



Technology Implementation for Low Carbon HGVs

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Low Carbon Vehicle Partnership

LCV 10 Sep 2014



LowCVP – Vision, Mission and Aims

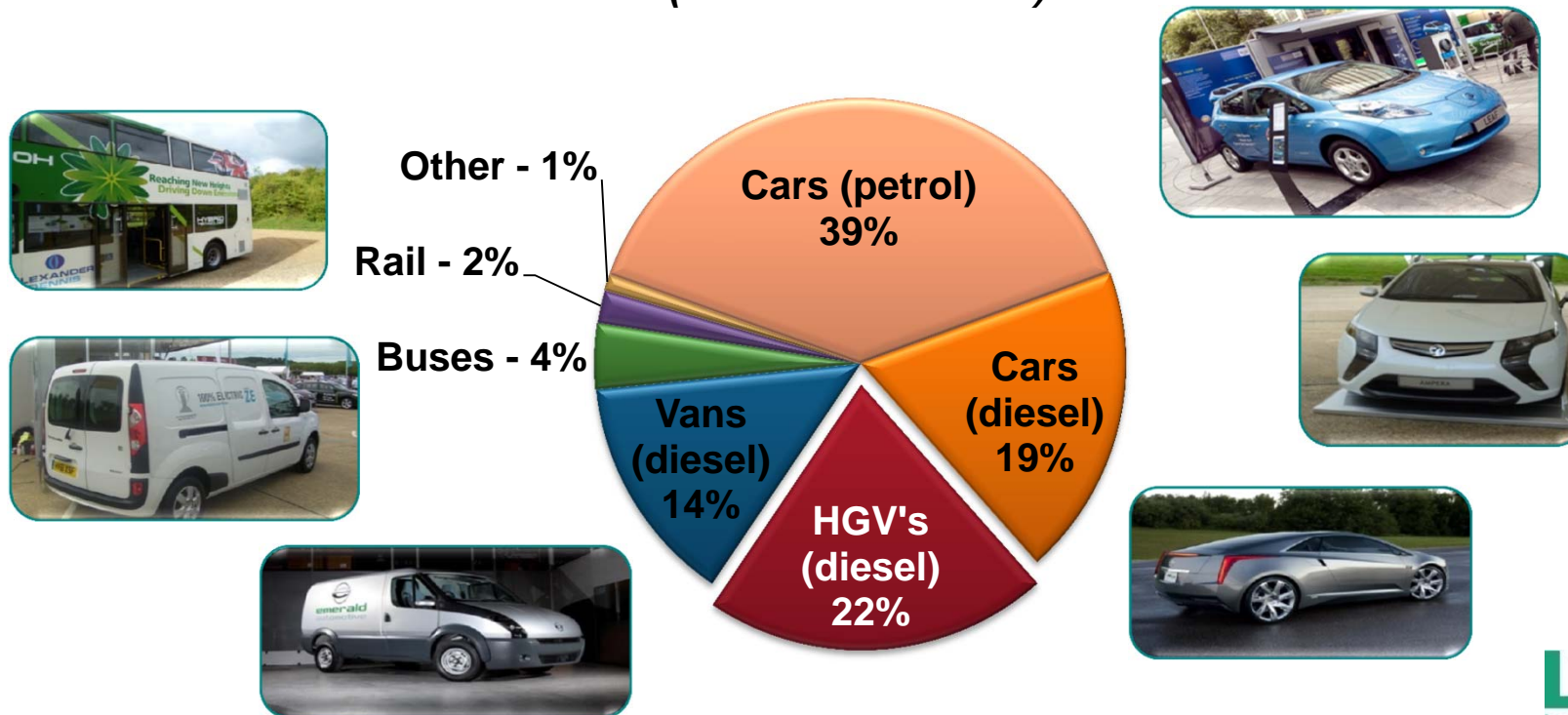
The LowCVP is an independent, not-for-profit stakeholder partnership funded mainly through government grants and member contributions.

The LowCVP is the only organisation in the UK – or Europe – which brings stakeholders together working towards **“Accelerating a sustainable shift to low carbon vehicles and fuels and stimulating opportunities for UK businesses”**

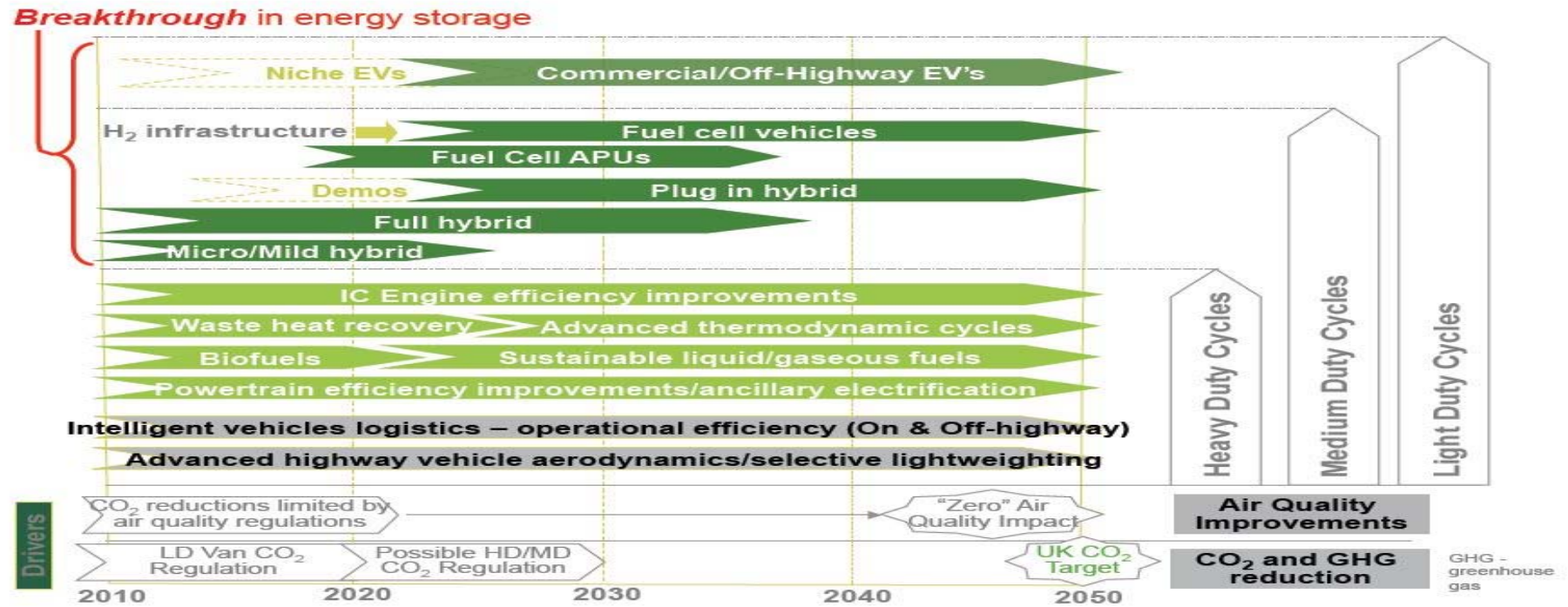
- Through:
 - **Connecting** stakeholders to **build understanding and consensus** regarding the optimal pathways to low carbon road transport.
 - **Collaborating** on initiatives that **develop the market** for low carbon vehicles and fuels.
 - **Influencing Government and other decision makers** on future policy directions and optimal policy mechanisms.

HGVs currently account for 22% of transport CO2 With fewer options available to decarbonise

*Surface Transport CO2 Emissions sources (2012)
(source NAEI 2014)*



HGV technology roadmaps developed

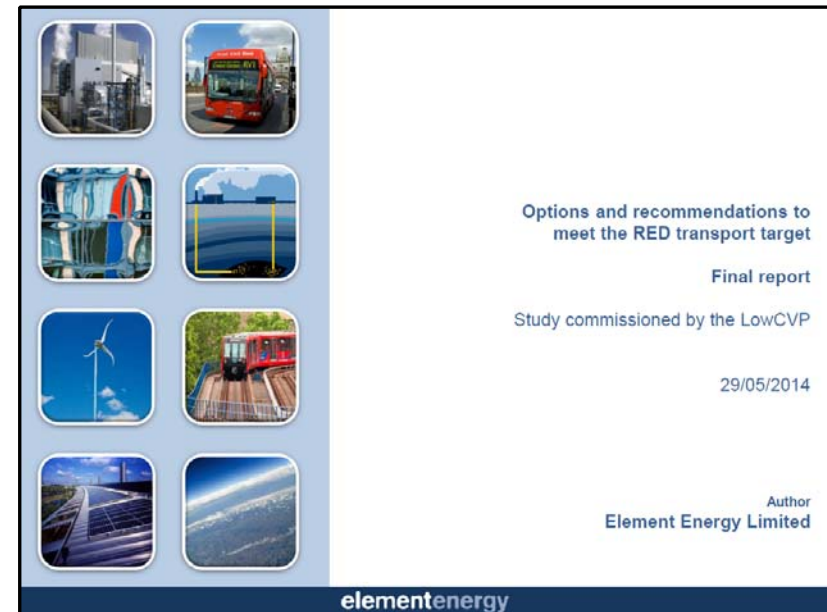


Starting at the end?

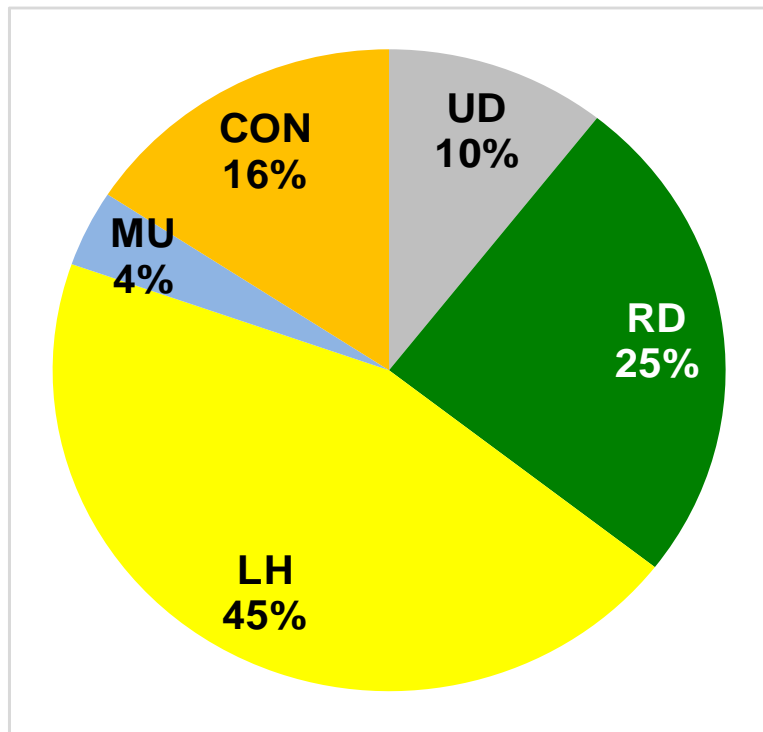
- *Operational improvements*
 - *Routing, loading, driving, telematics*
- Using the lowest carbon fuel for the vehicle
 - Existing biodiesel blends
- Using the most efficient vehicle and existing technology
 - Aerodynamics, LRR Tyres, ancillary load efficiencies
- Applying conversion technology
 - Gas conversions, dual-fuel options
- Developing and applying new products

Using a low carbon diesel fuel

- LowCVP fuels roadmap identified the challenges in meeting the Renewable Energy Directive (RED) in 2020 and a trajectory for lower carbon fuels in transport from 2020 to 2030.
- Use of UCO (Used Cooking Oil) in Diesel vehicles is a key enabler for UK to meet the RED



LowCVP report showed 70% of HGV Carbon from Long haul and Regional delivery



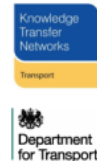
Ranking of duty cycles by CO₂ emissions share:

1. Long haul (44-46 %)
2. Regional Delivery (24-25 %)
3. Construction (15-16 %)
4. Urban Delivery (10-12 %)
5. Municipal Utility (4 %)

The ranges indicate the variation due to low, central and high distance estimates.

RICARDO-AEA

Opportunities to overcome the barriers to uptake of low emission technologies for each commercial vehicle duty cycle



Report for the Task Force on Fuel Efficient, Low Emission HGV Technologies, funded by the Transport Knowledge Transfer Network and delivered through the LowCVP
Ricardo-AEA/R1ED58189
Issue Number 5
Date 30th November 2012



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Identified 3 Key opportunities for HGV technology

No one technology or fuel will achieve all the reductions required, but three key areas are:

1. Switching to gas

Needs a clear Strategy and evidence base

Up to 65 % (biomethane) / 16% (methane) WTW savings

Opportunities for UK plc, Potential Air Quality benefits.

2. Improving aerodynamic efficiency / reducing rolling resistance

Needs market wide adoption

Up to 10 % savings

Established and existing technology, low cost quick payback

3. Supporting uptake of hybrid / pure electric vehicles -

Needs Government support

Up to 8 % WTW savings

Focused on urban operation, high cost and economic case very difficult without support.

Barriers to uptake or existing technology

- Credibility of manufacturer claims for fuel saving performance
- Plethora of devices and additives with wide variety of test data.
- No consistent approach
- Lack of resource to evaluate real benefits
- Inconsistent results from in service testing due to range of variables
- Scepticism of laboratory and simulated test results.
- Concerns over impact on operations

LowCVP HGV Technology Accreditation Scheme

- ❑ Independent testing of technology for trucks
- ❑ Evaluated using track based, whole vehicle, fuel consumption tests.
- ❑ Clear measurement back-back with and w/out technology fitted
- ❑ Tested over 3 operating cycles – urban delivery, regional delivery and long haul
- ❑ Technology assessed for operational impacts

Initial development of standard cycles and test process supported by OLEV, Millbrook, TRL, LowCVP with additional funds from Michelin and Transport KTN.

European Legislation for HDV CO₂ is coming

May 2014 EU commission published a strategy to certify, monitor and report CO₂ emissions from HGV.

In 2015 we expect legislation proposals to start to emerge.

A key component of the EU strategy is a computer simulation tool for modelling carbon emissions and fuel consumption from HDVs

VECTO 2.0.1
19.04.2014



Release Notes

JRC SCIENTIFIC AND POLICY REPORTS

Development of a CO₂ certification and monitoring methodology for Heavy Duty Vehicles – Proof of Concept report

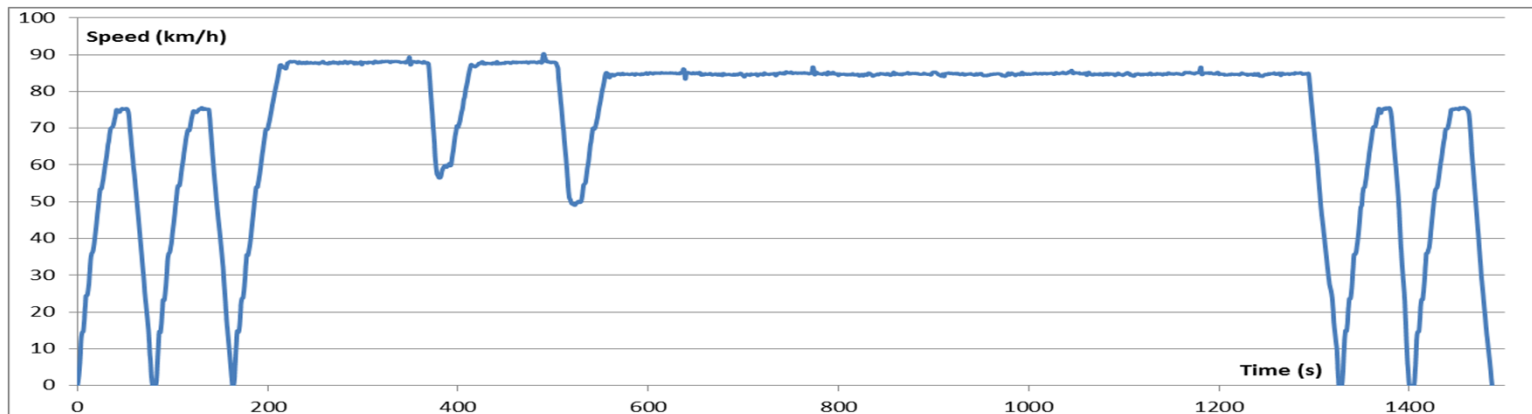
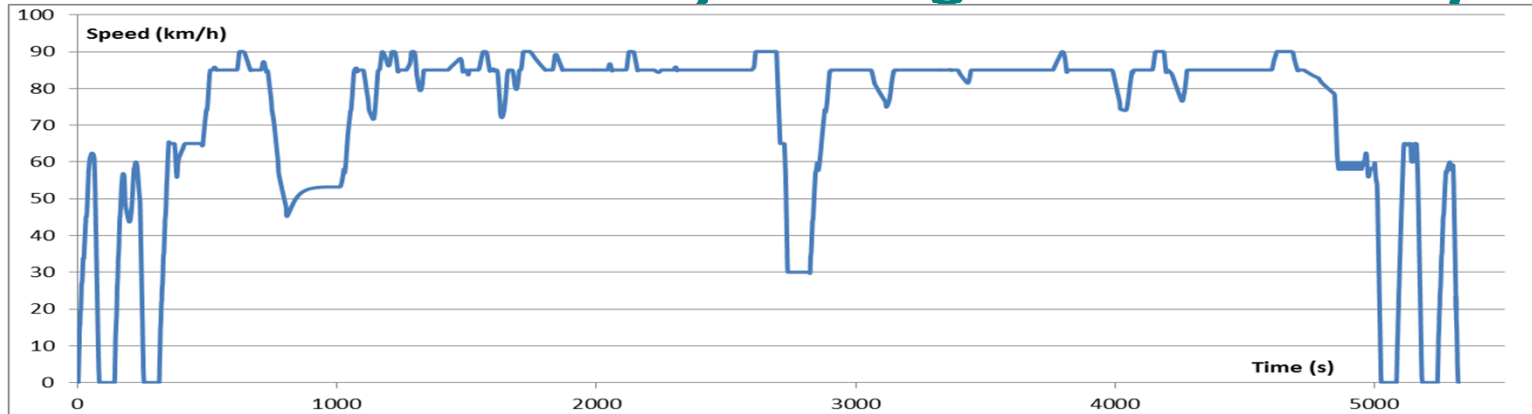
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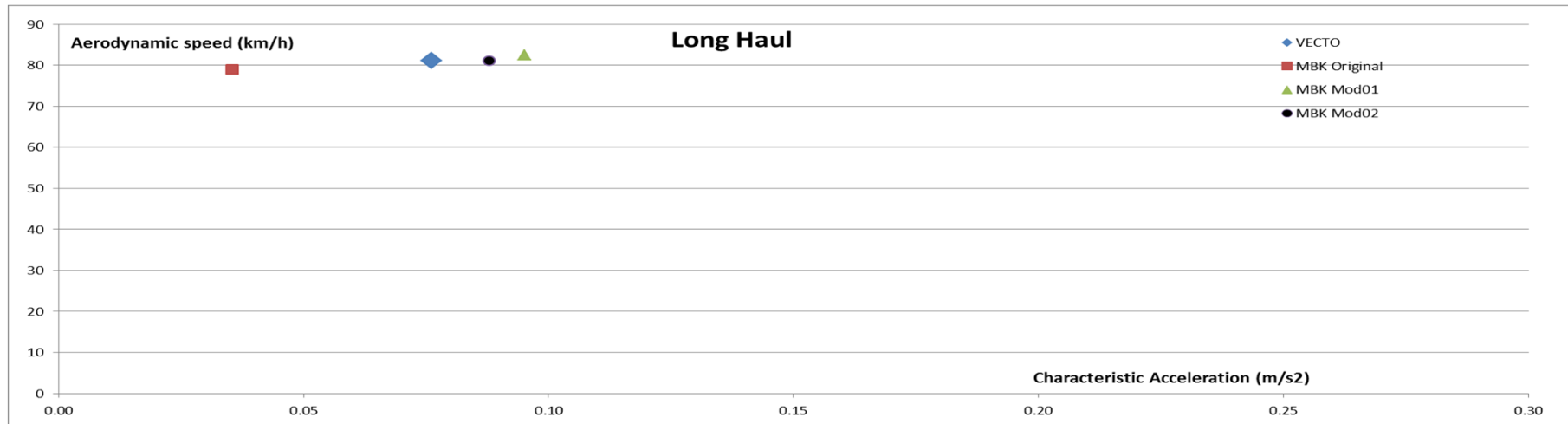
2014

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Accreditation scheme cycles aligned to VECTO cycles



Duty	Long Haul			
	VECTO	MBK Original	MBK Mod01	MBK Mod02
Duration (secs)	5323	1505	1484	1487
Distance (km)	108	32	30	30
Average speed with idle (km/h)	73	76	74	74
Average speed without idle (km/h)	77	76	75	74
Stops per km	0.1	0.1	0.2	0.2
Aerodynamic speed (km/h)	81	79	82	81
Characteristic acceleration (m/s ²)	0.08	0.04	0.10	0.09
Kinetic Intensity (per km)	0.15	0.07	0.18	0.17
Average acc/de-celeration (m/s ²)	0.07	0.08	0.23	0.21
Fuel consumption (1/100km)			36.5	33.5
Fuel consumption (mpg)			7.7	8.4



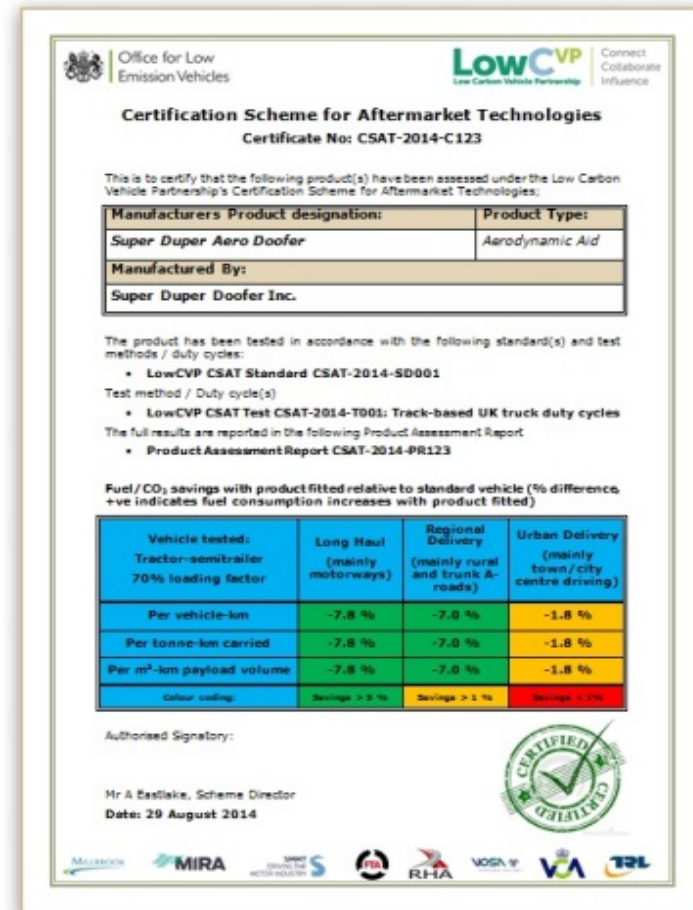
How you can help

Pilot phase of scheme development is nearing completion

LowCVP now requesting **expressions of interest** from both equipment manufacturers and Operators to compile list of testing required.

Further development with interested members

Aim to work with initial partners to finalise market requirements and build initial database for scheme launch.



The Low Carbon Vehicle Partnership

Connect | Collaborate | Influence

- ❑ **Connect:** With privileged access to information, you'll gain insight into low carbon vehicle policy development and into the policy process.
- ❑ **Collaborate:** You'll benefit from many opportunities to work – and network - with key UK and EU government, industry, NGO and other stakeholders
- ❑ **Influence:** You'll be able to initiate proposals and help to shape future low carbon vehicle policy, programmes and regulations



LowCVP is a partnership organisation with over 180 members with a stake in the low carbon road transport agenda.

