

# Using public procurement to advance technological innovation in buses

**Bus 2009**

**17 March 2009**

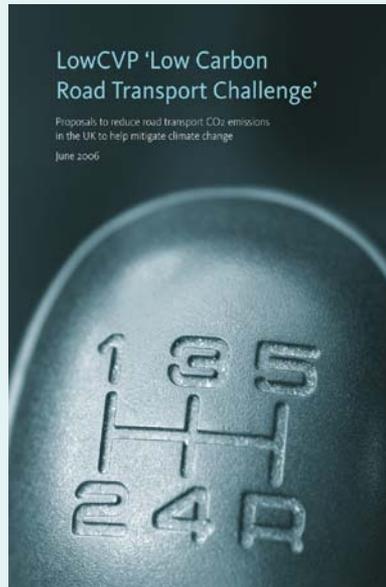
**Jonathan Murray**

**Deputy Director, Low Carbon Vehicle Partnership**

# Low Carbon Vehicle Partnership

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

**Stimulating opportunities for UK businesses**



Fuel Economy		Low Carbon Car												
<p>CO<sub>2</sub> emissions (g/km) (cycle)</p> <ul style="list-style-type: none"> <li>&lt;100 A</li> <li>101-120 B</li> <li>121-150 C</li> <li>151-180 D</li> <li>181-225 E</li> <li>226+ F</li> <li>226+ G</li> </ul>		<b>B</b> 117 g/km												
<p>Fuel cost (estimated) for 12,000 miles</p> <p>VED for 12 months</p>		<p>£662</p> <p>£50</p>												
<p><b>Environmental Information</b></p> <p>A guide on fuel economy and CO<sub>2</sub> 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<sub>2</sub> emissions. CO<sub>2</sub> is the main greenhouse gas responsible for global warming.</p>														
<p>Make/Model: Low Carbon Car</p> <p>Fuel Type: Diesel</p>		<p>Engine Capacity (cc): 1996</p> <p>Transmission: 5 speed manual</p>												
<p><b>Fuel Consumption:</b></p> <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>53.3</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	53.3	Extra-urban	3.8	74.2	Combined	4.4	64.2
Drive cycle	Litres/100km	Mpg												
Urban	5.4	53.3												
Extra-urban	3.8	74.2												
Combined	4.4	64.2												
<p>Carbon dioxide emissions (g/km): 117 g/km</p> <p>Important note: Some specifications of this model may have lower CO<sub>2</sub> emissions than this. Check with your dealer.</p>														
<p> </p>														



**LowC<sup>VP</sup> marketing challenge**

**CARS NOT CARBON**  
A competition to promote a 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

**cenex**

**LowC<sup>VP</sup>** Accelerating the Shift to Low Carbon Vehicles and Fuels

[Home](#) | [Welcome](#)  
[About LowC<sup>VP</sup>](#) | [The LowC<sup>VP</sup> website](#)  
[LowC<sup>VP</sup> Flypaper](#) | [The LowC<sup>VP</sup> website](#)  
[Cutting Carbon](#) | [The LowC<sup>VP</sup> website](#)  
[Our Members](#) | [The LowC<sup>VP</sup> website](#)  
[News](#) | [The LowC<sup>VP</sup> website](#)  
[Events](#) | [The LowC<sup>VP</sup> website](#)  
[Resource Library](#) | [The LowC<sup>VP</sup> website](#)  
[Member's Area](#) | [The LowC<sup>VP</sup> website](#)  
[Contact](#) | [The LowC<sup>VP</sup> website](#)

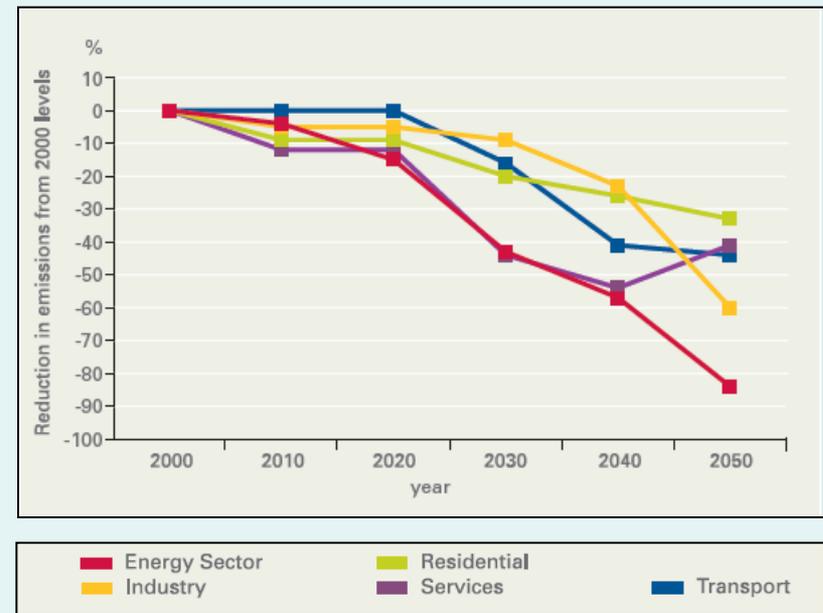
# Creating the conditions for low carbon transport

□ If the UK is to achieve the reduction in carbon emissions envisaged by the Energy Whitepaper then we need

- To introduce low carbon technology
- In addition to demand management and modal shift

□ However in order for the innovation process to work well requires there to be a clear market signal.

- In the case of climate change there is a clear market failure
- In the specific case of the bus market in the UK there are market barriers

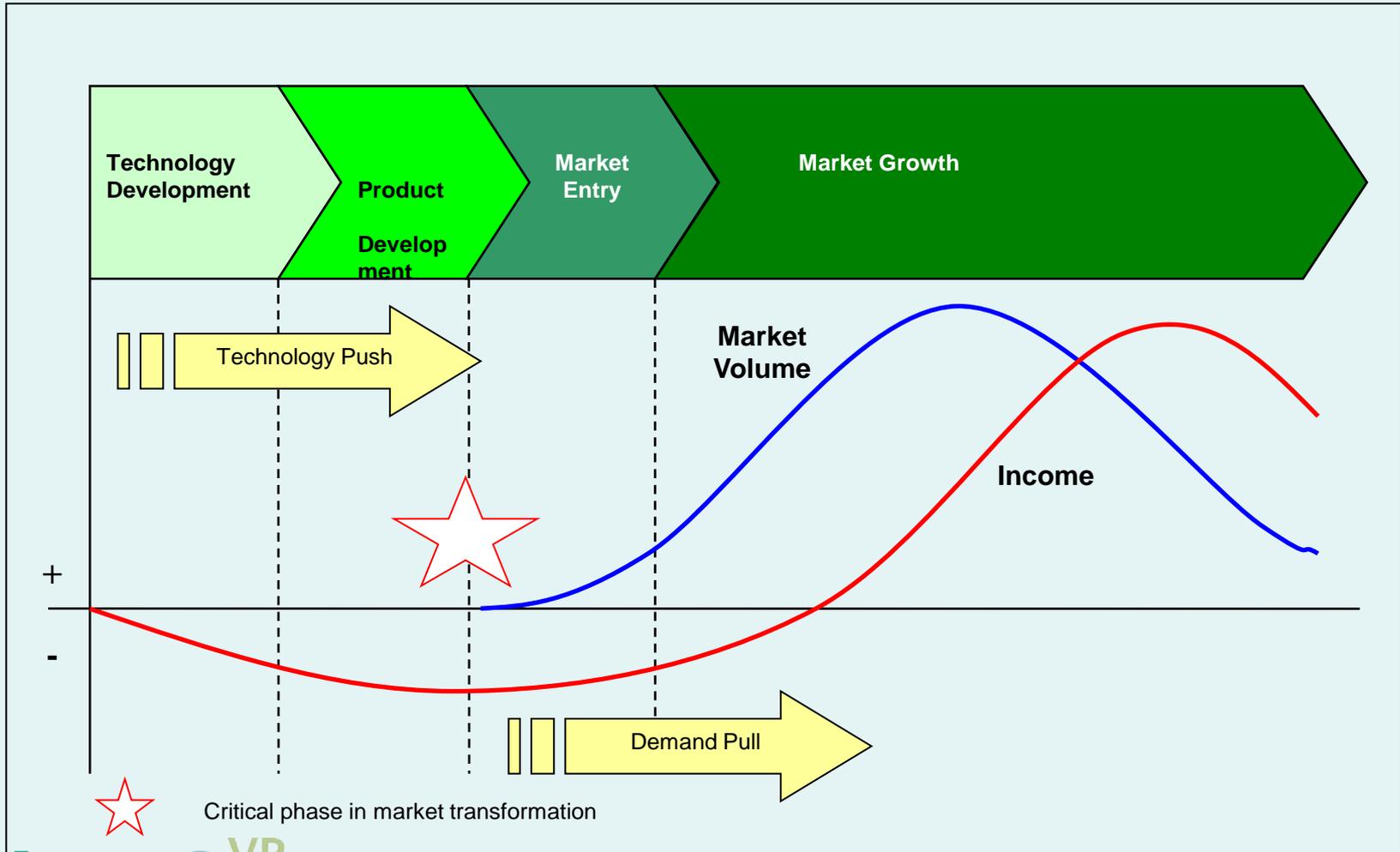


Source: Energy White Paper

## *Emerging policy supporting the use of procurement of Innovation*

- ❑ **New EU and national government interest** in use of pre-commercial procurement of innovation as a means of pulling new technology into the marketplace
  - Public procurement of good and services accounts for over 16% of European GDP.
  - Competitiveness Agenda
  
- ❑ The **Environment Innovations Advisory Group (EIAG)**, in the UK, is pioneering use of Forward Commitment Procurement of innovation as means to achieve business and environmental objectives
  - Unique role of Government in the environment
  - Process to manage risk

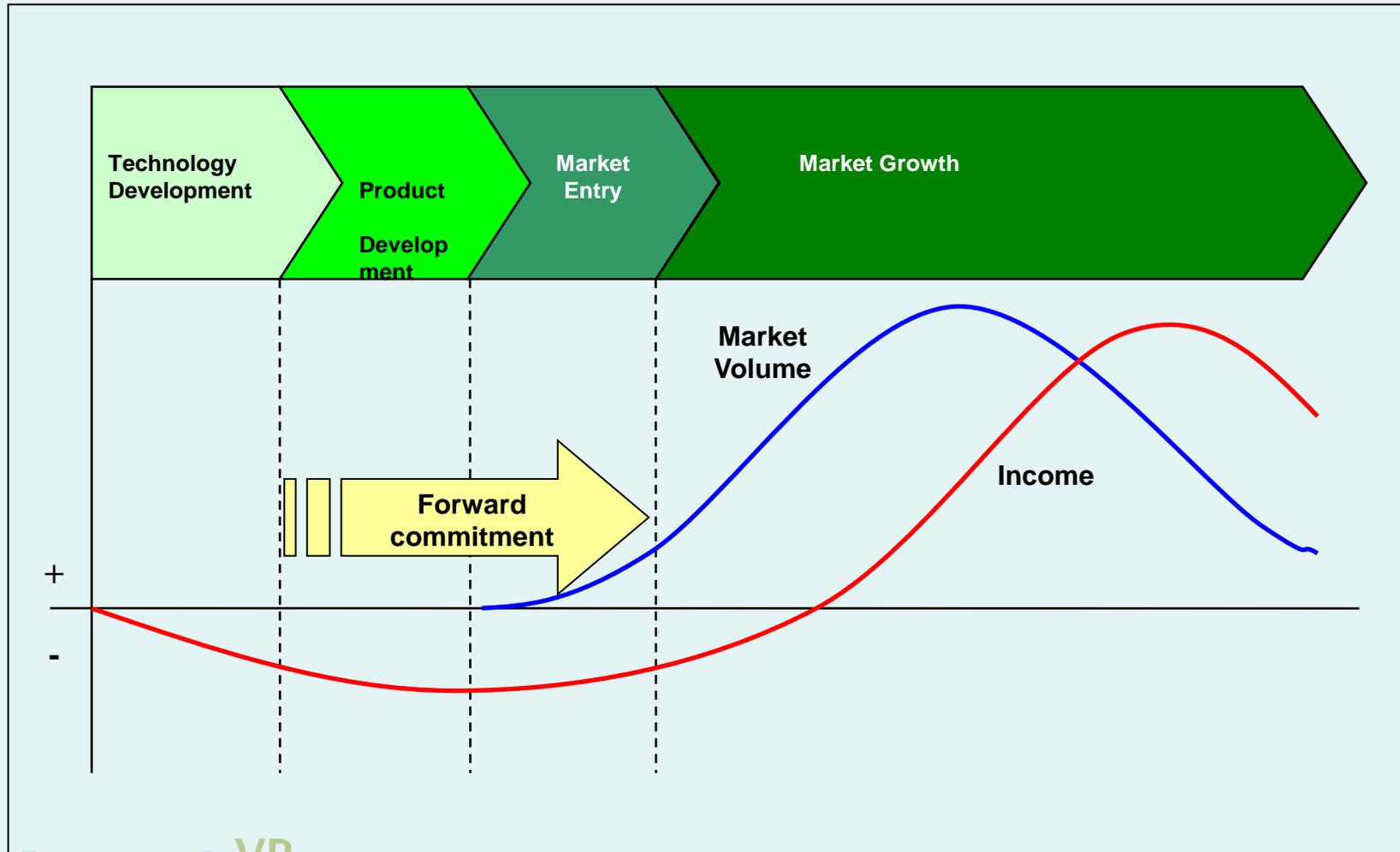
# Market failure is holding back the development of low carbon buses



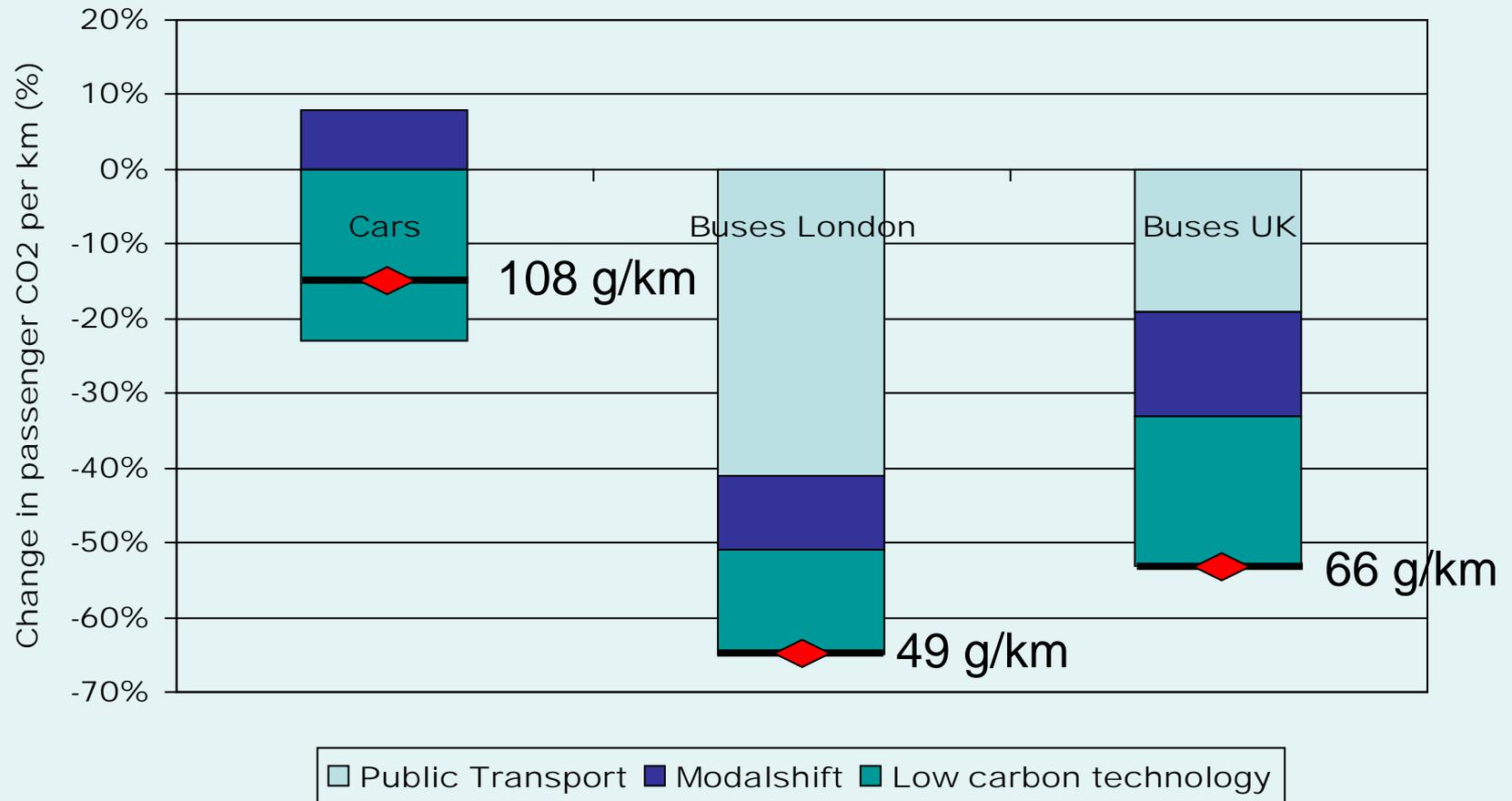
## *Forward Commitment Proposition*

- ❑ An organisation/s commits to purchase a pre-defined quantity of a product\technology currently under development but not yet available as a commercial offering
- ❑ The commitment is for a future date and is based on a specified **product performance** being achieved
- ❑ The supply of a product meeting this performance specification within the agreed timeframes and framework triggers the Forward Commitment
- ❑ The Forward Commitment is for a quantity of product sufficient to **encourage supplier investment** to ensure economies-of-scale
- ❑ The Forward Commitment is enacted within the usual framework of best practice public procurement

*A Forward Commitment provides a clean signal of demand, helps secure investment and manages risk*



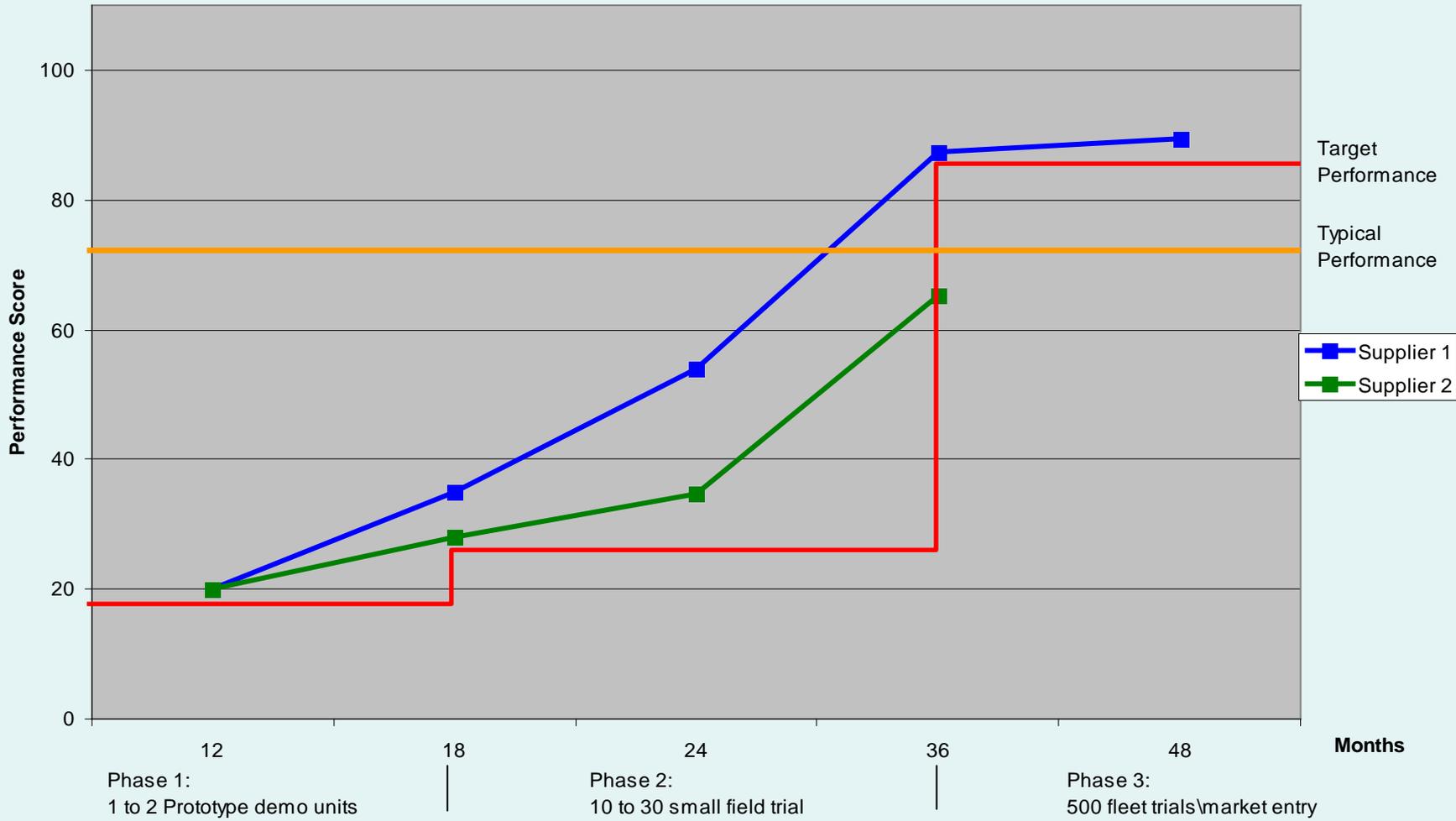
*Low carbon buses have a very significant role to play in reducing CO2 emissions from road transport.*



# *Feasibility of low carbon bus procurement outside London*

- LowCVP commissioned the study to assess the feasibility of using a Forward Commitment Strategy to procure low carbon buses in the UK. Key issues included;
  - The level of interest amongst stakeholders in low carbon bus procurement.
  - Whether the current and future policy levers are sufficient to support a market for low carbon buses, in particularly outside London.
  - What contractual structures would be required to deliver a Low Carbon Bus Forward Commitment.
  - What size of order is required to establish economies of scale.
  - Whether low carbon buses are viable and identify potential sources of financing the forward commitment.
  - Develop a draft low carbon bus specification as a basis for future discussion with stakeholders.

# Forward Commitment



# *Stakeholder interest in low carbon buses*

- ❑ Significant support from stakeholders in the UK bus market to form the basis for a Forward Commitment for low carbon buses.

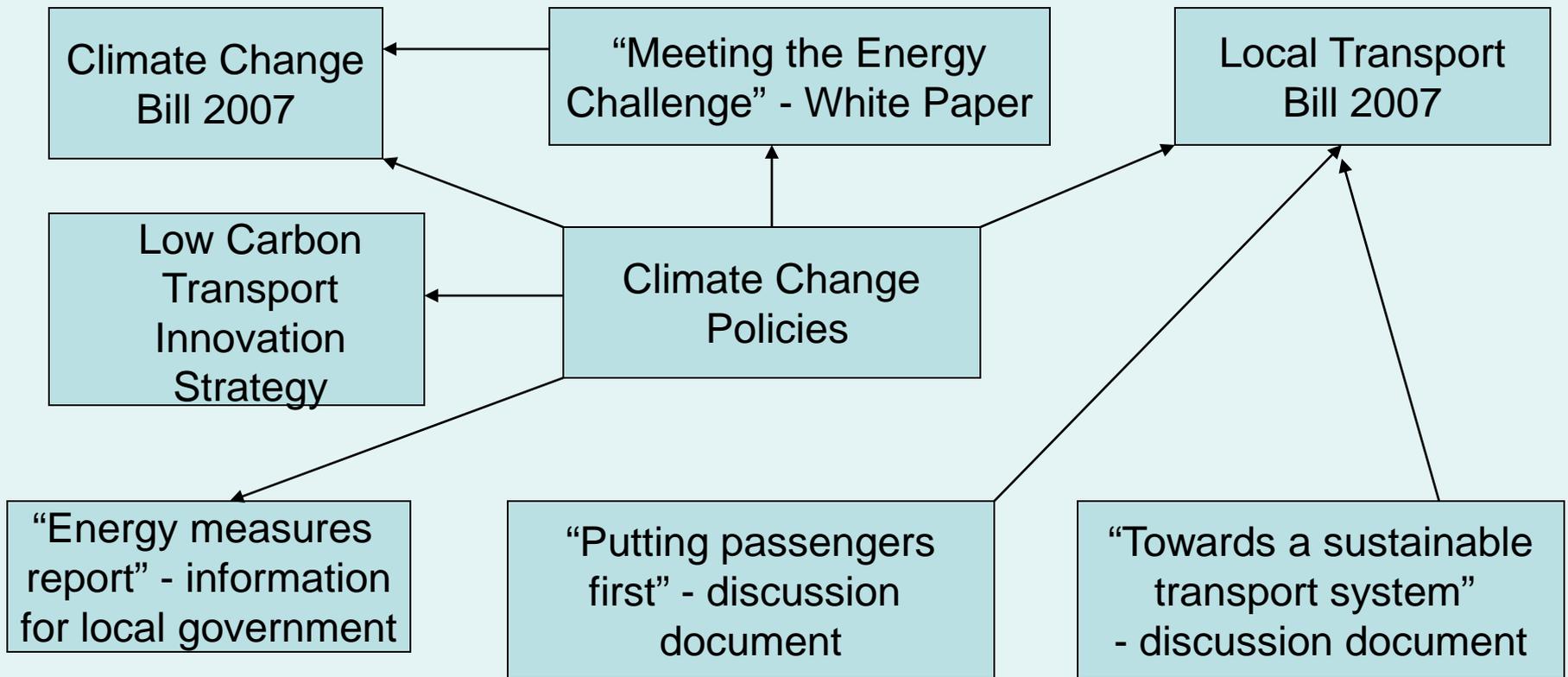
## **Supply Side**

- ❑ On the supply side there is interest from all the major bus manufacturers and system suppliers active in the UK.
  - many of which are involved in trials of hybrid buses in London with TFL.

## **Demand Side**

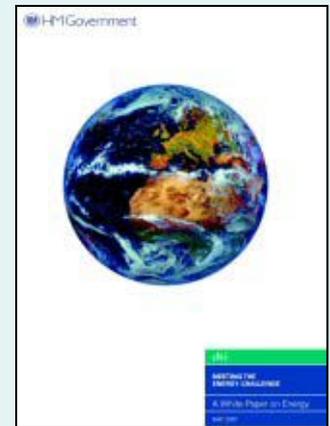
- ❑ Significant interest from PTAs to improve the environmental impact of buses and a willingness to develop the notion of a joint procurement of low carbon buses further.
  - PTEG has commissioned a study on behalf of its members into bus technology and carbon foot printing of buses.
- ❑ There was also interest amongst bus operators.
  - Despite concerns regarding commercial viability reliability of new technologies.

# UK Climate Change Policies and Strategies



# *UK Government policy promoting green innovation*

- ❑ Energy Whitepaper announced two main theme of policy
  - Low Carbon Transport Innovation Strategy
  
- ❑ Low Carbon Transport Innovation Platform
  - Technologies which deliver low carbon road transport are of strategic importance to the UK
  - Greater priority given to low carbon transport in R&D funding calls
  
- ❑ Low Carbon Vehicle Procurement Programme
  - Discussion document issued
  - Due to start April 2008
  - Initial £20 million budget
  
- ❑ Low Carbon Industrial Strategy 2009

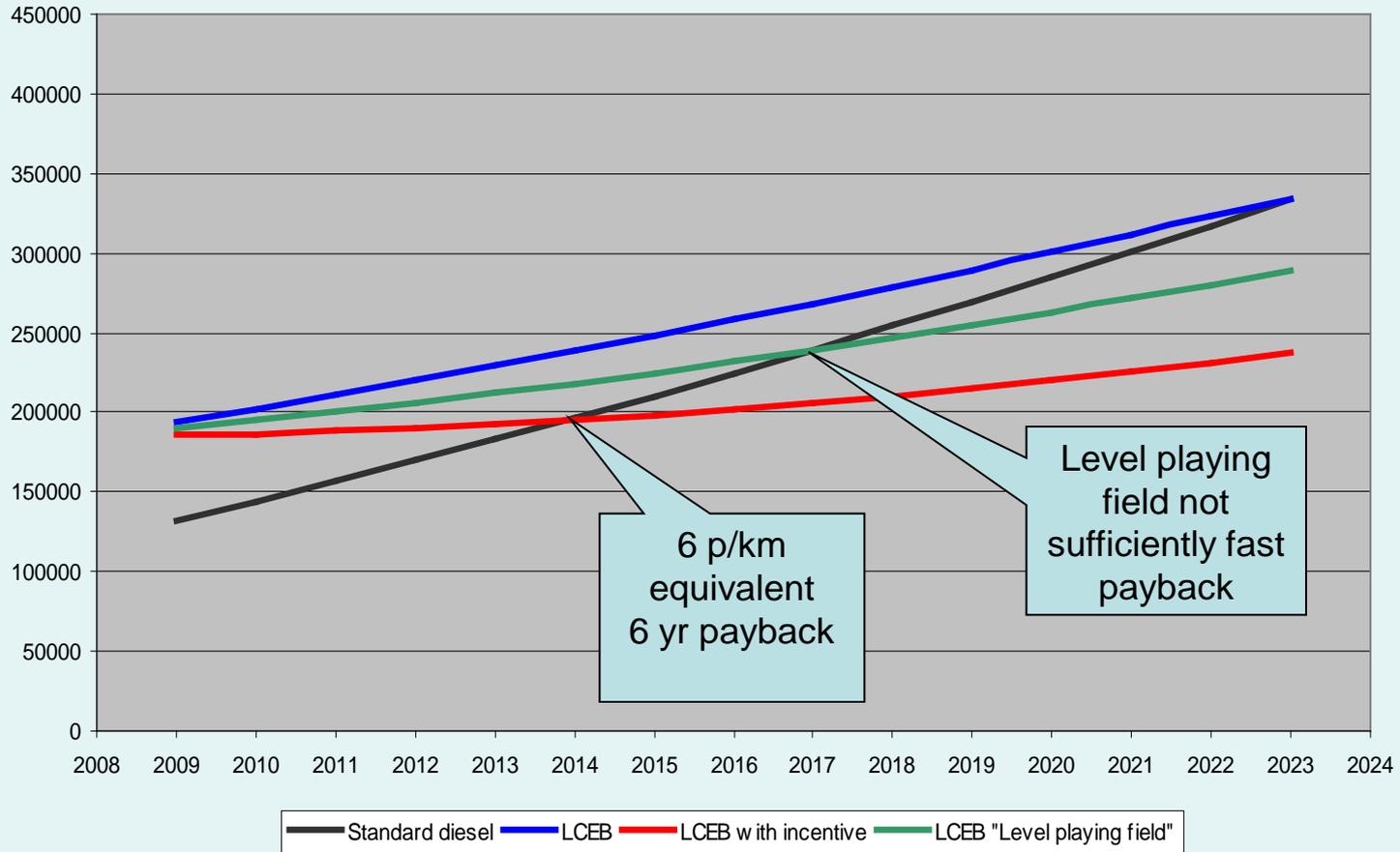


## *Changes to Bus Service Operators Grant (BSOG) will support climate change policy*

- ❑ Geoff Hoon, Secretary of State for Transport announced that the Government will be introducing changes to the Department for Transport's Bus Service Operators Grant (BSOG) to;
  - incentivise the use of low carbon buses and,
  - buses with smartcard and global positioning systems and,
  - that we would also be challenging the industry to improve its fuel efficiency.
  
- ❑ DfT have formed a Bus Subsidy Advisory Group to provide advice on changes to BSOG.
  - Short term**
    - introduce incentives for low carbon buses, ideally 2009
    - link uprating of BSOG to improvements in fuel efficiency
  - Longer term**
    - – fundamental reform of bus subsidies

# Range of potential incentives for a Low Carbon Bus

Cumulative costs - England



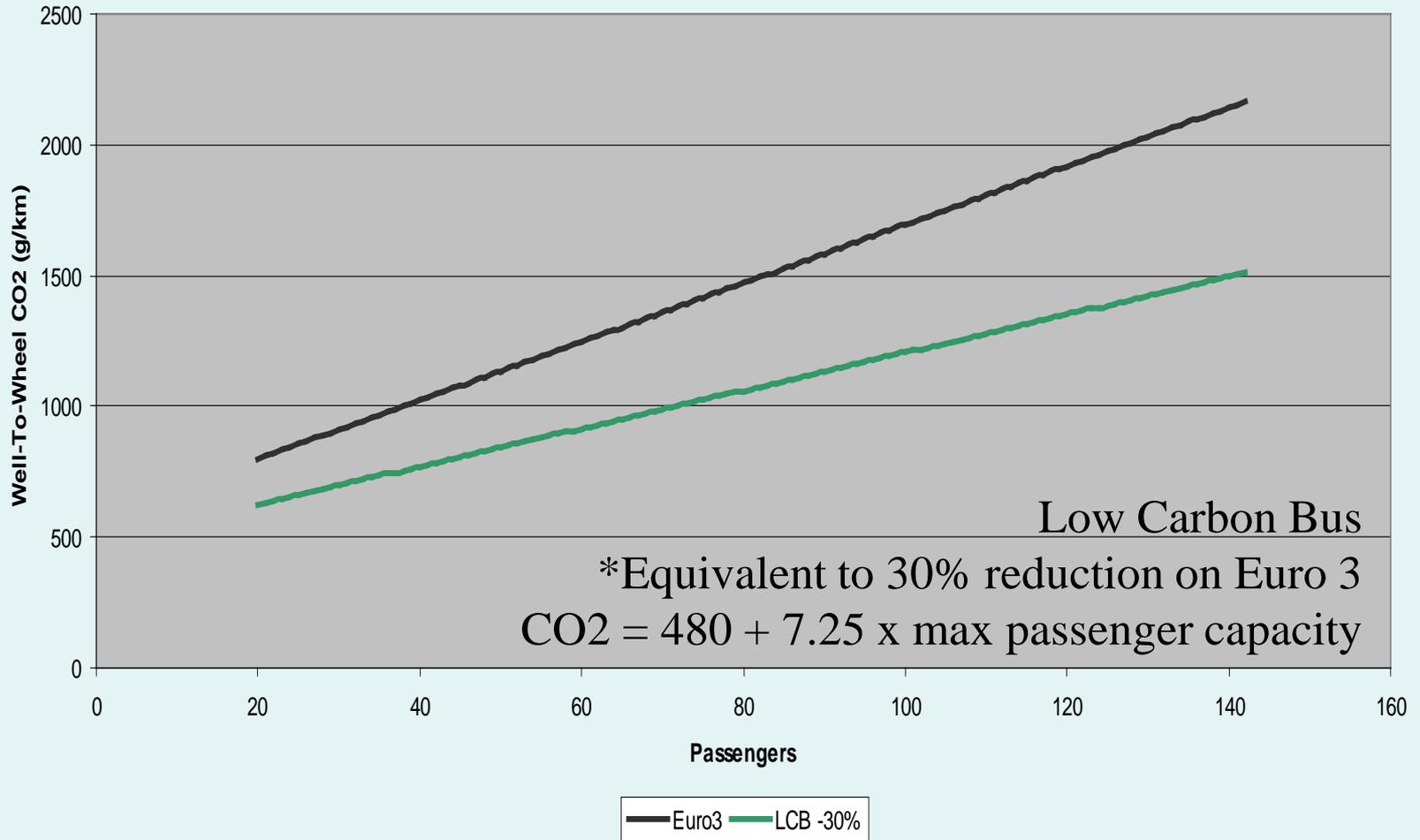
## *Local transport authorities to get greater influence in shaping bus provision*

- ❑ Local Transport Bill will provide new enabling powers for local transport authorities with the potential to create value for CO2 emission reductions
- ❑ Offers potential for introducing low carbon buses, in particular;
  - on subsidised routes, contracted routes, in-house services and through Quality Partnerships and Contracts.
- ❑ Revival of powers for PTAs to purchase buses and lease them to operators.
- ❑ PTAs ability to determine which vehicles are procured for these services.

## *Contractual considerations*

- ❑ A Forward Commitment is not usual practice in the bus industry and as such there may be institutional barriers to its implementation. However it appears to be an achievable approach to procurement.
- ❑ Underlying a Forward Commitment would be contracts creating the demand for the low carbon buses between local transport authorities and bus operators.
  - Including local authority controlled routes, quality partnerships and Statutory Quality Partnerships.
- ❑ The Forward Commitment would be between the bus operator and bus manufacturer.
  - Series of contracts, each invoked by the successful performance of the previous contract covering trial of new technologies, small fleet demonstration and final procurement of market ready low carbon buses in volume.
- ❑ Existing contractual practices would remain broadly the same.
  - KPIs appropriate for the demonstration and trial of low carbon buses.

# Defining a low carbon bus



## *Proposed specification for procurement*

<b>Parameter</b>	<b>Requirement</b>
Greenhouse gas carbon-dioxide equivalent performance	WTW CO <sub>2</sub> = 480 + 7.25 x passengers Equivalent to 30% reduction wrt Euro 3 buses
Gradeability (with maximum load)	10%
Range / Endurance	250 miles / 400 km
Range (zero emissions) - optional	4 miles / 6.4 km
Drive-by noise performance (exterior)	80 dB(A) as per EU Directive
Drive-by noise performance (interior)	As per current TfL requirements
Air quality emissions	Reductions to be obtained on the MLTB drive cycle
Refuelling	Once a day
Construction & Use	EU Bus & Coach Directive 2001/ 85
Life cycle assessment (LCA)	ISO 14000 series

## *Another Red bus going Green for London*

- ❑ TfL is effectively undertaking a form of Forward Commitment currently
  
- ❑ Conducting trials of hybrid buses
  - Batches of hybrids to be trialled across London
  
- ❑ Public statement from Mayor that all buses will be hybrid once vehicle technologies have proved successful.
  
- ❑ London not sufficient to secure economies of scale from hybrid bus production



Source: TfL 2009

# *Promoting a common specification across Europe*



COMmon PROcurement of collective and public service transport clean vehicles

- ❑ COMPRO comprises cities in Italy, France, Germany and Sweden
- ❑ Consortium to procure clean buses
- ❑ Aim of engagement to reduce number of green bus specifications
- ❑ COMPRO adopted LowCVP specification of a low carbon bus as basis for procurement in 2007



# *Low Carbon Bus procurement in addition to London*

## **Milestone for demonstration**

100 low carbon buses demonstrated in the UK outside London.

## **Shifting to low carbon buses**

600 or more low carbon buses coming into operation per year by 2012 outside London.

## **Motivating future improvements**

Target for ultra low carbon buses coming into operation in 2020 to be established by DfT.



## Summary

- ❑ Low carbon vehicle technology will be a key element on the UK strategy to reduce CO2 emissions
- ❑ Buses are well placed to be extremely low carbon as a passenger transport system
  - Technology will be as important as modal shift in delivery
- ❑ The use of procurement to bring forward low carbon technology will become increasingly common in the UK and Europe
  - The Low Carbon Vehicle Procurement Programme will commence in 2008
  - Low carbon buses are a priority area identified along with low carbon vans and cars
- ❑ Procurement of low carbon buses can be effectively delivered outside London, and the market barriers are being removed

# *Any Questions?*

020 3178 7860

The Low Carbon Vehicle Partnership

[secretariat@lowcvp.org.uk](mailto:secretariat@lowcvp.org.uk)

[www.lowcvp.org.uk](http://www.lowcvp.org.uk)

