Brief Overview of the Hydrogen Scenario in Scotland

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H&FC Activities in Scotland & the UK

There are 5 centres of H&FC activity in the UK

- **Scotland**
- North East England
- East & West Midlands
- South Wales
- London

Scottish Hydrogen & Fuel Cell Association

- Founded in 2004 with 6 members
- Now comprises >50 member organisations – 120 individuals
- H&FC companies; Universities; SMEs; Corporates
- Driver for development of H&FC sector in Scotland
- Draws on expertise from around the world, esp. USA and Europe
- Part funded by Scottish Govt. and Enterprise Network, also ERDF
- Projects / deployment orientation

Scottish Govt Renewables Targets

- GHG emissions reduction 80% by 2050
- 20% renewable energy by 2020
- 50% renewable electricity by 2020 (8GW)
- 11% renewable heat by 2020
- 10% green transport fuel by 2020
- Includes hydrogen

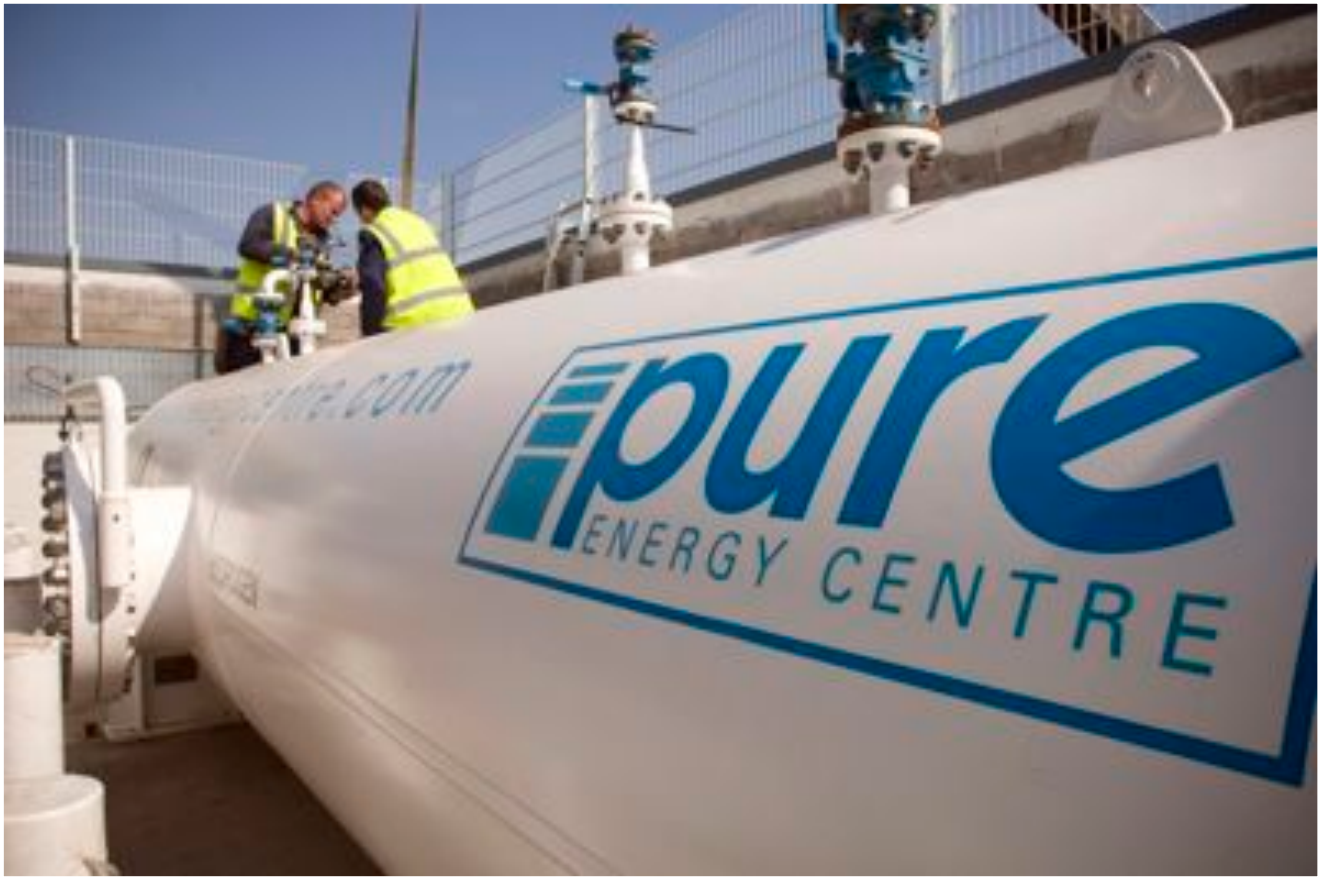
FREDS H&FC sub-committee

- Re-convened in October 2009
- Key context: Renewables Action Plan, Hydrogen Route Map
- Key task: Maximising contribution of the green hydrogen / fuel cells sector to the achievement of 20% of renewable energy in Scotland by 2020
- 3 key work streams
  - Transport
  - Low carbon heat & power applications
  - Energy storage & grid balancing

The Hydrogen Office Demonstration Centre

Located in Fife, the Hydrogen Office combines a renewable, hydrogen and fuel cell energy system with a modern commercial office building

The office building has now been completed and the energy system will be complete in April following the installation of the wind turbine



The electrolyser is being developed by the Pure Energy Centre, and the Pure Energy Centre is also installing the energy storage and fuel cell systems

Hydrogen Corridor

200 km stretch of highway between Aberdeen and Inverness, in NE Scotland

Early mover project to stimulate investment in hydrogen / fuel cell transport

5 H2 refuelling stations

Public transport

Local authorities

Postal services

UK HyNet

Cities en route (100km max. refuelling distances)

- North West: e.g. M6 (Manchester, Preston, Carlisle, etc)
- West: e.g. M4 (Bristol, Swindon, Heathrow, etc)
- South West: e.g. Exeter, Plymouth, etc
- South East: e.g. A3 / M3 (Guildford, Southampton / Portsmouth, Basingstoke), Brighton, Kent, etc
- East: e.g. Peterborough, Cambridge, Norwich, Ipswich, etc

Proposed Phase-1 H_2 highways

- Total refuelling stations = 33

Potential Phase-2 H_2 highways

- Total refuelling stations = 56*

* Includes some redundancy

Scottish technology innovation
Hydrogen as a combustion enhancer

Hydrogen / oxygen on-board catalyser

40,000 kms -averages 30% reduction in fuel use

Thank you for listening

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