

Transport Committee

Dearman Visit Summary

Date: Monday 7 November 2016
Time: 13:00 –14:15
Location: Dearman Technology Centre, Unit 5 Stafford Cross Business Park, Stafford Road, Croydon CR0 4TU

Attendees: Caroline Pidgeon AM
Caroline Russell AM
David Kurten AM
Florence Eshalomi AM
Keith Prince AM
Navin Shah AM

Officers
Georgie Wells
Samira Islam

Meeting with: Michael Ayres, Director, Dearman Technologies
Laura Gilmore, Head of Public Affairs and Campaigns, Dearman Technologies
Gloria Esposito, Head of Projects, Low Carbon Vehicle Partnership (LowCVP)

Background

The Committee was invited by Dearman, a clean cold technology company, to visit their site in Croydon to hear about their technologies are being developed. The Low Carbon Vehicle Partnership also attended to speak to Members about the work they are doing to reduce harmful emissions in London.

Dearman

Dearman has developed technology that uses liquid nitrogen to deliver zero-emission power and cooling.¹ The Dearman Engine can be used for a variety of applications including transport refrigeration, back-up power and cooling for buildings, and increasing fuel efficiency (hybrid systems can be used on buses and can increase fuel efficiency by 20 – 30 per cent).

Low Carbon Vehicle Partnership

The LowCVP, which has about 200 members, is an organisation that aims to promote a shift to lower carbon vehicles and fuels. LowCVP working groups focus on buses, passenger cars, fuels, commercial vehicles and innovation. The LowCVP core aims are to:

- Develop initiatives to promote the sale and supply of low carbon vehicles and fuels
- Provide input and advice on Government policy
- Provide a forum for stakeholders to share knowledge and information
- Contribute to the achievement of UK Government targets for road transport carbon reduction

¹ Zero NOx and CO2 emissions

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Record of discussion topics

Dearman

The Dearman Engine

- The Dearman engine is an auxiliary engine that can be used for refrigeration on trucks. It can be retrofitted and is very quiet because there is no combustion.
- The liquid nitrogen storage tanks are 10 times larger than diesel tanks meaning that the technology is only suitable for large trucks.

Transport Refrigeration

- Diesel-powered transport refrigeration units can consume up to 20 per cent of a refrigerated vehicle's diesel and can emit up to 6 times more NOx and 29 times more particulate matter than the truck's main engine.
- Red diesel² can be used to power transport refrigeration. Cleaner options for transport refrigeration would be more cost-competitive if the diesel used for transport refrigeration was taxed at the same level as diesel fuel for road vehicles.
- Dearman would like the emissions from diesel engines in transport refrigeration to be included within the scope of the Ultra-Low Emission Zone (ULEZ).

Testing

- Dearman is trialling its refrigeration technology with a local Sainsbury's depot. It has one delivery truck that has been in operation since summer 2016.
- Dearman plans to publish the results of the trial by summer 2017. Not all the data will be published as some will be commercially sensitive but they will share findings on emissions savings.
- Dearman is working with Sainsbury's to develop a programme for ten Dearman trucks to be in operation next year.

Market competitiveness

- Liquid Nitrogen is a by-product of the process used to create liquid oxygen by industrial gas companies. It is therefore readily available and can be supplied at a stable price.
- The cost of the fuel and engine is competitive with engines using white diesel fuel.
- The Dearman Engine is cheaper to buy and operate than other zero-emission alternatives.

Low Carbon Vehicle Partnership (LowCVP)

Introduction to Low CVP

LowCVP is public-private membership organisation that exists to accelerate the shift to low carbon vehicles and fuels whilst protecting air quality.

LowCVP's work on Buses

- The LowCVP has been involved with developing the UK green bus market for over a decade. It helped create the Low Carbon Green Bus Fund, Bus Service Operators Grant (BSOG) Low Carbon Emission Buses (LCEB) Incentive and the Office for Low Emission Vehicles (OLEV) Low Emission Bus Grant.
- There are 4301 green buses operating across the UK. Approximately two thirds are hybrid.

² Red diesel is rebated fuel that is subject to lower taxes. Red diesel cannot be used to fuel road vehicles and is dyed red to discourage misuse. It is mainly used in agricultural and construction vehicles.

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- Electric buses have additional costs associated with their introduction, such as charging infrastructure requirements.
- LowCVP have created a 'low/ultra-low emission vehicle' standard for buses (including air quality and greenhouse gas emissions emissions).

Retrofitting

- LowCVP is designing a Vehicle Retrofit Accreditation Scheme for the Department for Environment Food & Rural Affairs (DEFRA). The scheme will measure the performance of retrofit technologies in reducing NOx emissions and ensure new technologies meet a certain standard.
- LowCVP claim that some retrofitted catalytic converters can reduce NOx emissions by 95 per cent.

Collaboration with TfL

- LowCVP is an active stakeholder in TfL's LoCITY program which brings stakeholders together to stimulate the uptake of low emission commercial vehicles.
- LowCVP is in the process of creating van and truck test cycles for TfL to be used to determine the performance of low emission technologies and fuels.