

Why Hydrogen?

Hydrogen is the most abundant element in the universe and can be used for energy, power and transport. While hydrogen is clean (the only by product of a hydrogen powered vehicle is water and energy) it doesn't, however, exist on its own. To produce hydrogen in the form of a useable fuel requires energy – a process that can itself create greenhouse gas emissions unless it is undertaken using renewable energy, such as solar or wind.

With 94% of transport currently oil based, renewably powered fuel cell electric vehicles (FCEVs) can play a key role in achieving EU energy and climate change targets. Discussion is often focussed around the 'battery versus hydrogen' argument. Both are in fact necessary for a fossil free transport future, but FCEV's have an advantage over their electric counterparts because they have a longer range. This extended range is essential in those North Sea regions which have numerous small sized cities with a large suburban and rural hinterland.

Hydrogen technology is still, however, in its infancy and this impacts on both the number of technicians that work in the sector and the number of companies that work in the supply chain. The Hydrogen Transport Economy of the North Sea Region (HyTrEc2) project therefore aims to bring these elements together: producing green hydrogen, trying and testing innovative transport solutions, future-proofing skills and developing the hydrogen supply chain as part of a shared vision for a cleaner economy.

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Province of Drenthe, The Netherlands
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City of Groningen, The Netherlands
www.geemente.groningen.nl

UiT The Arctic University of Norway
www.uit.no



Interreg
North Sea Region
HyTrEc2
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Delivering green hydrogen,
innovative transport solutions
and future skills as part of a
shared vision for a cleaner
economy



HyTrEc²
Hydrogen Transport Economy
for the North Sea Region



The HyTrEc2 project aims to...

...test a range of fuel cell, range extenders and dual fuel vehicles to develop common standards across the North Sea Region

HyTrEc2 Partners from Geemete Groningen and Aberdeen City Council have been retrofitting hydrogen range extenders to a number of vehicles (vans, waste trucks, streetscooters and roadsweepers), and alongside hydrogen cars these are being rolled out to public sector organisations for testing. Cenex has now tested over 30 vehicles, from Aberdeenshire Council in the UK to UiT in Norway, in order to compare hydrogen, battery electric and diesel vehicles. This will determine which are best for real world applications, ascertain carbon emission savings, and establish baseline costs for hydrogen vehicles across the North Sea Region.

... identify training requirements and organisations that would benefit from training

Led by UiT, Partners have identified various hydrogen training opportunities in their regions. There appear to be a number of misconceptions about hydrogen and the HyTrEc2 partnership is aiming to challenge these. Videos are now available on YouTube showing tours around hydrogen stations and how quick (and easy) it can be to refuel vehicles. A link to the videos can be accessed from the HyTrEc2 website: northsearegion.eu/hytreec2

... develop innovative methods for the production, storage and distribution of green hydrogen including use of solar and wind power

Geemete Groningen is successfully producing green hydrogen from solar power to their hydrogen refuelling station. Provincie Drenthe is undertaking a business case for the production of solar hydrogen in their region as well, while Aberdeen City Council has commissioned a business case for the production of green hydrogen from wind power. The EIFI is developing hydrogen for small scale distribution in rural areas while UiT explores potential refuelling from hydroelectric power.

As well as coordinating the business case for green hydrogen for transport applications across the North Sea Region, RISE is also exploring using hydrogen as part of low carbon eco-housing developments.

... aims to trial an app that can be used to show the location of fuelling stations, their availability and safety standards for public sector and private use

All Partners have been supplying information of hydrogen refuelling stations in their areas to the EIFI for the development of an interactive transnational app. The aim is to ensure that all European operators integrate their stations into the app to provide a complete, consistent and cross-device facility for both private and public use. The app is now providing real time data for the majority of refuelling stations around the NSR and the next step is to integrate tools for maintaining a personal profile, trip information and invoices.

... develop the supply chain for green hydrogen

One of the first activities of the HyTrEc2 Partnership was to map the hydrogen supply chain in the North Sea Region and demonstrate how existing suppliers, such as those in oil and gas, can move into the hydrogen field. All Partners have now mapped activities in their regions and are actively engaging local businesses. Alongside vehicle deployments and the green hydrogen business case this work is being presented by Partners at business to business meetings across the NSR with the aim of increasing the number of companies involved in the hydrogen supply chain.

Developing the Hydrogen Transport Economy for the North Sea Region: HyTrEc2

