

The project

A number of key industry and public sector organisations have joined forces to demonstrate the EU's largest integrated hydrogen project. The project retains the possibility to directly utilise Scotland's abundance of wind energy and allow the greater development of renewable energy, which could be used to refuel Europe's largest fleet of hydrogen buses, in the city of Aberdeen.



The Partners

The industrial organisations working to deliver this project include the following major companies:

- Scottish Hydro Electric Power Distribution
- BOC (Hydrogen production and refuelling)
- VanHool (the bus manufacturer)
- First and Stagecoach (the bus operators)
- Scotland Gas Network (SGN)
- Element Energy (a technical and analytical partner)

The public sector partners include:

- The Scottish Government,
- Scottish Enterprise,
- Technology Strategy Board,
- Aberdeen City Council
- Aberdeen Renewable Energy Group (AREG).

The System

The first phase of the project involves a budget of £19 million, which by the end of 2014 will deliver the following hydrogen infrastructure in Aberdeen:

- Hydrogen production from a 1MW electrolyser.
- A state-of-the-art hydrogen refuelling station with the capability to produce up to 300kg of hydrogen on site per day and refuel a bus within 10 minutes.
- A fleet of 10 hydrogen fuel cell buses, four operated by First and six operated by Stagecoach.

Funding

The project budget of £19m is made up by contributions from the following organisations:

- Fuel Cells and Hydrogen Joint Undertaking (2 separate projects - HyTransit & High V.LO-City) £8.3m;
- Technology Strategy Board £2.4m;
- Aberdeen City Council £2m;
- The bus operators (Stagecoach and First) £2m;
- Scottish Government £1.7m;
- Scottish Enterprise £1.7m;
- Scottish Hydro Electric Power Distribution £750k;
- Scotland Gas Network (SGN) £200k

Timescales

The Aberdeen Hydrogen Bus Project has made excellent progress and will achieve the following milestones:

- The arrival of 10 hydrogen buses in 2014.
- Operate a state-of-the-art refuelling station in 2014.
- Buses operating between 2014 and 2017.

Learning expected

The project will provide its partners with invaluable economic and environmental experience of using hydrogen as an energy storage medium, addressing a number of inter-related policy objectives, in addition to:

- Evaluating the commercial realisation of hydrogen technologies.
- Using hydrogen energy storage as a means of managing electrical grid constraints;
- Making progress towards Scotland's green transport targets;
- Improving air quality and noise levels in congested city centres;

The Future

Further phases of investment are being investigated, covering:

- The introduction of other hydrogen vehicle fleets
- The injection of low concentrations of hydrogen into the local gas grid (as done in several locations around the world)
- The use of hydrogen as part of Aberdeen's district heating scheme
- The opportunity to explore the direct use of wind power within this and other similar projects.

