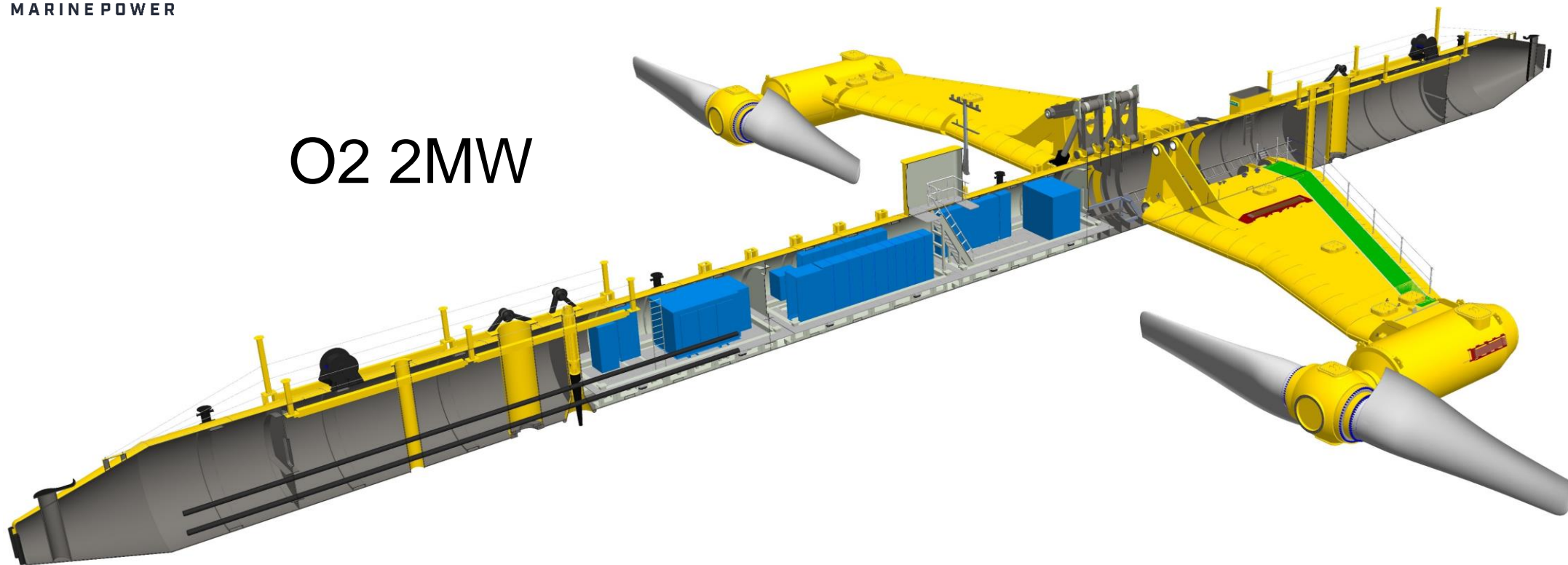


Tidal Turbine



ORBITAL
MARINE POWER

O2 2MW



Energy Management System

- Optimise the EMS and fast-track a clean energy generation, management and storage solution towards commercialisation
- The EMS will enable EMEC to control whether the power produced by the Orbital O2 is fed into the national grid or into the AREVA H2Gen electrolyser to produce hydrogen
- Currently reviewing tender applications



Electrolyser

- 500kw PEM Electrolyser
- Ability to ramp up to 1MW for short durations
- Producing green hydrogen



Long Term replicability

Expert whole energy system modelling and analysis to enable industry, government, regulators and investors to better understand the costs and benefits of different technologies, system designs and pathways towards a smarter low carbon future.



Drawing on the internationally peer reviewed **Energy System Modelling Environment™** (ESME) tool to inform and support government planning policy and industry decision-making. Also utilising emergent tools such as the Storage and Flexibility Model and national datasets such as the Infrastructure Cost Calculator



Defining future opportunities, road mapping



De-risking future projects, social acceptance study

Conclusions

- Clean energy generation in remote areas
- ‘All-in-one’ holistic energy system
- New market opportunities for ocean energy sector
- Please do come and say hello at stand ORK12

EMEC HYDROGEN





Thank you

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