Draft Energy Strategy Visit: Levenmouth Community Energy Project
12 June 2017
Members in attendance: Gordon MacDonald, Bill Bowman, Andy Wightman, John Mason

David Hogg, Technical Manager
George Archibald, Chief Executive, Midlothian & East Lothian Chamber of Commerce
Keith Barbour, Chamber President, Midlothian & East Lothian Chamber of Commerce

Bright Green Hydrogen (BGH)

BGH has been set up (as a not-for-profit SME) to showcase hydrogen energy storage. BGH, in conjunction with Bright Green Business, and the Mid and East Lothian Chamber of Commerce (MELCC) is part of the wider company The Business Partnership Ltd.

BGH focusses on four key areas: demonstrating technology; education and training; research and development, and project consultancy. Bright Green Business advise SMEs on going green and how they can comply with environmental policies.

Levenmouth Community Energy Project

Set up in 2014 as a consortium of organisations including BGH, Fife Council and Toshiba's New Energy Project Division. Other partners include Scottish Hydrogen and Fuel Cell Association, Fife College and Green Business Fife.

It passed the LES Challenge Fund, resulting in £4.4 million in grant funding.

LCEP generates 910kW of renewable energy, a 750kW wind turbine (Poppy) the remainder generated by solar PV. The project supports an eight building microgrid, using a Toshiba H2EMS Smart Grid control and a 250kW electrolyser/100kW fuel cell energy storage system. The 100kW fuel cell can power the whole campus for a day.

The systems have been designed and installed by Logan Energy, based in Edinburgh and all hydrogen equipment is from Hydrogenics.

Hydrogen for Transport

The excess hydrogen not used by the grid is fed into transport

Logan Energy supplied two hydrogen refuellers for the Levenmouth Community Energy Project (10kg each) with a third refuller at Bankhead (run by Fife Council). It supports a 17 vehicle fleet: 10 small hydrogen-electric hybrid vans (leased by BGH), five medium diesel-hydrogen internal combustion engine vans (operated by Fife

Council) and two diesel-hydrogen internal combustion engine refuse collection vehicles (also by Fife Council).

In the future, they intend to increase storage at the Levenmouth Site to allow a larger fleet and also to include heat into the system. Issues with being an early adopter as new and improved technology means the current fleet isn't the best possible technology. Hydrogen is best positioned to compete against current transport fuels. In the short-term, the best way forward could be dual fuel, diesel/hydrogen. However, in the longer term it is likely that electric/hydrogen hybrids will dominate.

Education

The project aims to raise interest from early years, through to secondary education, all the way to college and university. LCEP works with Fife College, Energy Skills Partnership and Skills Development Scotland.

Hydrogen into the Gas Grid

The site's hydrogen boiler requires pure hydrogen (so couldn't draw from the network). On the small scale at Methil, the cheap price of natural gas means that it is not economically viable to integrate hydrogen into the gas network at this location. However, on larger scales, this could provide an excellent storage reservoir for large quantities of hydrogen.