

Safety Features:

- The fuel cell system and tank are positioned in the middle of the vehicles chassis, the area deemed safest in the unlikely event of an accident;
- The tanks are EC 79* validated and resistant up to 2.5 times their working pressure;
- Hydrogen sensors operate with the fuel cell able to disconnect from the rest of the system and discharge fuel in less than 2 seconds.

For further information go to

www.hytrec.eu

email: H2Aberdeen@aberdeencity.gov.uk

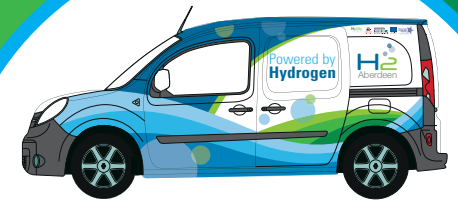
*EC 79 – European regulation on hydrogen-powered motorvehicles which sets out safety requirements for hydrogen components and systems that store hydrogen to ensure the safe and reliable functioning of hydrogen vehicles. EC type-approval is mandatory for hydrogen vehicles.

HyTrEc

Hydrogen Transport Economy
for the North Sea Region

Plug-in Hybrid Fuel Cell Electric Vans in Aberdeen City Council's fleet

Zero emissions



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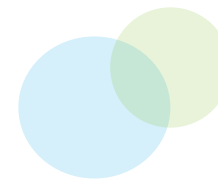


HyTrEc
Hydrogen Transport Economy
for the North Sea Region

The Interreg IVB
North Sea Region
Programme



Investing in the future by working together
for a sustainable and competitive region



The Hydrogen Transport Economy (HyTrEc) project aims to improve access to and advance the adoption of hydrogen as an alternative energy vector across the North Sea Region. The project will identify and address structural impediments constraining development of, access to and adoption of this alternative fuel in urban and rural settings.

As part of the HyTrEc Aberdeen project, the Council is trialling plug – in hybrid fuel cell electric light duty vans, integrating them into the Council's fleet. A range of operational data is being collected for example fuel consumption, routes driven and location which will be used to analyse vehicle performance.

Our experience will be shared and compared with our project partners, some of which are trialling similar technologies.

Zero
emissions

Overview:

- Two electric Renault Kangoo Maxi Z.E. vans fitted with fuel cell range extenders provided by SymbioFCCell;
- Fuel Cell Range Extenders have been developed to address the shortcomings of battery powered electric vehicles by doubling the driving range of an electric only van and eliminating "range anxiety";
- Hydrogen is used in a chemical process to produce electricity to run an electric motor with water vapour being the only exhaust emission;
- These hybrid light duty vehicles provide the low emission advantages of an electric vehicle without the range limitations.

Benefits:

- A low emission vehicle with only water emitted from the exhaust;
- Double the driving range compared to the Kangoo ZE (electric only);
- Improves corporate social responsibility for fleet operators;
- Attracts business benefits from lower road and fuel taxes;
- Promotes renewable energies (if electricity and H₂ generated from a renewable source);
- Low noise pollution and reduced carbon footprint;
- Familiar driving and operating characteristics.

Engine and Fuel System features:

- Range extender system added without any structural modification to the vehicle;
- The fuel cell produces electricity, heat and water. Electricity produced by the fuel cell is used to charge the battery, the heat produced is captured and used to warm the vehicle cabin in winter;
- With the range extender kit, battery lifetime is increased because the increased driving range reduces the frequency of deep battery discharge which degrades the battery;
- The 5kW fuel cell system is fed by a tank which hold up to 1.8 kg hydrogen;
- The range extender kit can be dismantled and re-mounted in a new vehicle, if required.

Hydrogen Tanks:

- 74 litre hydrogen tank with a 15 year service lifetime;
- 350 bar (5000 psi) storage pressure;
- Driving range of 360km per full tank, equivalent to 0.5 kg H₂ per 100 km;
- Refuelling time is less than 3 minutes;
- Fuel tank composed of an aluminium liner surrounded by carbon fibre, ensuring strong mechanical resistance.

