

Developing a market for low carbon commercial vehicles and technology

A review of Low Carbon HGV programme

FTA Logistics Carbon Reduction Conference

17th June 2010

Jonathan Murray, Deputy Director

Low Carbon Vehicle Partnership

Agenda

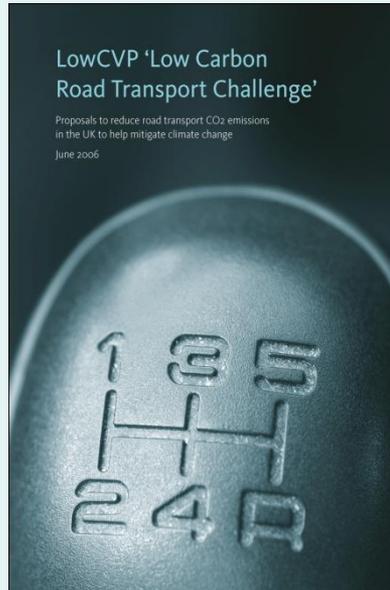
- ❑ Drivers for encouraging the take-up of low carbon technologies
- ❑ Carbon and fuel savings achievable from commercial vehicles
- ❑ The challenge of accrediting low carbon technologies
- ❑ The role for physical testing and how computer modelling can help
- ❑ What is the Low Carbon HGV programme and how HGV fleets can get involved?

Low Carbon Vehicle Partnership

Accelerating a sustainable shift to low carbon vehicles and fuels in the UK

Stimulating opportunities for UK businesses

LOWC^{VP}
low carbon vehicle partnership



LowCVP 'Low Carbon Road Transport Challenge'

Proposals to reduce road transport CO₂ emissions in the UK to help mitigate climate change
June 2006



Fuel Economy		Low Carbon Car												
CO ₂ emissions (g/km) (cycle)		 B 117 g/km												
<100	A													
101-120	B													
121-150	C													
151-185	D													
186-225	E													
226+	F													
Fuel cost (estimated) for 12,000 miles <small>A full size figure is shown to the nearest 4 pence for comparison purposes. This figure is calculated using the combined drive cycle, fleet vehicle and average fuel price. Re-calculated annually, the current cost per litre is 45 pence - petrol (5p), diesel (5p) and LPG (5p) (10p/MpG 2005).</small>		£662												
VED for 12 months		£50												
Environmental Information A guide on fuel economy and CO ₂ emissions which contains data for all new passenger car models is available at any point of sale free of charge. In addition to the fuel efficiency of a car, driving behaviour as well as other non-technical factors play a role in determining a car's fuel consumption and CO ₂ emissions. CO ₂ is the main greenhouse gas responsible for global warming.														
Make/Model: Low Carbon Car	Engine Capacity (cc): 1399													
Fuel Type: Diesel	Transmission: 5 speed manual													
Fuel Consumption: <table border="1"> <thead> <tr> <th>Drive cycle</th> <th>Litres/100km</th> <th>Mpg</th> </tr> </thead> <tbody> <tr> <td>Urban</td> <td>5.4</td> <td>52.3</td> </tr> <tr> <td>Extra-urban</td> <td>3.8</td> <td>74.2</td> </tr> <tr> <td>Combined</td> <td>4.4</td> <td>64.2</td> </tr> </tbody> </table>			Drive cycle	Litres/100km	Mpg	Urban	5.4	52.3	Extra-urban	3.8	74.2	Combined	4.4	64.2
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Urban	5.4	52.3												
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Combined	4.4	64.2												
Carbon dioxide emissions (g/km): 117 g/km <small>Important note: Some specifications of this make/model may have lower CO₂ emissions than this. Check with your dealer.</small>														

LowC^{VP} marketing challenge

CARS NOT CARBON
A competition to promote greener motoring marketing

Event outline

Winners to be announced at the LowCVP Annual Conference
28th June 2007
DTI Conference Centre, Westminster

Accelerating the shift to low carbon vehicles and fuels

LowC^{VP} Accelerating the Shift to Low Carbon Vehicles and Fuels

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Welcome

The Low Carbon Vehicle Partnership is an action and delivery programme, established in 2005 to take a lead in accelerating the shift to low carbon vehicles and fuels in the UK, and to help ensure that UK businesses are ready to take full advantage of the opportunities of a low carbon economy.

The LowCVP is a partnership of nearly 250 organisations from the automotive and fuel industries, the environmental sector, government, academia, road user groups and other organisations with a share in the low carbon vehicle and fuel agenda.

Latest news

LowCVP Annual Conference, 28 June, [agenda overview](#)
28/06/2007

The LowCVP's fourth annual conference on June 28th will feature a high profile Mixup of speakers - including Transport Secretary Douglas Alexander - and will focus on some of the key challenges in the sector to realise the climate change targets of road transport.

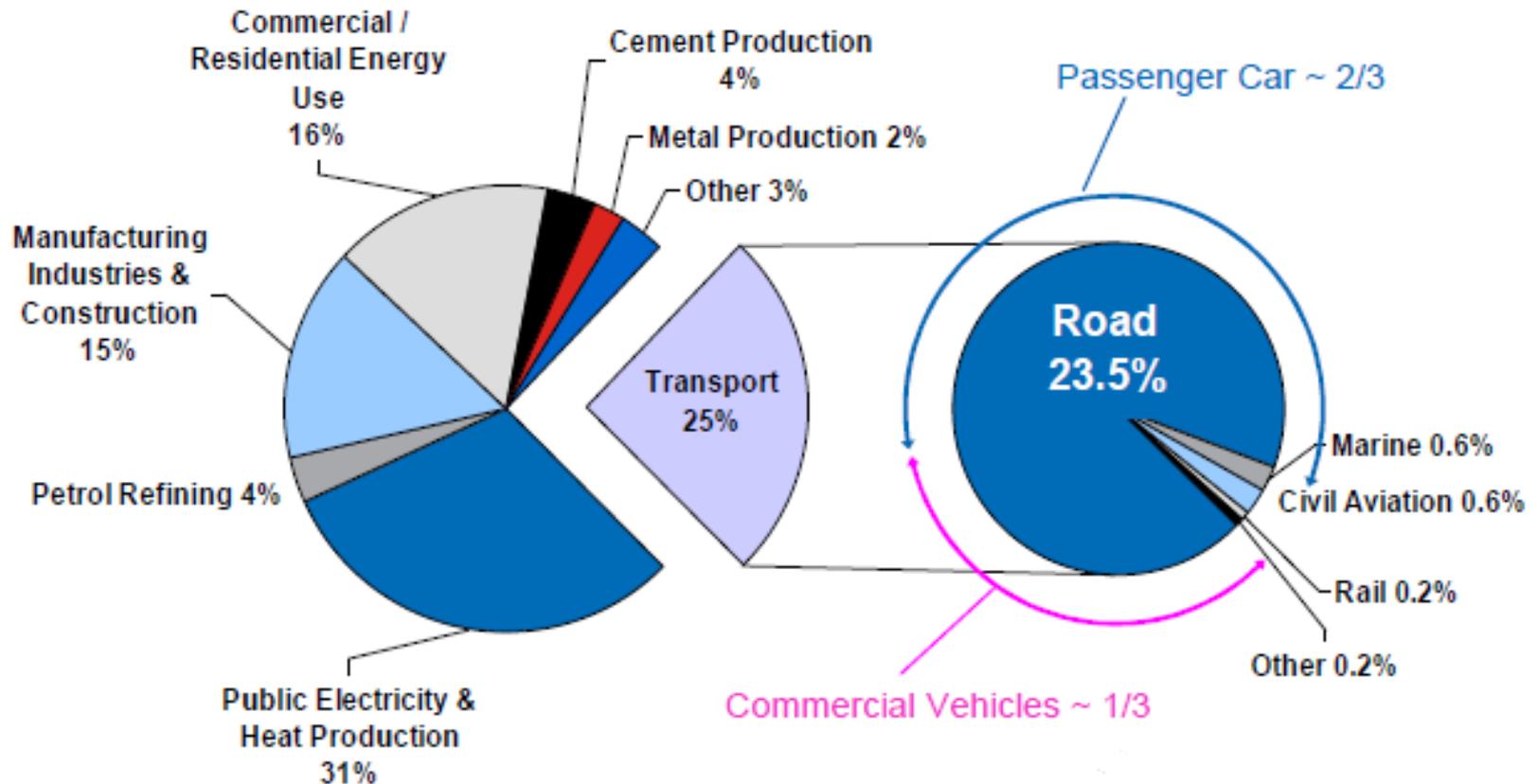
Call-Minus opportunities at LowCVP Conference, 28 June, [London](#)
28/06/2007

There are a limited number of spaces for attendees at the LowCVP annual conference which will take place on 28th June in central London. The event, which has been held successfully in recent years, provides a great opportunity for industry products and services related to the low carbon road transport agenda in a high profile setting.

Support our member directory

2007 Conference will be sponsored by Low Carbon Transport Innovation Challenge (LCTIC) alongside the Energy White Paper. The LCTIC sets out an overall framework through which

Road transport accounted for 23.5% of man-made CO2 emissions in 2007 and has been increasing since 1990



Source: DfT

Road freight – Low carbon technologies

- ❑ The *Low Carbon Transport: A Greener Future* states that

“DfT aims to determine the best incentives – regulation, support for investment or best practice – to encourage greater uptake of lower carbon HGV technologies and help industry achieve significant reductions in fuel consumption and CO2 emissions from HGV operations.”

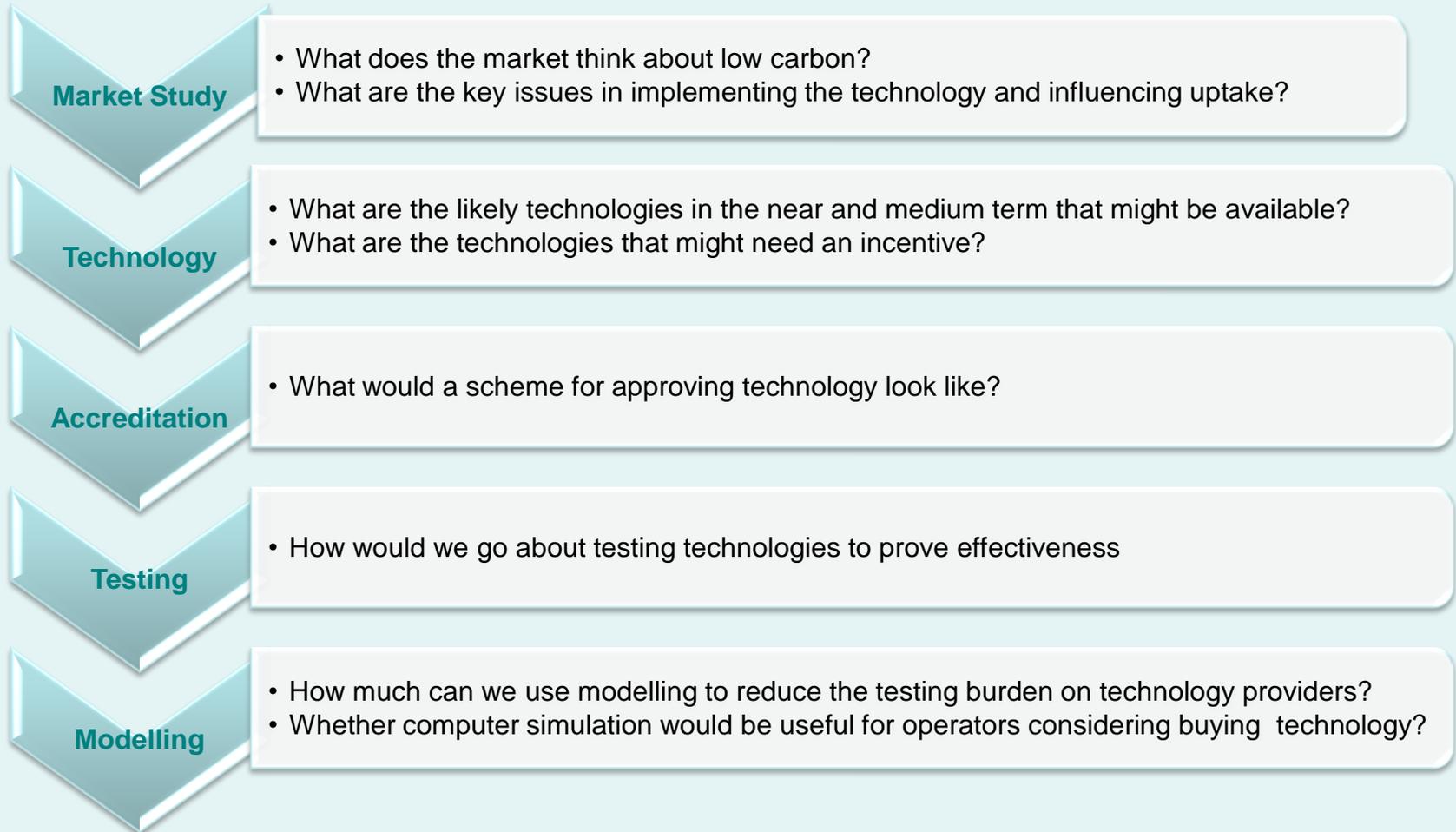
- ❑ DfT requested the LowCVP to advise them on how best this might be done.
 - LowCVP undertook the low carbon HGV programme in Dec 2010
 - Established a steering group for the project representing all key stakeholders, including FTA.
 - Aim to provide a mechanism which could be implemented by April

2011

Objective of the low carbon HGV programme

- “Develop an objective whole vehicle definition of a low carbon commercial vehicles reflecting different operational requirements which is appropriate for the basis for incentivisation through fiscal or policy measures.”
 - Confirm the technologies which should be prioritised in encouraging a reduction in carbon emissions from HGVs.
 - Determine whether it is possible to develop a performance measure or target for HGVs which could be used as well as or instead of incentivising one or more particular technologies.
 - Evaluate options to incentivise low carbon HGVs or selected technologies.

Low carbon HGV work programme has five main themes

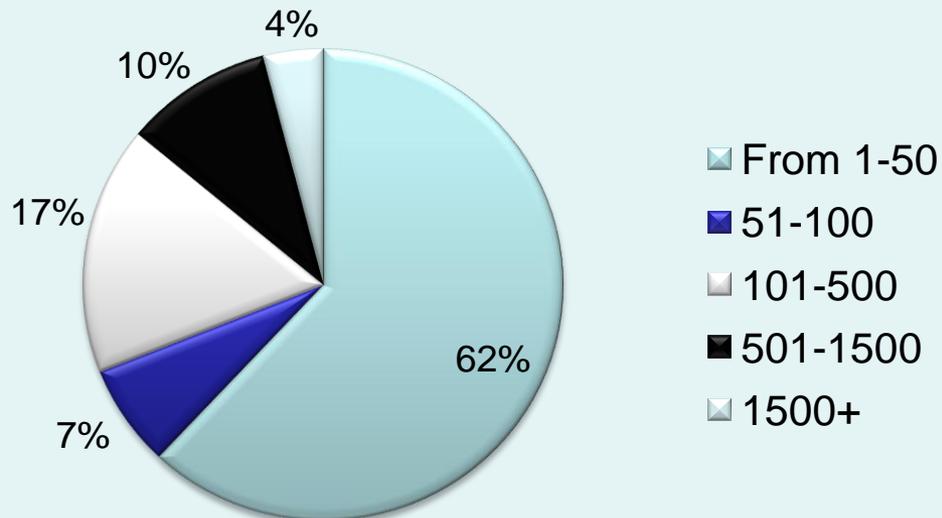


Fleet survey shows demand for independent verification of fuel saving claims and need for quick return on investment for fleets

Main Conclusions

- ❑ Generally a good understanding of technologies are available in this area.
- ❑ Practical experience of using – driven by efficiency and regulation
- ❑ Doubts over fuel savings claims made – **need for independent verification**
- ❑ Additional cost is a barrier – if short payback then will consider – otherwise subsidise.

Operator Fleet Size



Source: AEA Technology

Technologies were assessed through a four stage process for four types of operation

Technology road mapping process



Four applications



Heavy Goods



Inter city delivery



City delivery

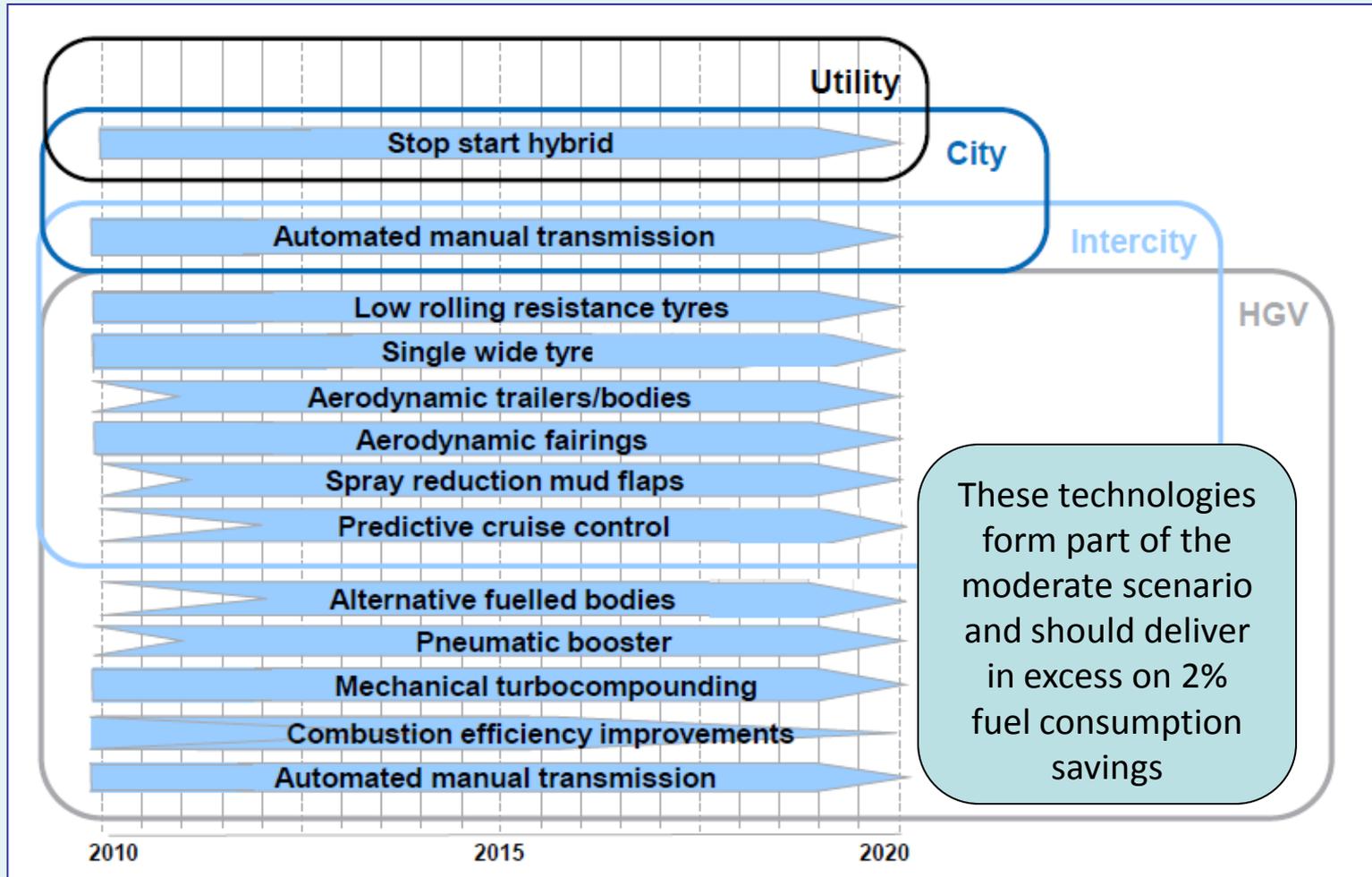


Utility

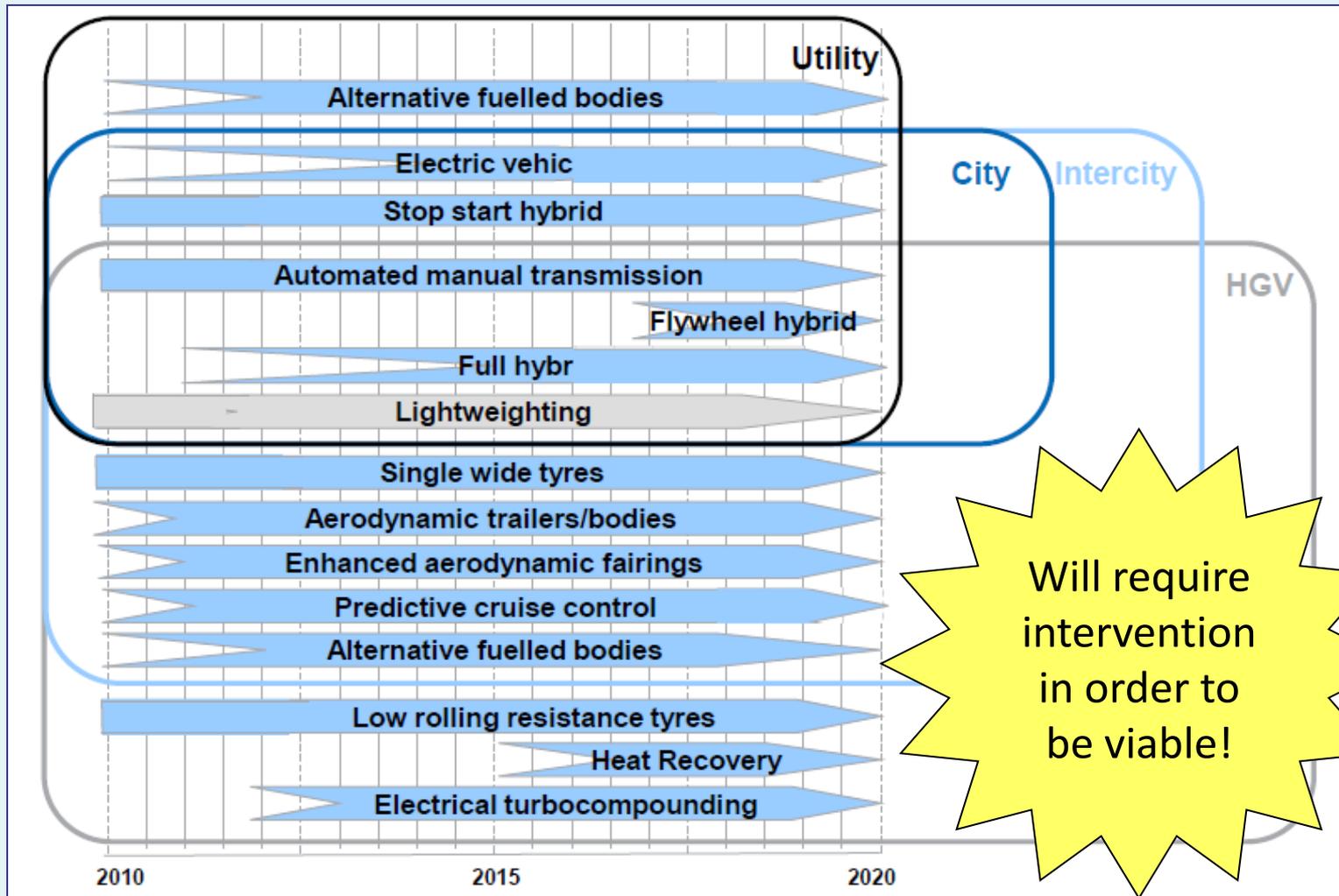
Technology Areas

Vehicle		Powertrain		Fuel	
Aerodynamics	Fairings Trailers Spray suppression	Efficiency	Combustion Friction Acillaries Gas Exchange Waste heat use Trans/Driveline	Alternatives	Natural gas Biofuels Biogas Electricity Hydrogen
Rolling	Low Res tyres				
Resistance	Single wide tyres Auto tyre pressure				
Driver / Control	Predictive cruise AMT	Alternatives	Fuel cells/Evs Hybrids/ICE		

Vehicle and powertrain technologies which are likely to be commercially viable by 2020

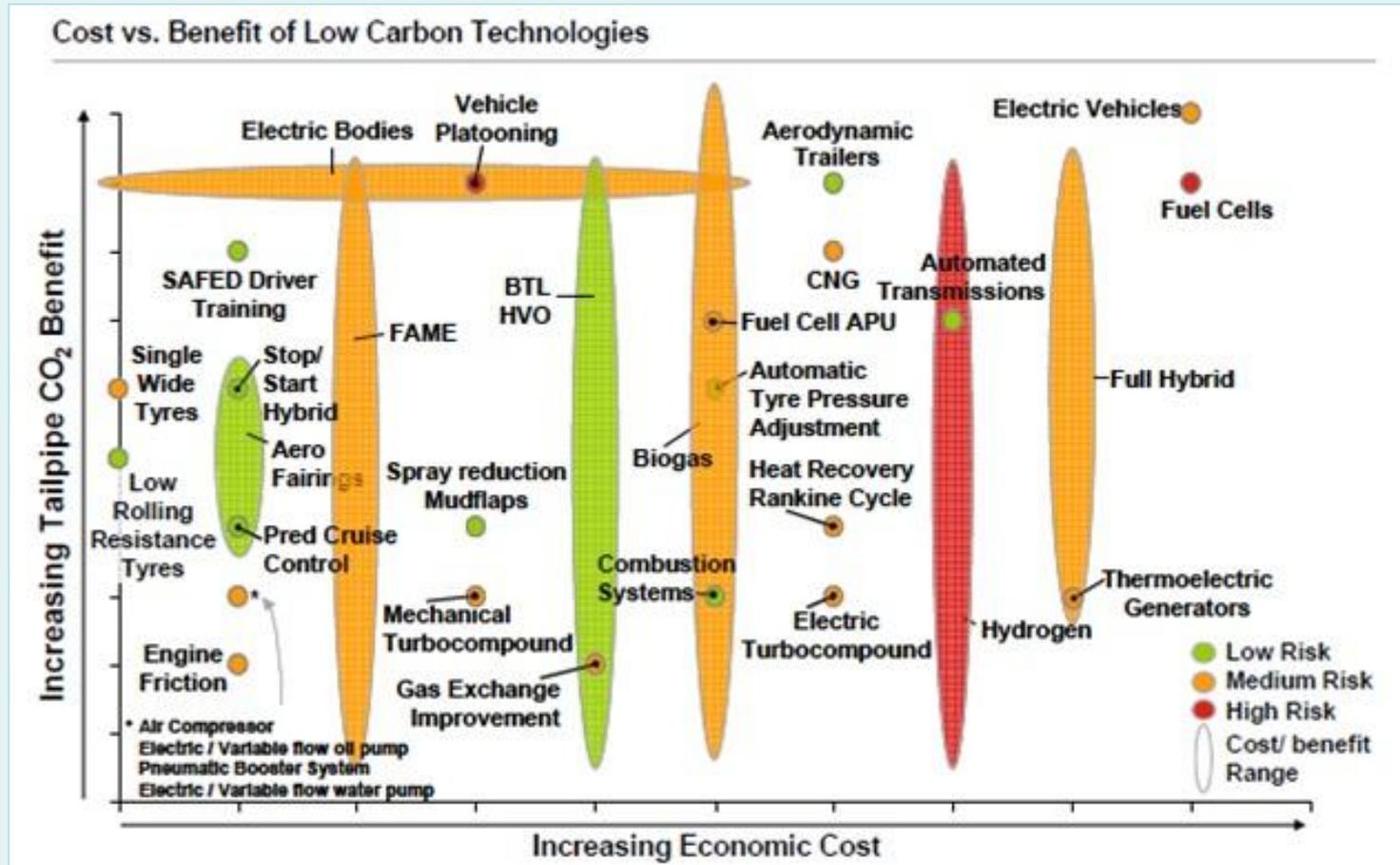


Technologies which can deliver more aggressive fuel savings but are unlikely to be commercially viable



Will require intervention in order to be viable!

Comparing CO₂ benefit with cost for medium and heavy commercial vehicles reveals application specific trade-offs



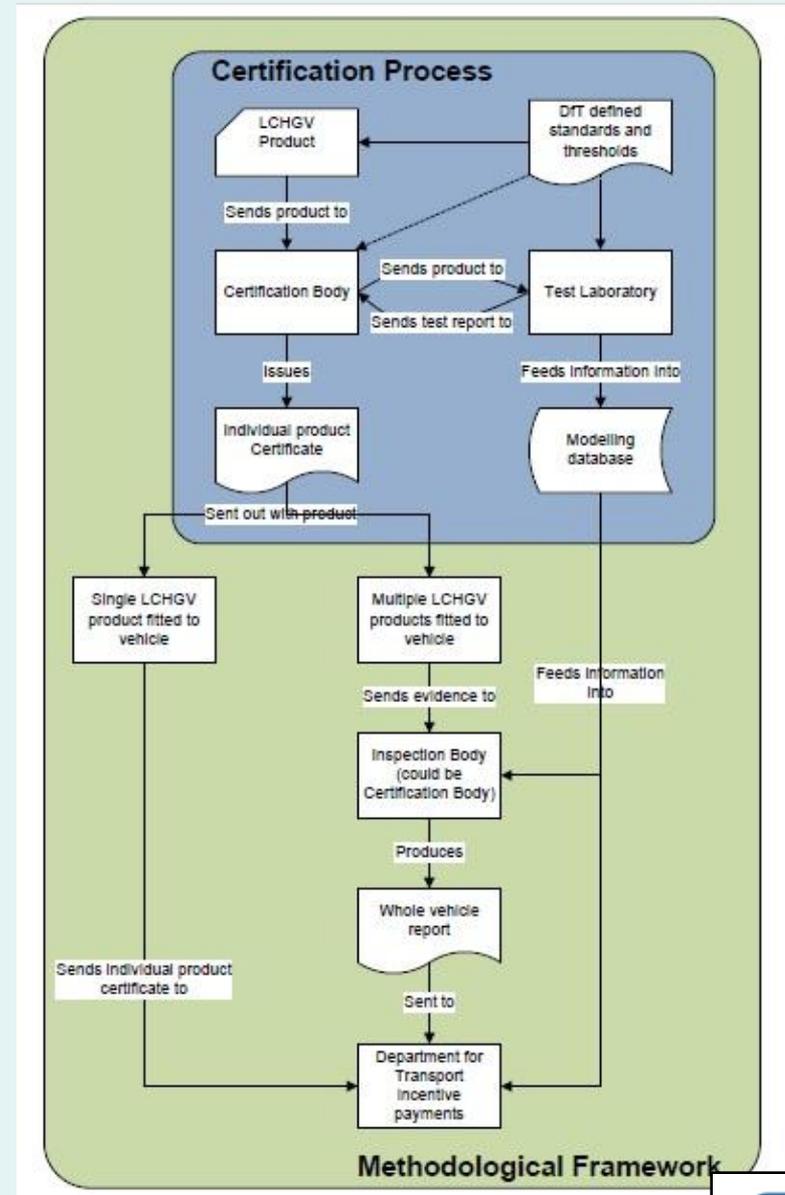
Accreditation of low carbon technologies and HGVs

□ Certification Process

- Designed to be cost effective by combining physical tests and computer modelling
- Requires a range of appropriate robust tests
- Computer model needs to reflect vehicle spec and driver cycle

□ Methodological framework

- Allows for single or multiple technologies to be fitted to vehicle
- Modelling history allows process to become self validating



Programme of testing various technologies using different tests to determine sensitivity



Track testing comprised a number of elements

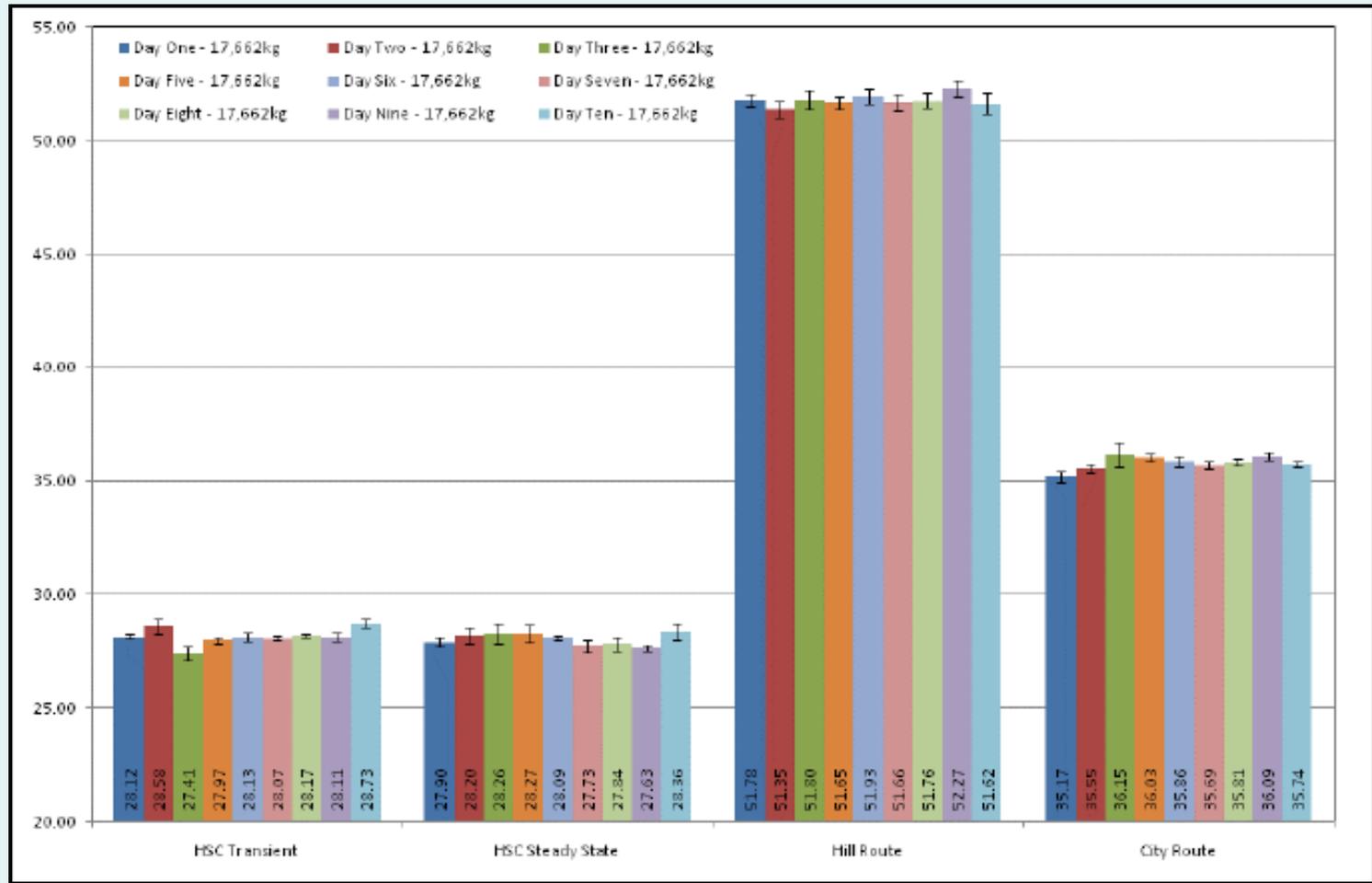
- High speed circuit
- Hill circuit
- City circuit
- 1mile straight for coast down
- Requires use of benchmark vehicle

Chassis dynamometer

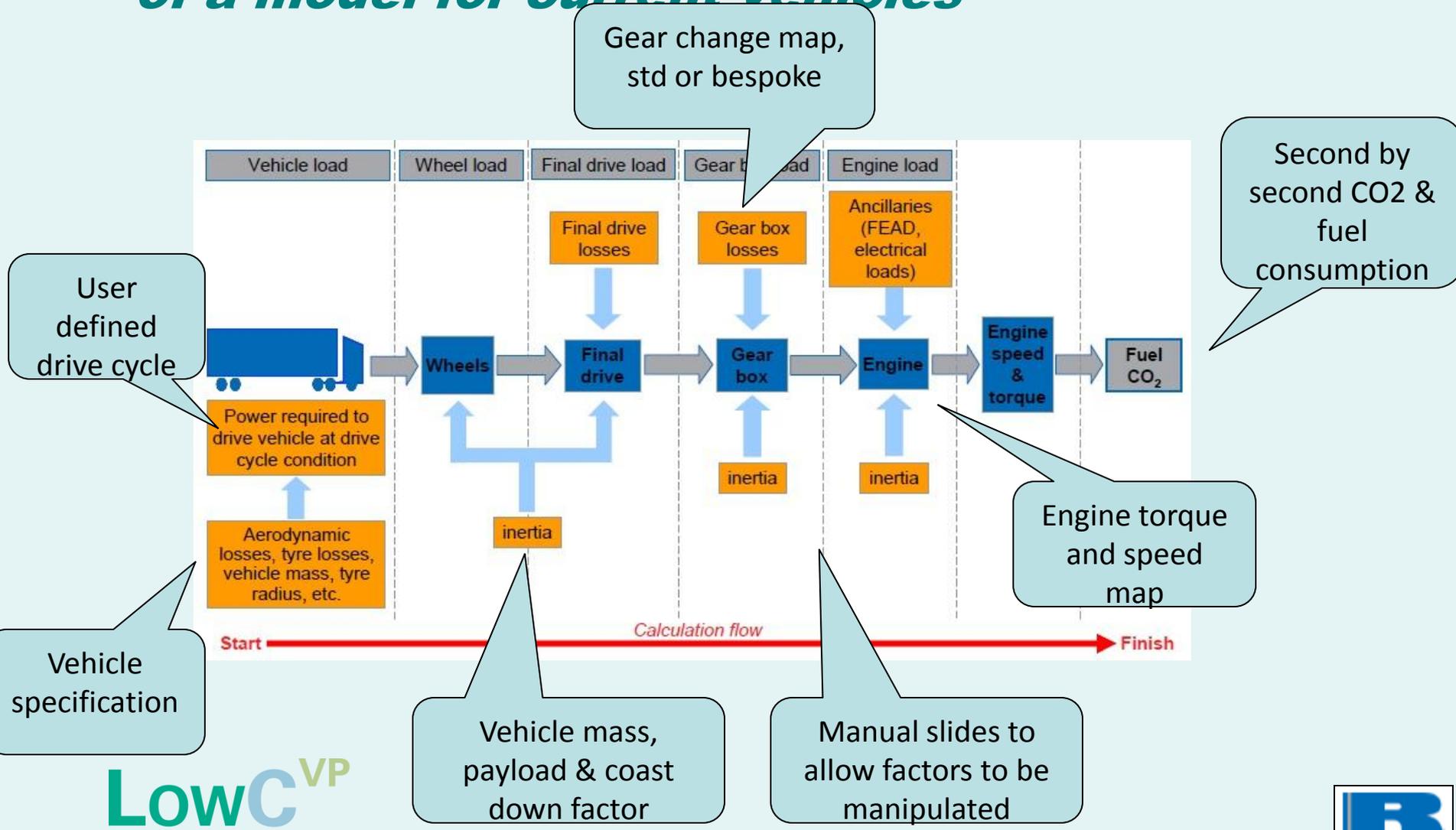
- Variable temperature emission chamber
 - Can be tailored to duty cycle within reason



High level of confidence in repeatability, and ability to indentify changes in fuel consumption down to ~2%.



The use of computer modelling is being investigated, initially with the development of a model for current vehicles



A range of mechanisms are under consideration to encourage the uptake of low carbon technologies

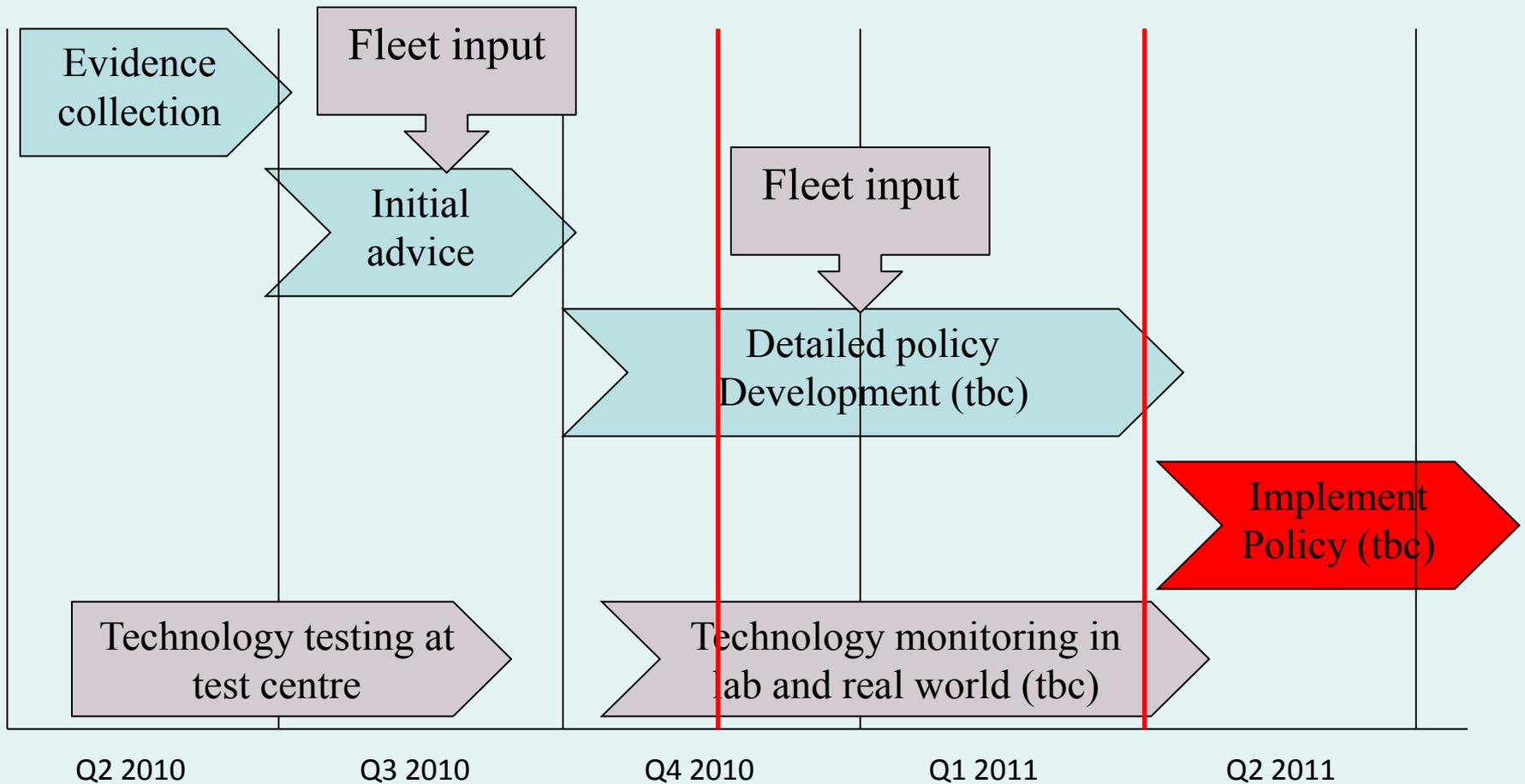
□ Whole vehicle:

- Fiscal/grant schemes aimed at low emissions vehicles – would need to combine with whole vehicle accreditation and buyer information
- Most focussed on incentivising specific powertrains - many stipulate EV or Hybrid

□ Technology focussed:

- ECA could be suitable model for fleet operator incentivisation – however only applies to new technology and not to organisations not eligible for tax relief – e.g. LA fleets.
- Certification schemes – e.g. Reduced Pollution Certificate for Trucks and Buses could extend to include other technologies.
- Linking to VED - need means to determine CO2 benefits and individual for each vehicle type and option combination (testing/modelling projects)
- Retrofit technologies – tax credit scheme for EV conversion kit

Accreditation of low carbon technologies and trucks could be as early as April 2011



Summary

- ❑ Road transport is an important source of carbon dioxide and fuel consumption is a major cost to the transport industry.
 - We need to reduce both.
- ❑ There are a lot of claims regarding low carbon technologies
 - Clear guidance which is backed up with evidence is needed
- ❑ Accreditation process is being developed which will use a combination of physical tests and computer modelling.
 - The aim is to be technology and cost neutral.
- ❑ Moderate low carbon technologies may be commercially viable while technologies deliver more aggressive reductions in carbon may need to be incentivised
 - Could be as early as FY 2011-12
- ❑ We are interested in hearing your views and we're looking for HGV operators to get involved.

Thank You!

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The Low Carbon Vehicle Partnership

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