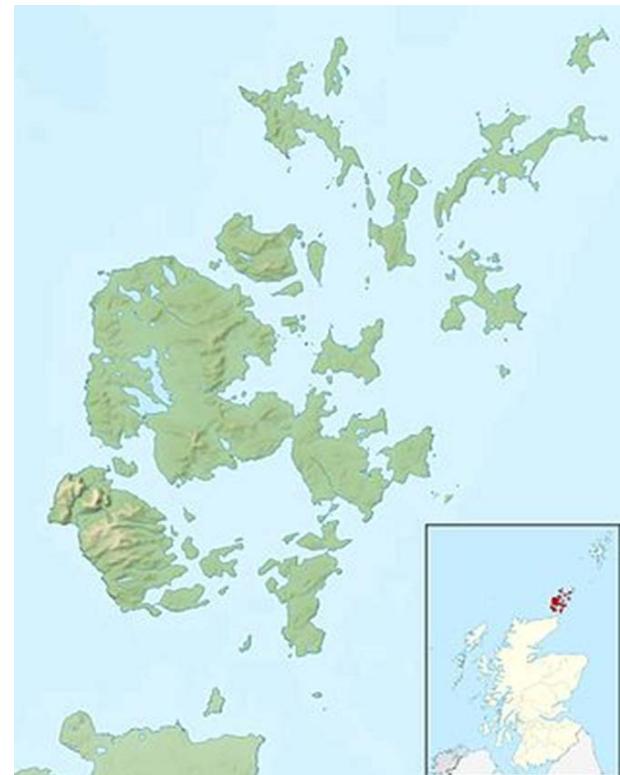




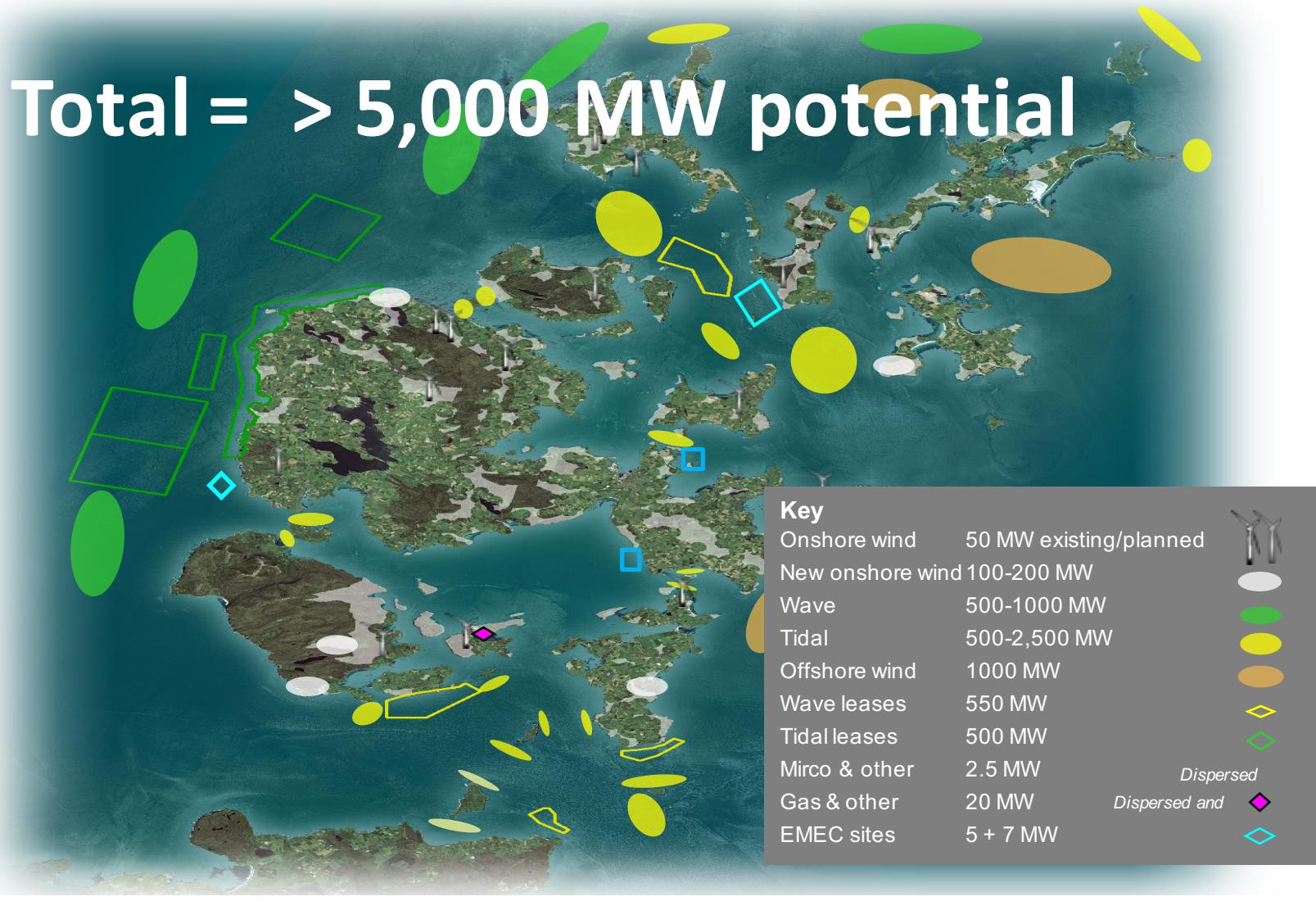
# Introducing Hydrogen to Orkney's renewables future

**Gareth Davies**  
**MD Aquatera,**  
Gareth.Davies@aquatera.co.uk



# Orkney's renewable resources

Total = > 5,000 MW potential



# Flotta Terminal - Handling UK oil

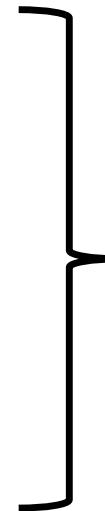
- Flotta Terminal handles 5% of UK oil output
- Terminal always seeking new life extension opportunities
- Industrial strategy links
  - Additional ship to ship transfer operations in Scapa Flow
  - Future micro-refining potential
  - Possible market for marginal pools of gas/oil
  - Looking towards Oil Beyond Energy



# Present and future generation potential

## Present (70MW)

- 50 MW large scale wind
- 10 MW micro generation
- 10MW tidal and wave
- 4 MW curtailment (current stimulus for innovation)
- 2MW storage and conversion (current solutions)



**This capacity has already exceeded to capacity of the existing system**

## Near future (700MW)

- 100-200 MW new onshore wind (pre-scoping)
- 400 MW tidal projects (scoping & awaiting decision)
- 100MW offshore floating wind (pre-scoping)

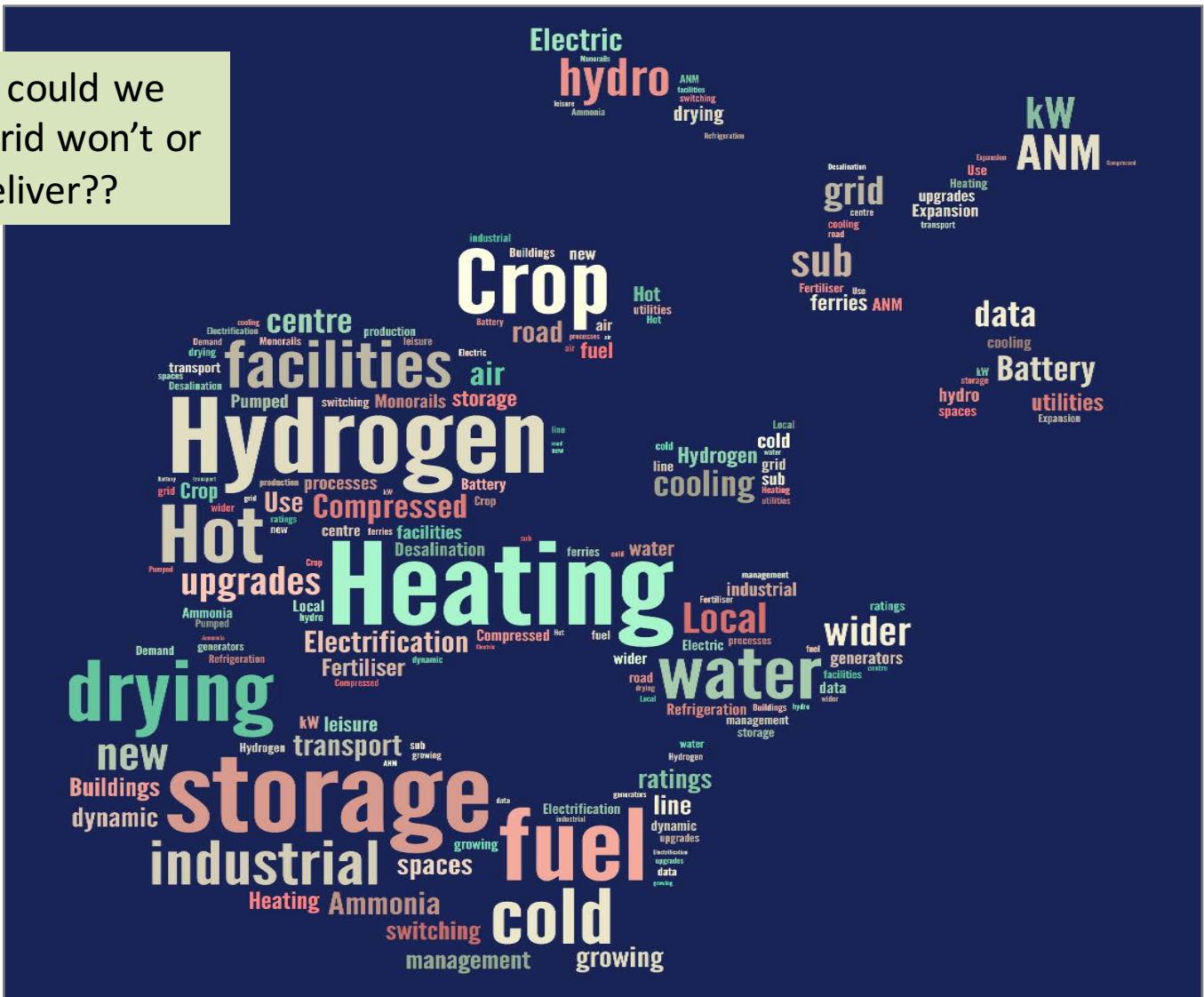


**This capacity may need new and bigger market solutions**

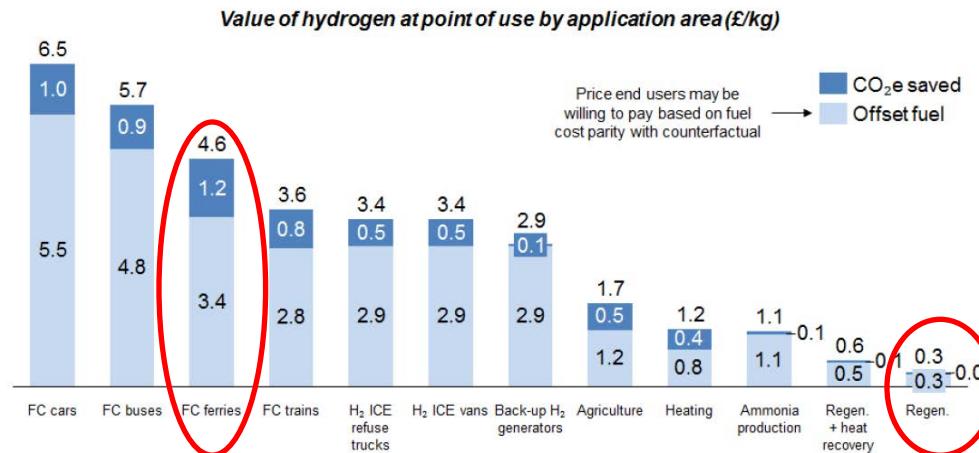
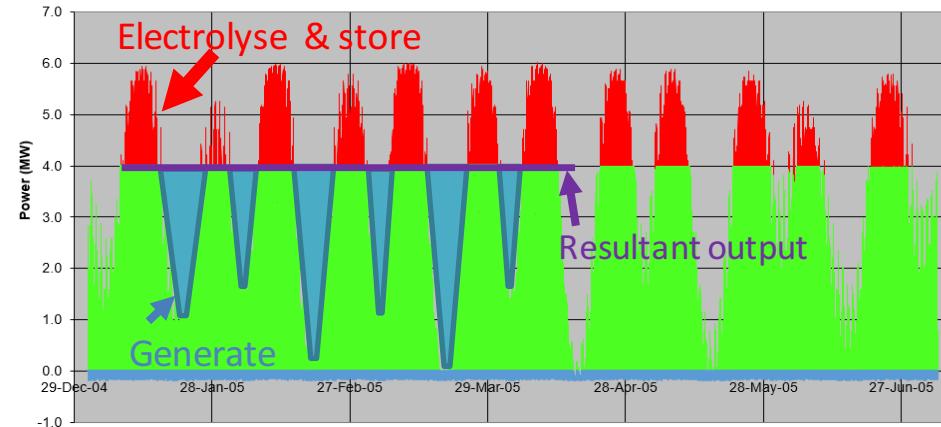


# **Orkney – islands of diverse energy opportunities**

What else could we do if the grid won't or doesn't deliver??



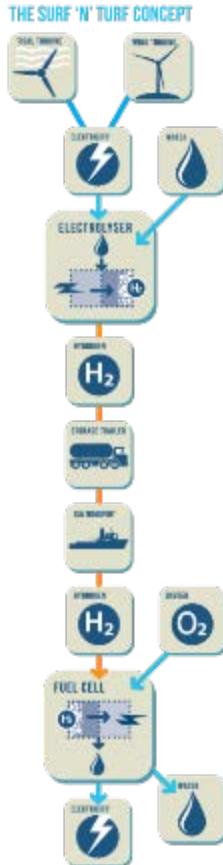
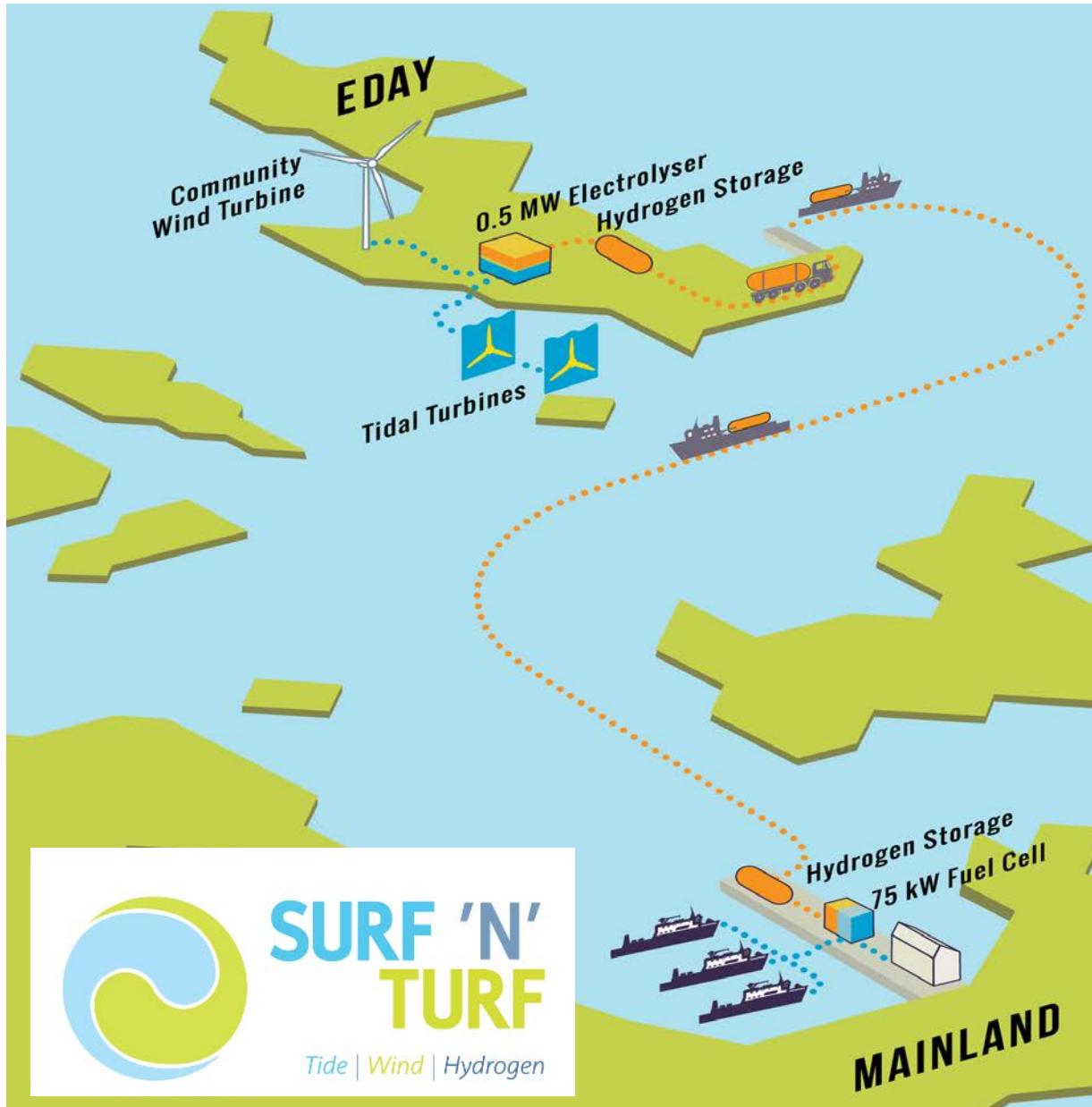
# Hydrogen as storage?



Source: Xodus/Element Energy study, 2016



# First stage infrastructure



# Integrated building blocks



# Second stage infrastructure



aquatera

**BIG HIT<sub>2</sub>**

Building Innovative Green Hydrogen  
Systems in Isolated Territories



# Hydrogen reality



Tidal energy



Wind energy



Electrolyser



Gas cylinders & mobile storage



Training



First gas shipment to Kirkwall

# Tackling vehicle emissions



# Tackling shipping emissions



Orkney's hydrogen future

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# Orkney's Hydrogen Business

