



HyTrEc2

Hydrogen Transport Economy for the North Sea Region 2

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- The Hydrogen Transport Economy (HyTrEc) 2 project is part of the Interreg VB North Sea Programme Region Programme and is partly funded by the European Regional Development Fund.
- Falls within programme Priority 4: Promoting green transport and mobility
- Total budget of €6,180,602 of which the ERDF Contribution is €2,615,106
- Six year project from 2016 to 2023.



Green transport and mobility

Promoting sustainable transport and removing bottlenecks in key network infrastructures





HyTrEc2 Partners

Interreg VB North Sea Region
Programme Area 2014-2020

Regions within the NSR programme area





Vehicle Deployments – Fuel Cell Electric Vehicles

- Hyundai ix35s in Groningen
- Toyota Mirais in Aberdeen City and Aberdeenshire
- Hyundai Nexos in Drenthe and Aberdeen City
 - Waste trucks in Groningen
- Vehicles mainly used by staff but in some cases placed on Car Sharing Clubs for citizens to try



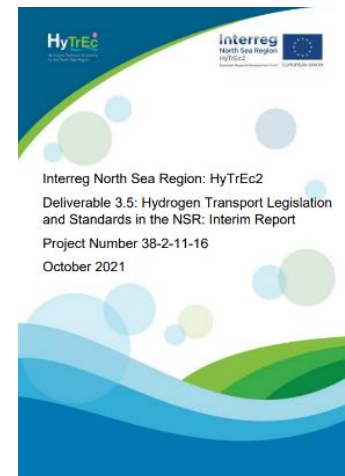
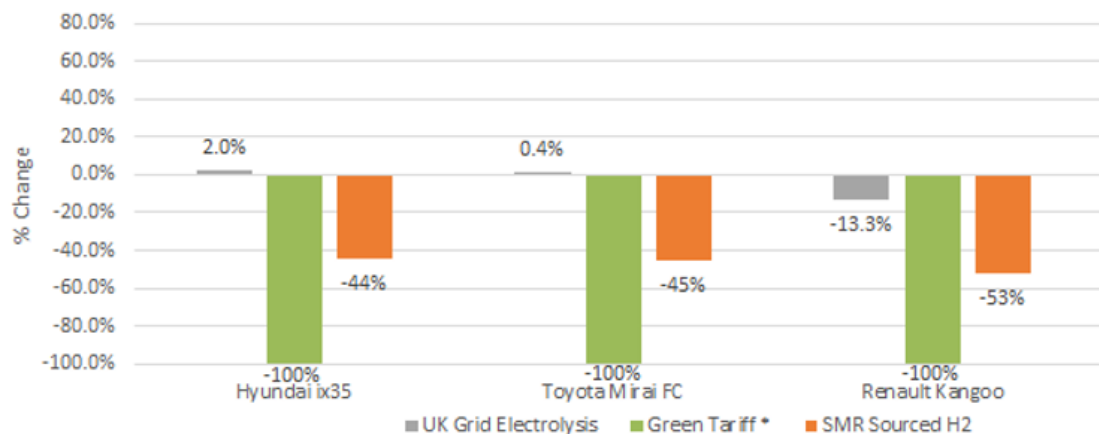


Vehicle Deployments – Retrofitting

- Streetscooter in Groningen
- Renault Kangoos in Groningen and Aberdeen
- Nissan env200 van in Aberdeen
 - DAF H2ICed Roadsweeper
- Mix of electric + hydrogen range extenders and hydrogen-diesel injection

Vehicle Monitoring

% Change in WTW g.CO2e/km vs Cenex Diesel Comparator





Vehicle Deployments - Simulation

- Forklift Truck Simulation
- Small and medium sized forklifts often have electrical drivelines
- Battery capacity is often not big enough during long working days with several shifts
- Trialled swapping out larger battery and replacing with Hydrogen storage and a battery with smaller capacity and volume
- Assume battery capacity of 54kWh and fuel cell 15kW
- Conclusion: possible to build and can perform, but size of fuel cell and optimal performance depends on detailed knowledge of the power requirement over the course of the day





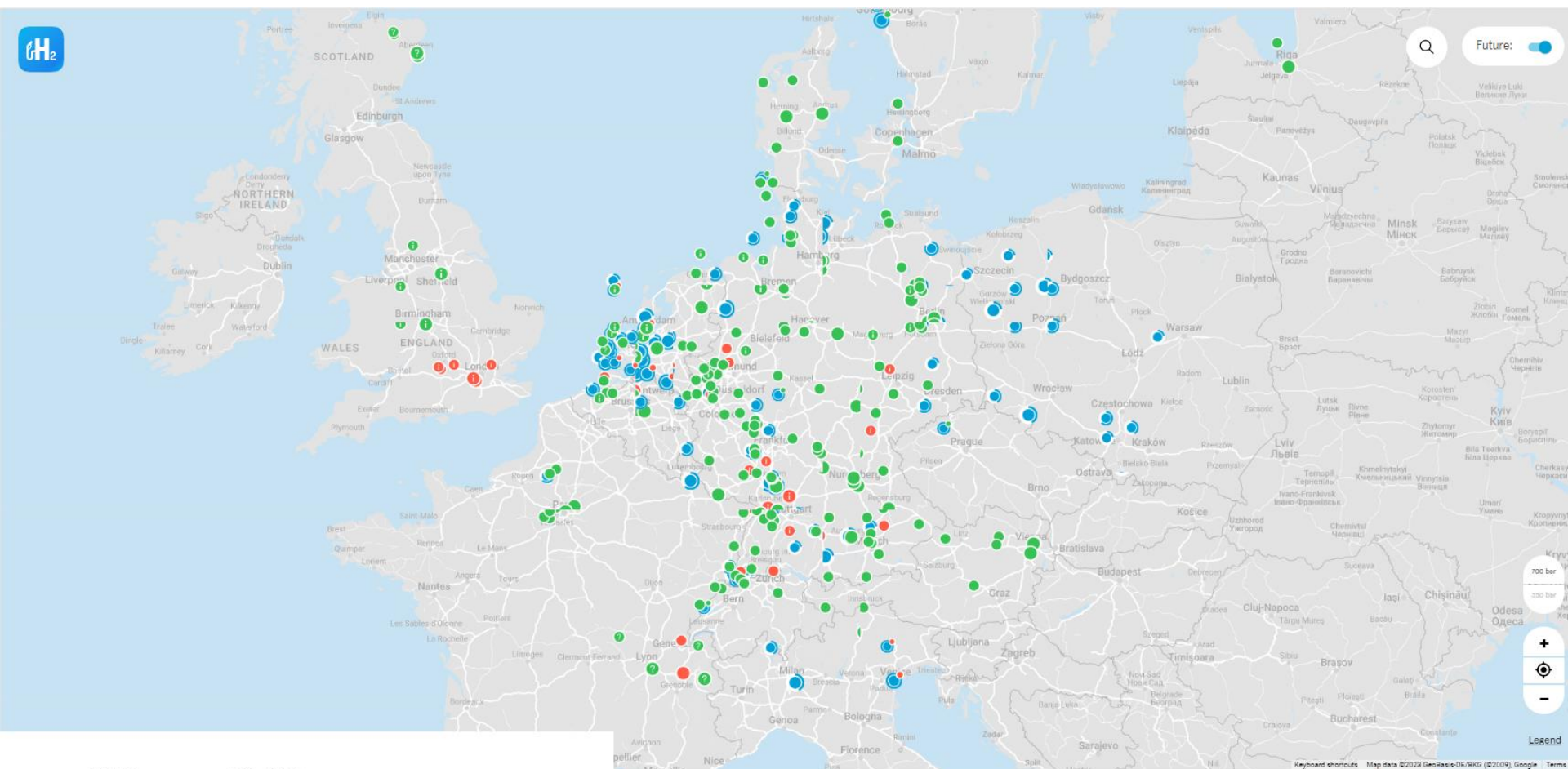
Green Hydrogen Production, Storage and Distribution

- Hydrogen Refuelling Station connected to solar array in Groningen
- Hydrogen refuelling station using green tariff electricity in Aberdeen
- Hydrogen refuelling station in Narvik
- Business cases for renewables and green hydrogen production in Drenthe, Aberdeen Hydrogen Hub and RISEs Economic Modelling for Green Hydrogen in the NSR

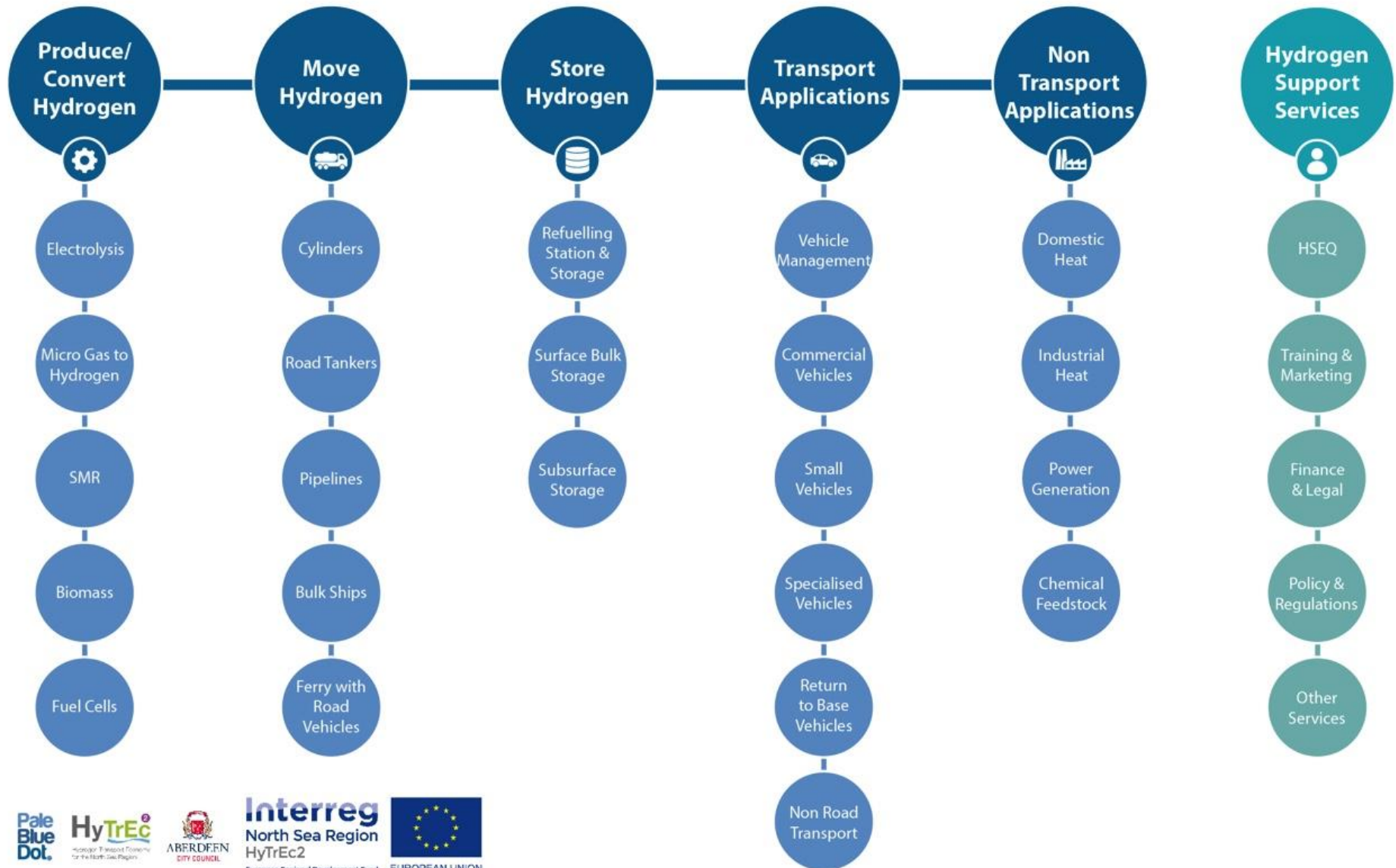


H2 Mobility and HyTrEc2 App

<https://h2.live/en>



Hydrogen Supply Chain Map



Training

- Technicians training courses accompanying increasing numbers of vehicles offers opportunities for technical colleges as well
- September 2022 training day at NESCol in Aberdeen – mix of presentations and practical sessions with students and stakeholders





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