

## **LOW EMISSION STRATEGIES GUIDANCE:**

# **Using Public Procurement to Reduce Road Transport Emissions**

Consultation Draft

September 2011

Prepared for the Low Emission Strategies Partnership by

**LES Ltd**  
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Low Emission  
Strategies  
Building on Good Practice

## EXECUTIVE SUMMARY

- Public sector organisations, including Governments and local authorities, share responsibilities to improve air quality and reduce greenhouse gas emissions. The road transport sector is a significant source of emissions of both air quality pollutants and greenhouse gases. The UK is at risk of being in breach of EU Air Quality Limit Values and could face substantial penalties. Unlike most sector emission trends, greenhouse gas emissions from transport are still upwards and risk dominating the EU Carbon Budget over the coming years unless significant corrective action is taken.  
*[See **Introduction to the Emissions Problem** - page 9]*
- The EU, UK Government and Local Government Bodies have identified the significant role that public sector procurement can have in securing environmental improvements, particularly in relation to vehicle emissions, and assisting the accelerated transition to a low carbon economy. Appropriate procurement strategies can help stimulate economic development and encourage innovation.
- While sustainable public procurement policies and principles have been developing for several years, the application of these principles to vehicle procurement is not widespread nor clearly understood, thus the full potential for environmental improvement is not yet realised. *[See **Introduction to Sustainable Procurement in the UK** – page 12]*
- With the continuing emergence of EU Directives and Government policies on sustainable vehicle procurement [see **UK Sustainable Vehicle Procurement Policy Development** – page 13], public sector organisations are in need of specific guidance on how best to use procurement to reduce road transport emissions. The **Low Emission Strategies Partnership** has produced best practice guidance on the **Use of Planning to Reduce Road Transport Emissions** which has successfully encouraged local authorities to increase their capabilities in tackling vehicle emission issues through the planning system ([www.lowemissionstrategies.org](http://www.lowemissionstrategies.org)). The Low Emission Strategies Partnership has produced this guidance to illustrate procurement tools and techniques that can influence emissions, including best practice examples where these have been implemented.
- The EU Cleaner Vehicle Directive was introduced in 2009 to accelerate the uptake of cleaner fuels and technologies by public sector organisations. The Directive has been transposed into UK law through the Cleaner Road Transport Vehicles Regulations 2011, which come into force on the 30<sup>th</sup> July 2011. These Regulations requirement public sector organisations to consider the operational lifetime vehicle energy consumption and environmental impacts, including the potential monetisation of those impacts, when purchasing or leasing vehicles. It is anticipated that these Regulations will assist market penetration of clean vehicle technologies through the requirement to consider the whole life costs.  
*[See **Green Vehicle Procurement Policy and Legislation** – page 13]*
- Making green vehicle choices is often problematic due to the variety of technologies available and proposed, without a clear direction as to what the winning low emission technologies will be and the lack of information about real world emission performance. Not all technologies are suitable for every application and produce different emission

characteristics under varying duty cycles. The lack of understanding of vehicle emissions, however, does demonstrate the need to trial vehicles in circumstances that are specific to organisational use so as to provide confidence when designing fleet procurement strategies.

*[See **Demonstration and Technology Screening & Evaluation** – page 20]*

- Increasingly, public sector organisations are using vehicle emission criteria as part of their procurement specifications and there are a growing number of websites that are available to assist in identifying potential vehicle emissions. Additionally, **Government Buying Standards for Transport** have been introduced, providing a useful benchmark for purchasing decisions *[See **Vehicle & Fuel Specification** – page 21]*
- Low emission vehicle technologies can carry an incremental premium when compared to conventional vehicles, sometimes because full life cycle and damage costings are not taken into account, but often due to issues such as low volume production and associated costs of alternative fuelling infrastructure. This guidance illustrates techniques for aggregated procurement, including procurement frameworks, that have the potential to reduce costs through volume purchasing power and accelerate market penetration of cleaner technologies.

*[See **Economies of Scale** – page 25]*

- Innovation of procurement also has a role to play in both facilitating technology demonstration and development, such as wet leasing and forward commitment, and through innovative techniques, such as eProcurement, can achieve time and cost savings *[See **Innovation of Procurement** – page 27]*
- Eco-labelling is becoming increasingly common to provide clarity and confidence to consumers of the green credentials of products. Although there is no comprehensive eco-labelling scheme for vehicles there are several initiatives, particularly in relation to the energy rating of new cars, that are becoming industry standards. Additionally, public sector organisations are introducing fleet recognition schemes that could inform procurement strategies.

*[See **Eco-Labelling** – page 30]*

- Public private partnerships have significant potential to stimulate low emission vehicle procurement activity that is mutually beneficial in terms of market transformation, knowledge transfer and mutually beneficial development of alternative refuelling infrastructure. Examples of successful collaborations are provided within this guidance *[See **Public Private Partnerships** – page 31]*
- It is envisaged that public sector organisations will use this guidance to help optimise their activity in reducing vehicle emissions, by informing environmental officers without a background in procurement as to the potential for new activity and also providing procurement officers with an understanding of how their activity can influence road transport emissions. All public sector organisations should be looking to develop a Low Emission Vehicle Procurement Strategy, incorporating the key issues outlined in this guidance.

*[See **Developing a Low Emission Vehicle Procurement Strategy** – page 33]*

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## ABOUT THIS GUIDANCE

This guidance has been produced by The Low Emission Strategies Partnership to assist public sector organisations in meeting their environmental obligations with respect to Air Quality Management and Climate Change commitments, by providing practical advice and examples of best practice in the use of procurement to reduce road transport emissions. The guidance is aimed at professionals and politicians, without a background in public sector procurement, to understand how they can expand their capabilities, in addition to traditional approaches, to tackle the problems they are facing in securing environmental improvements. Similarly, the guidance also aims to provide an understanding of vehicle emission reduction possibilities for procurement officers

Acknowledging that the first principle of sustainable vehicle procurement is whether it needs to be purchased or leased in the first place, this guidance assumes that this requirement has been considered and provides information relevant once the decision to procure has been taken.

While reference is made to certain low emission vehicle technologies, this guidance aims to be as technologically agnostic as possible, pointing public sector organisations to data, tools and techniques that will allow them to identify suitable technologies and procurement strategies that are appropriate to the circumstances of the purchasing organisation.

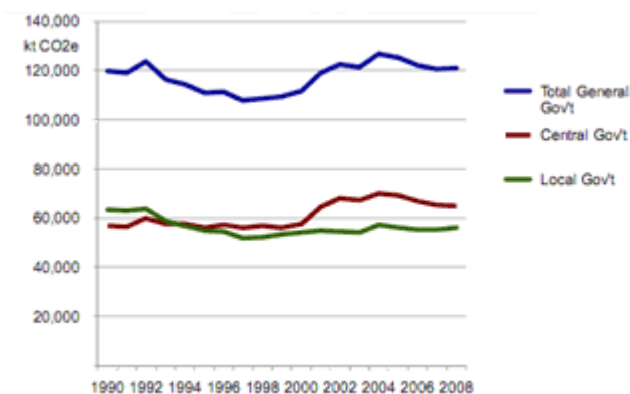
While the procurement principles and techniques outlined in this guidance are tailored to English organisations, they are also transferable to other bodies under the jurisdiction of devolved administrations.

## NEED FOR CHANGE

The public sector is charged with responsibilities for improving air quality and tackling climate change and needs to demonstrate leadership through its own activity by promoting and implementing mechanisms that can effectively improve the environment. The Carbon footprint of both local and central Government is shown in **Figure 1** and illustrates that there is much work to be done to accelerate the activity needed for significant change.

**Figure 1 - Carbon footprint of Central, Local and total General Government, 1990 to 2008**

(Source: CenSA)



©Defra

Emissions from transport contribute significantly to poor air quality and carbon footprints and traditional activity to reduce emissions has focussed on transport planning and public awareness campaigns to encourage responsible vehicle use and modal shift. Other mechanisms, including low emission strategy land use planning, differential parking rates and road and land based vehicle regulation, such as congestion charging and low emission zones, have shown that they can have an effect on improving vehicle emissions and should be considered as part of an integrated approach to environmental improvement.

The public sector is a major consumer and procures significant volumes of road transport vehicles. There is considerable scope to continue to drive down emissions and help stimulate economic development through the adoption of fit for purpose procurement strategies.

Very often, low emission vehicle technology carries an incremental premium when compared to conventional vehicles, sometimes because full life cycle and damage costings are not taken into account, but often due to issues such as low volume production and associated costs of alternative fuelling infrastructure. The public sector can play a leading role in improving the emissions arising from the vehicle parc by specifying vehicles that are capable of reducing emissions, based on life cycle information, through the potential for cost reduction of low emission technologies associated with volume purchasing power and adopting an innovative approach to vehicle purchasing, including the development of partnerships with the private sector.

## **INTRODUCTION**

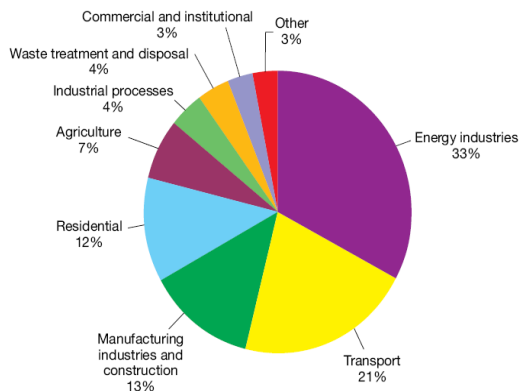
### ***Background to the Emissions Problem***

The UK has set challenging targets to reduce emissions of Greenhouse Gases (GHG) and regulated air pollutants in line with the requirements of both global protocols and European Directives. The aims being to reduce the impact of climate change and protect public health.

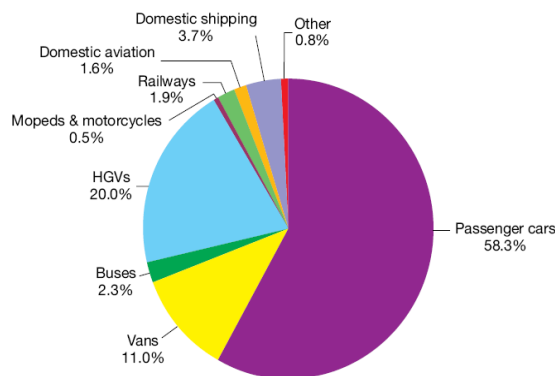
In terms of climate change, the UK Objective is to reduce emissions of GHG by 80% by 2050, based on 1990 levels<sup>1</sup>. This represents a 77% reduction based on 2006 levels. Current Department for Transport assessment of the CO<sub>2</sub>e contribution of UK domestic transport by each sector is shown in **Figure 2** and **3** below.

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<sup>1</sup> Climate Change Act 2008 (c 27) Part 6 – General supplementary provisions



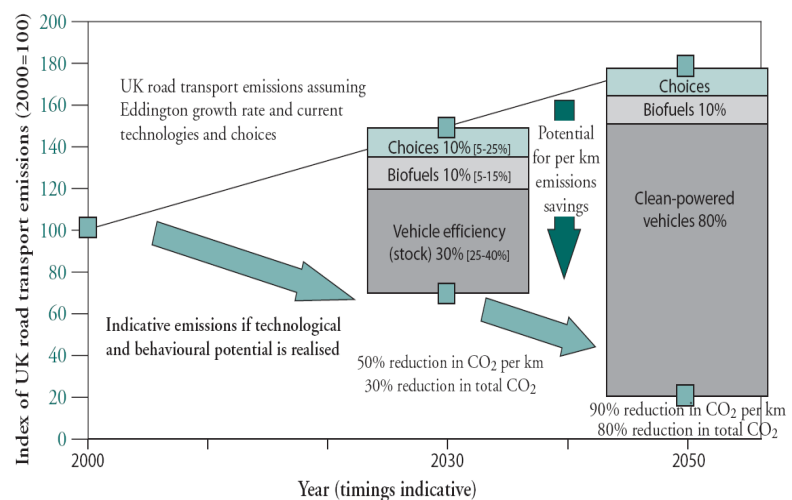
**Figure 2 – UK CO2 Emissions per Sector**  
©DfT 2010



**Figure 3 – CO2 Emissions from Transport in UK**  
©DfT 2010

Unlike other emission categories, emissions from road transport are continuing to rise. With a growth rate of 1% per annum EU road transport emissions will account for the entire EU Carbon Budget by 2040 (DGENV 2009).

In 2008, Julia King<sup>2</sup>, in association with Sir Nicholas Stern, carried out a review of technologies that would assist in the de-carbonisation of road transport. The review indicated that, given growth in UK transport emissions, 80% of all cars purchased in 2050 would need to be clean powered in order to meet UK Climate Change targets. The review acknowledged that technological breakthroughs would be required and mechanisms introduced to accelerate the uptake of cleaner vehicles.



©King Review 2008

Road transport emissions are a significant contributor to poor air quality in the UK, including emissions of Oxides of Nitrogen (NO<sub>x</sub>), which contribute to Nitrogen Dioxide (NO<sub>2</sub>) concentrations and particulate matter (PM<sub>10</sub>, including brake and tyre wear). In areas exceeding health-based EU Limit Values for NO<sub>2</sub> road transport is the dominant source with local traffic contributing, on

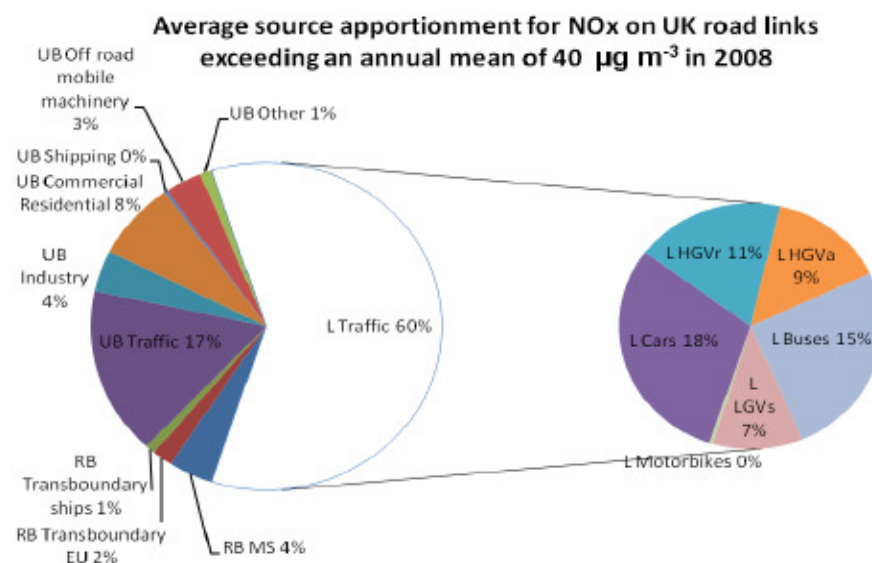
<sup>2</sup> <http://webarchive.nationalarchives.gov.uk/+/dft.gov.uk/pgr/sustainable/climatechange/king/>

average, 60% of total UK NO<sub>x</sub> concentrations<sup>3</sup>. The average source apportionment for NO<sub>x</sub> on UK road links exceeding an annual mean of 40 µg m<sup>-3</sup> in 2008 is shown in **Figure 4**.

Road transport is also the dominant source of fine particulate (both PM<sub>10</sub> and PM<sub>2.5</sub>) concentrations in urban areas. On average, road transport emissions account for 60% of fine particulate concentrations in London<sup>4</sup>.

It is evident that EU Limit Values for NO<sub>2</sub> will be exceeded in urban locations across the UK and for PM<sub>10</sub> concentrations in London. The Government, devolved administrations and the Mayor for London are currently developing and submitting detailed mitigation plans as part of the application for derogation against compliance with the EU Air Quality Directive (and Daughter Directive)<sup>5</sup>. Failure to comply with the EU Directives renders a Member State liable to infraction and a fine. Local authorities have a duty to pursue the achievement of AQ objectives<sup>6</sup> they are not liable for securing compliance, however, the Localism Bill<sup>7</sup> does outline plans to transfer potential EU fines to the local authority sector.

**Figure 4**



Key: UB=Urban Background, RB=Regional Background, L=Local, MS=Member State (©Crown copyright 2011)<sup>3</sup>

<sup>3</sup> Air Quality Plans for the achievement of EU air quality limit values for nitrogen dioxide (NO<sub>2</sub>) in the UK – Draft UK Overview Document, June 2011 - [www.defra.gov.uk/consult/2011/06/09/air-quality/](http://www.defra.gov.uk/consult/2011/06/09/air-quality/)

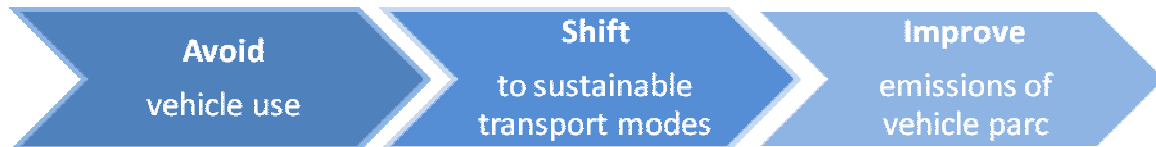
<sup>4</sup> [www.london.gov.uk/publication/mayors-air-quality-strategy](http://www.london.gov.uk/publication/mayors-air-quality-strategy)

<sup>5</sup> <http://ec.europa.eu/environment/air/quality/legislation/directive.htm>

<sup>6</sup> <http://uk-air.defra.gov.uk/>

<sup>7</sup> <http://services.parliament.uk/bills/2010-11/localism.html>

It is clear that in order to tackle both greenhouse gas and air quality pollutant emissions further effort is required to modify the operations and emission profile of the UK vehicle parc. It is recognised that emission reduction should follow the progression below:



Activity is required in all three areas to make the emission improvements needed. This guidance looks at how procurement mechanisms can help improve vehicle emissions, including those arising from sustainable transport modes, and also influence unnecessary vehicle mileage.

### **Background to Sustainable Procurement in the UK**

Public sector procurement in the EU Zone currently amounts to 2 trillion Euros or 17% of GDP<sup>8</sup>.

Green procurement policies have been in circulation for some time, however, their use is not uniform and their potential not fully recognised or realised.

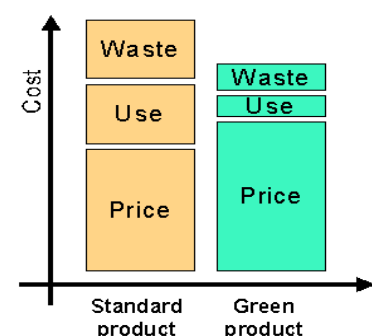
Following the Sustainable Development Summit in Johannesburg (2002), the UK Government set up the **Sustainability Procurement Task Force (SPTF)**. In June 2006, the **Sustainable Procurement Action Plan – Procuring the Future**<sup>9</sup> was published, requiring central Government departments to develop policies and targets. The plan stated:

***‘Sustainable procurement is a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, while minimising damage to the environment’***

*Sustainability Procurement Task Force, June 2006*

**Figure 5 – Whole Life Costs<sup>11</sup>**

The SPTF Action Plan placed no requirements on Local Government. The Local Government Association (LGA) published its report – **A Climate of Change**<sup>10</sup> in December 2007. It recommended that local authorities focus on Sustainable Procurement to cut carbon levels within the internal organisation and across boroughs. Transport was highlighted as an area for activity, acknowledging that Councils are able to influence the transport emissions of their supply chain.



<sup>8</sup> [http://ec.europa.eu/environment/gpp/index\\_en.htm](http://ec.europa.eu/environment/gpp/index_en.htm)

<sup>9</sup> <http://www.defra.gov.uk/publications/2011/03/28/pb11710-procuring-the-future/>

<sup>10</sup> <http://www.lga.gov.uk/lga/publications/publication-display.do?id=20630>

In 2008, the European Commission produced the report - **Public Procurement for a Better Environment**<sup>11</sup>. The report aimed to help develop better understanding of Green Public Procurement and highlighted the following objectives to overcome obstacles to implementing sustainable procurement strategies, including:

- A process for setting common Green Public Procurement (GPP) criteria
- Information on life-cycle costing of products
- Legal and operational guidance
- Political support through a political target, linked to indicators and future monitoring

The key concept of green procurement is life-cycle or **whole life costing**. Often green products are more expensive than the standard equivalent, although, when the whole life costs of operational use and disposal are factored in, very often the green product becomes relatively cheaper. This is shown in **Figure 5**. Further information on life cycle costing can be found on the Efficiency and Reform Group (ex-OGC, Cabinet Office) website<sup>12</sup>

## **GREEN VEHICLE PROCUREMENT POLICY & LEGISLATION**

### ***UK Sustainable Procurement Policy Development***

In February 2011, the UK Government published its **Action Plan for driving sustainable operations and procurement across Government**<sup>13</sup>, setting out the aims of leading by example, introducing efficiency and reform and improving transparency and accountability with regard to Government performance.

Defra has also published - **Sustainable Procurement in Government: Guidance to the Flexible Framework**<sup>14</sup>, to help embed sustainable procurement practice and also provide a toolkit for other public sector organisations to follow. The toolkit is designed to allow organisations to monitor and measure their progress on sustainable procurement, with 5 levels under the themes: 1) People, 2) Policy, Strategy and Communications, 3) Procurement Process, 4) Supplier Engagement and 5) Measurement and Results. Defra is committed to achieving Level 5 before 2015. Training modules are available through the **National Sustainable Public Procurement Programme (NSPPP)**<sup>15</sup>.

As part of the Government sustainable procurement framework, **Government Buying Standards**<sup>16</sup> have been developed for a variety of goods and services. Standards for motor vehicles have yet to be published, however, the proposed standards are provided in **Annex A**. The Standards include both mandatory specifications for certain vehicle classes and also contract award criteria that should be

<sup>11</sup> Public procurement for a better environment – EU COM(2008) 400 final

<sup>12</sup> [http://www.ogc.gov.uk/implementing\\_plans\\_introduction\\_life\\_cycle\\_costing\\_.asp](http://www.ogc.gov.uk/implementing_plans_introduction_life_cycle_costing_.asp)

<sup>13</sup> <http://sd.defra.gov.uk/gov/green-government/>

<sup>14</sup> <http://www.defra.gov.uk/sustainable/government/advice/public/buying/documents/flexible-framework-guidance.pdf>

<sup>15</sup> <http://sd.defra.gov.uk/advice/public/nsppp/>

<sup>16</sup> <http://sd.defra.gov.uk/advice/public/buying/>

considered. These Standards are based on Green Public Procurement (GPP)<sup>17</sup> criteria developed by the EU and provide a benchmark for all public sector procurement of road vehicles.

**Table 1 – Central Government Fleet 2008/09**

| Dept/Organisation                          | Fleet size         |                     |                |
|--|--------------------|---------------------|----------------|
|  | Passenger Vehicles | Commercial Vehicles | Total Vehicles |
| NHS PaSa                                   | 33,000             | 14,000              | 47,000         |
| Environment Agency                         | 4,200              | 2,000               | 6,200          |
| DVWP*                                      | 2,700              | 100                 | 2,800          |
| HMRC*                                      | 4,000              | 600                 | 4,600          |
| Forestry Commission*                       | 450                | 1,200               | 1,650          |
| HM Prison Service*                         | 2,100              | 600                 | 2,700          |
| Department for Constitutional Affairs*     | 690                | 0                   | 690            |
| Construction Industry Training Board       | 250                | 0                   | 250            |
| Vehicle & Operation Services Agency*       | 220                | 60                  | 280            |
| DfT*                                       | 175                | 528                 | 703            |
| Health & Safety Executive                  | 280                | 0                   | 280            |
| Land Registry*                             | 70                 | 5                   | 75             |
| OFSTED                                     | 60                 | 0                   | 60             |
| Government Offices for the Regions         | 9                  | 0                   | 9              |
| DEFRA*                                     | 230                | 200                 | 430            |
| Dental Practice Board                      | 63                 | 3                   | 66             |
| Office of National Statistics*             | 4                  | 0                   | 4              |
| Research Councils Procurement Organisation | 200                | 100                 | 300            |
| Driving Standards Agency*                  | 25                 | 110                 | 135            |
| Firebuy                                    | 450                | 4,050               | 4,500          |
| Probation Directorate                      | 600                | 0                   | 600            |
| Learning Skills Council                    | 350                | 0                   | 350            |
| Immigration Services                       | 319                | 24                  | 343            |
| OFCOM                                      | 90                 | 0                   | 90             |
| Veteran Agency                             | 20                 | 3                   | 23             |
| National Crime Squad                       | 15                 | 0                   | 15             |
| Home Office*                               | 12                 | 0                   | 12             |
| OGC*                                       | 5                  | 0                   | 5              |
| Police                                     | 16,419             | 6,100               | 22,519         |
| MOD*                                       | 7,250              | 4,200               | 11,450         |
| <b>Total</b>                               | <b>74,256</b>      | <b>33,883</b>       | <b>108,139</b> |

(Figures compiled by OGC – taken from Impact Assessment of Revised Government Buying Standards' specifications for Transport Products and Services – Defra 2010)

It is estimated that the UK Government spent £5.4 billion in 2003/04 on vehicles and travel<sup>18</sup>. The Central Government fleet in 2008/09 is shown in **Table 1**. This figure does not include local authority/Transport for London activity. It is clear that the volume of vehicles and fuel purchased by public sector organisations is substantial, providing both the opportunity to achieve cost savings through aggregated procurement and also influence and improve the green credentials of the motor vehicle and fuel sector.

The development of local authority sustainable procurement policies relating to vehicles and fuels is increasing. Work undertaken on behalf of the RAC Foundation<sup>19</sup>, based on the filtered responses of 58 local authorities, shows that approximately 30% have either implemented, or are in the process of implementing policies requiring or encouraging Council contractors to use Ultra Low Carbon Vehicles (ULCV) – see **Table 2**.

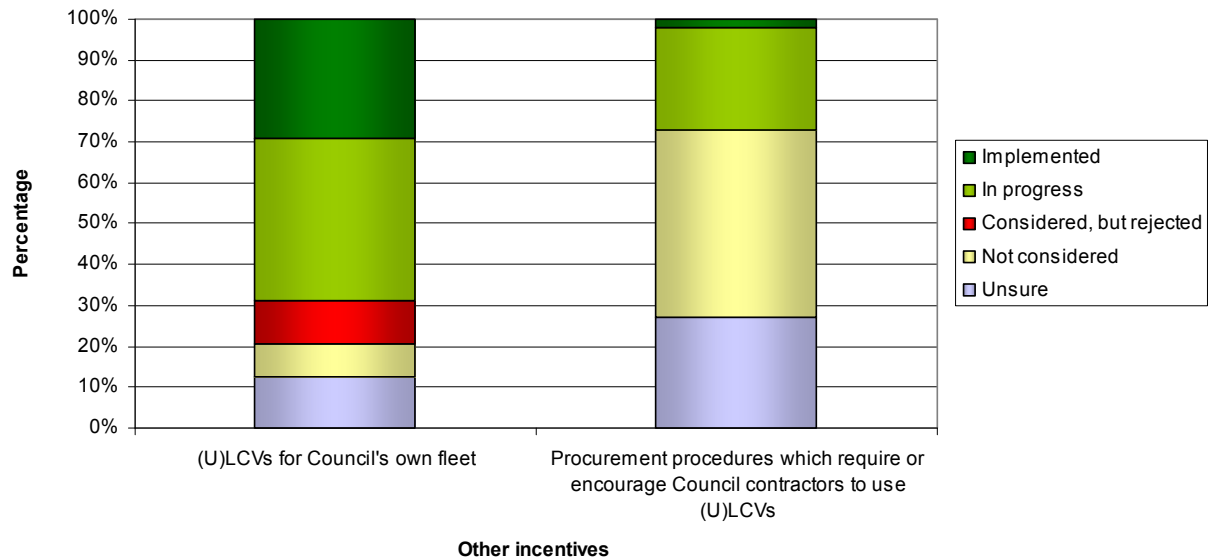
The **Air Quality Strategy for London** acknowledges the role that procurement can play in reducing vehicle emissions and is working with the Low Emission Strategy Partnership to promote best practice and identify opportunities to develop combined procurement power activity. See **Box 1**.

<sup>17</sup> [http://ec.europa.eu/environment/gpp/index\\_en.htm](http://ec.europa.eu/environment/gpp/index_en.htm)

<sup>18</sup> Sustainable Procurement Task Force, inc. OGC estimate 2008

<sup>19</sup> Opportunities and Barriers – Local Authority Uptake of Low Emission Vehicles, 2011 (RAC Foundation, unpublished)

**Table 2 – Local Authority Incentives to Increase the Uptake of Low Emission Vehicles**



[Supplied by Colin Buchanan as part of the initial findings of 'Opportunities and Barriers for (U)LCV Take-up by Local Authorities' research commissioned by RAC Foundation – 2011]

## Box 1: Mayor of London – Air Quality Strategy 2010

### ***GLA, borough and public sector fleets***

3.10.11. The Mayor will work with the GLA group and boroughs to facilitate the adoption of best practice and cleaner vehicles. This will include exploring opportunities to promote best practice more widely through procurement and the combined purchasing power of the public sector. Recognising that he must set an example, the Mayor will specify green standards for GLA group fleets. The first step in this direction is the already-initiated procurement framework for low emission vehicles for the GLA Group. This has been specifically designed to be used by other public sector bodies in London, including London boroughs. A number of boroughs have already expressed interest in taking part in this framework, which will be consistent with the principles of the Low Emissions Strategies Programme (LESP) (see Box 15).

### **Box 15: Procurement Guidance**

The Low Emission Strategies Programme (LESP) is developing guidance for public sector organisations on the use of procurement to reduce road transport emissions. The aims of this guidance will be to:

- Identify procurement policies and practices, capable of influencing road transport emissions
- Identify transferable tools and techniques that can be used to support innovative policy implementation
- Develop new, cross-sector working relationships
- Highlight examples of best/good practice.

The GLA is working with the LESP on the development of this guidance, which will be published in 2011, and will encourage public sector organisations in the capital to make use of it. Further information is available at: [www.lowemissionstrategies.org](http://www.lowemissionstrategies.org)

For further information see [www.london.gov.uk/publication/mayors-air-quality-strategy](http://www.london.gov.uk/publication/mayors-air-quality-strategy)

While many local authorities have developed sustainable procurement policies, an increasing number are producing procedures relating to vehicles and fuels, including **Birmingham, Bracknell Forest, Camden, Coventry, Kirklees, Newcastle, Reading and York. Sefton Council** is currently working with the **Low Emission Strategies Partnership** to develop a green procurement policy decision toolkit that will include automotive applications. See **Box 2**.

**Camden Council** has undertaken several vehicle studies and technology trials, producing a Green Vehicle Policy – a matrix of preferred options to be considered as part of their vehicle procurement strategy. Further information can be found in the next section.

The **West Midlands Authorities** are currently producing regional best practice guidance on the use of procurement to reduce road transport emissions as part of the **Low Emission Towns and Cities Programme**.

#### Box 2: Sefton Council Purchasing Decision Tool

**Sefton Council** has adopted a **Sustainable Procurement Policy** and with funding from the **Low Emission Strategies Partnership** is developing a **Green Procurement Decision Making Tool**. The tool will help local authorities in looking at a step by step guide in eco-system procurement decision making, from initially establishing the need to procure and then outlining the considerations needed at each stage of the procurement process to final product disposal & recycling.

For further information contact:  
[Stephanie.Jukes@sefton.gov.uk](mailto:Stephanie.Jukes@sefton.gov.uk)

All local authorities will need to develop their own green vehicle procurement strategies with the introduction of forthcoming legislation.

### ***Clean Vehicle Legislation***

The **EU Cleaner Vehicle Directive** – [Directive 2009/33/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of clean and energy-efficient road transport vehicles](#) should be transposed into Member State legislation by the 4<sup>th</sup> December 2010. The Cleaner Vehicle Directive aims to stimulate the broad market introduction of environmentally-friendly vehicles.

The Directive requires the public sector to use its purchasing power to promote clean and energy-efficient vehicles. Every time they purchase a vehicle for public transport services, they must take into account energy consumption, CO2 emissions and pollutant emissions over the whole lifetime of vehicles. Therefore, the real costs to be encountered over the lifetime operation of vehicles are anticipated, giving a relative advantage (lower lifetime costs) to vehicles that pollute less and consume less energy. The obligation extends to all purchases of road transport vehicles by public authorities or by transport operators charged with public service obligations, as covered by the public procurement Directives<sup>20,21</sup> and Regulation<sup>22</sup>. Military vehicles are exempt.

<sup>20</sup> [Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors](#)

<sup>21</sup> [Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts](#)

The aim is to stimulate the market for clean and energy-efficient vehicles and to prompt development and investment by the automotive industry. Increased sales will help reduce costs through economies of scale and will result in progressive improvement in the energy and environmental performance of the whole vehicle fleet.

The Directive states that if the environmental impacts of vehicles are monetised for inclusion in a purchasing decision, common rules shall be followed for calculating the lifetime costs linked to the operation of vehicles. These rules are defined in the Directive and explained below.

**The Cleaner Road Transport Vehicles Regulations 2011<sup>23</sup>** were laid in Parliament on the 6<sup>th</sup> July 2011 and come into force on the 30<sup>th</sup> July. These Regulations apply to England, Wales and Northern Ireland and transpose the EU Cleaner Vehicle Directive into UK law. Scotland has already introduced the Cleaner Road Transport Vehicles (Scotland) Regulations 2009.

The Regulations state that any public sector contracting authority, entity or operator when purchasing or leasing road transport **vehicles must take into account the operational lifetime energy and environmental impacts**, in respect of the vehicle purchased or leased. **The operational lifetime energy and environmental impacts include:**

- **Energy consumption**
- **Carbon Dioxide** emissions
- Emissions of **Oxides of Nitrogen**
- Emissions of **non-Methane Hydrocarbons**
- Emissions of **Particulate Matter**

Other environmental criteria, such as noise, can also be taken into account. In order to satisfy the requirements of the Regulations, one of 3 options must be chosen:

- 1) The technical specifications for energy and environmental performance is set out in the documentation for the purchase and leasing of road transport vehicles for the impacts listed above
- 2) The energy and environmental impacts may be included in the purchasing or leasing decision by either:
  - Using the impacts as award criteria
  - Applying the required methodology where the impacts are monetised for inclusion into the purchasing or leasing decision

The methodology for the monetisation of operational lifetime energy and environmental impacts is provided in Article 6 of the Directive and is provided in **Annex B**. The data to be used in the calculation can be seen in **Box 3**. The EU has developed a website providing an on-line operational lifetime cost calculator – see the **Clean Vehicle Portal** - [www.cleanvehicle.eu](http://www.cleanvehicle.eu)

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<sup>22</sup> [Regulation \(EC\) No 1370/2007 of the European Parliament and of the Council of 23 October 2007 on public passenger transport services by rail and by road and repealing Council Regulations \(EEC\) Nos 1191/69 and 1107/70](#)

<sup>23</sup> <http://www.legislation.gov.uk/ukxi/2011/1631/made>

The Cleaner Road Transport Vehicle Regulations will help influence the take-up of cleaner vehicle technologies. Work carried out by German and Czech Governments has shown that once operational lifetime costs are taken into account low and ultra low vehicles become competitive with their standard technology counterparts<sup>24</sup>.

**Box 3: Annex to Directive 2009/33/EC –  
Data for the Calculation of Operational Lifetime Costs of Road Transport Vehicles**

**Table 1: Energy Content of Motor Fuels**

| Fuel                          | Energy content           |
|-------------------------------|--------------------------|
| Diesel                        | 36 MJ/litre              |
| Petrol                        | 32 MJ/litre              |
| Natural Gas/Biogas            | 33-38 MJ/Nm <sup>3</sup> |
| Liquefied Petroleum Gas (LPG) | 24 MJ/litre              |
| Ethanol                       | 21 MJ/litre              |
| Biodiesel                     | 33 MJ/litre              |
| Emulsion fuel                 | 32 MJ/litre              |
| Hydrogen                      | 11 MJ/Nm <sup>3</sup>    |

**Table 2: Costs for Emissions in Road Transport (in 2007 prices)**

| CO <sub>2</sub>  | NO <sub>x</sub> | NMHC        | Particulate matter |
|------------------|-----------------|-------------|--------------------|
| 0,03-0,04 EUR/kg | 0,0044 EUR/g    | 0,001 EUR/g | 0,087 EUR/g        |

**Table 3: Lifetime Mileage of Road Transport Vehicles**

| Vehicle category<br>(M and N categories as defined in Directive 2007/46/EC) | Lifetime mileage |
|---|------------------|
| Passenger cars (M <sub>1</sub> )  | 200 000 km       |
| Light commercial vehicles (N <sub>1</sub> )                                 | 250 000 km       |
| Heavy goods vehicles (N <sub>2</sub> , N <sub>3</sub> )                     | 1 000 000 km     |
| Buses (M <sub>2</sub> , M <sub>3</sub> )                                    | 800 000 km       |

## **LOW EMISSION VEHICLE & FUEL PROCUREMENT**

One of the difficulties faced by organisations wishing to develop a long term, low emission vehicle procurement strategy is the wide variety of options and lack of clarity as to what the ultimate winning technologies will be. While some data exists to enable technology comparison, often the data is missing, misleading or not independently tested/publicly available. Procurement has a role in stimulating innovation and pulling clean vehicle technologies onto the market, however, there have

<sup>24</sup> [http://ec.europa.eu/environment/gpp/studies\\_en.htm](http://ec.europa.eu/environment/gpp/studies_en.htm)

been false dawns in the past and fleet managers require reassurance as to the future performance of a vehicle when making purchasing decisions.

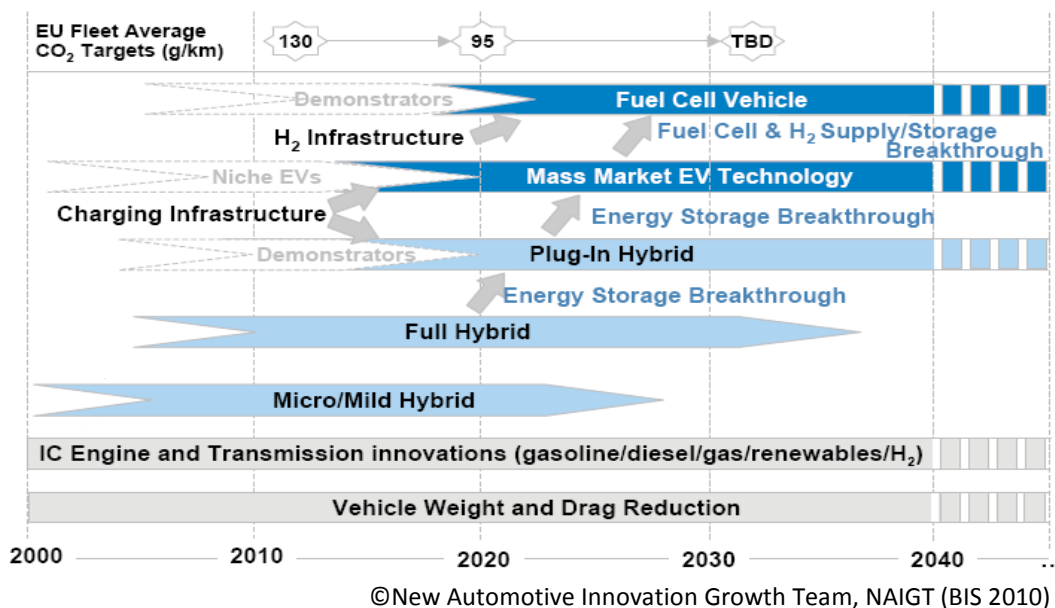
### **Demonstration, Technology Screening and Evaluation**

It is highly unlikely that any public sector organisation will make a volume purchase of an untried vehicle type and it is, therefore, important to undertake evaluated trials to ascertain performance in the environment that it will be used. The optimum staging in the uptake of clean vehicle technology is summarised in the flow diagram below:



In identifying suitable low emission vehicle offerings, **Figure 6** below represents UK Government and automotive expert opinion as to the development and market readiness of various technologies and fuels, in relation to relative carbon emissions over time.

**Figure 6 – Low Carbon Vehicle Development Roadmap**

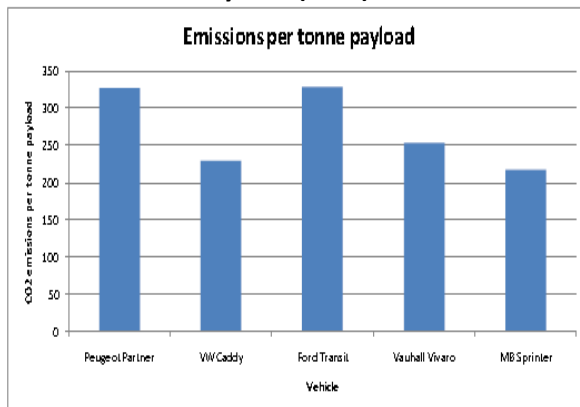


The **Low Emission Strategies Partnership** is developing a **Low Emission Toolkit** due for publication later this year. The Toolkit will have several functions, including the ability to look at the relative emissions of all available vehicle technologies and fuels to 2020, allowing the calculation of emission and cost differentials of clean technology take up, compared with standard technologies /business as usual scenarios. The Toolkit will also calculate monetisation of the operational lifetime energy and environmental impacts, in line with the requirements of the EU Cleaner Vehicle Directive. However, the tool has a primary function in allowing fleet operators to screen the relative benefits of various

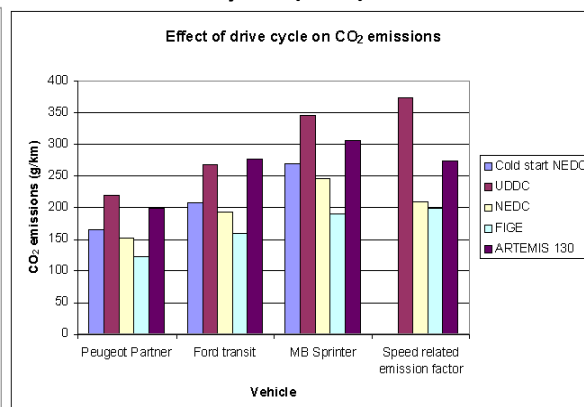
technologies when looking at demonstration and procurement options. For further information contact [info@lowemissionstrategies.org](mailto:info@lowemissionstrategies.org)

Once clean vehicle technology options have been identified they should be trialled in a real world environment, back to back against a standard technology type to allow comparative evaluation. Many authorities have found that real world testing provides differing results to the official performance data provided by the manufacturer. Often this is due to the drive cycles that certain vehicles are tested against. All cars and car derived vans produced in the EU are tested over the **New European Drive Cycle (NEDC)**<sup>25</sup> that is often not replicated in real-world driving. The EU is looking at replacing this testing with the **Combined Artemis Drive Cycle (CADC)**<sup>26</sup> that is more representative of real-world driving, however, there are no firm plans or timescales for introduction of the CADC.

**Figure 7 – Measured Variations in CO2 Emissions with Payload (vans)**



**Figure 8 – Measured Variations in CO2 Emissions & Different Drive Cycles (vans)**



(Taken from – Light Goods Vehicle – CO2 Emission Study: Final Report, AEAT for DfT, February 2010 ©AEAT)

Emission data for vans and heavy goods vehicles (HGVs) is more difficult to interpret due to the fact that engines are designed for a variety of chassis types and applications and emissions depend significantly on payload. **Figure 7** shows the measured CO2 emissions of several vans per tonne of payload. **Figure 8** shows the measured variations in CO2 emissions of vans according to different drive cycles. This emphasises the need for an evaluated demonstration phase before the procurement stage. Some organisations may wish to develop their own drive cycle which represents the real-world driving patterns of key vehicles within their fleet, allowing new vehicle technology to be evaluated with specific reference to anticipated duty cycles. **Transport for London (TfL)** has developed the **London Bus Drive Cycle**<sup>27</sup> to evaluate the anticipated performance of new technologies, such as hybrid buses, before they are accepted for service.

<sup>25</sup> [http://www.dieselnet.com/standards/cycles/ece\\_eudc.html](http://www.dieselnet.com/standards/cycles/ece_eudc.html)

<sup>26</sup> [www.dft.gov.uk/pgr/roads/environment/emissions/ppr-354.pdf](http://www.dft.gov.uk/pgr/roads/environment/emissions/ppr-354.pdf)

<sup>27</sup> <http://www.lowcvp.org.uk/lceb/testing/procedures.asp>

### Vehicle and Fuel Specification

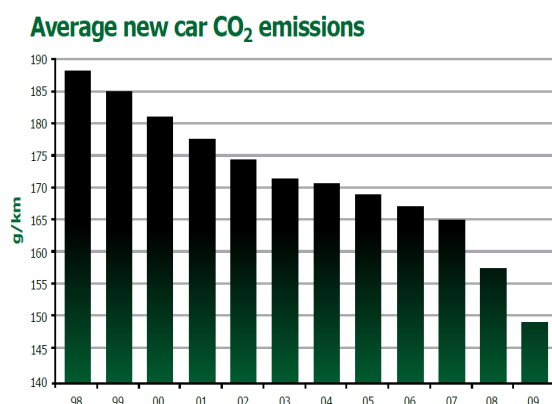
There are several approaches to including environmental criteria as part of a vehicle procurement specification or as part of an emission reduction strategy associated with the delivery of goods and services. While it would not be possible under EU procurement rules to restrict the tendering of goods and services to local companies, it is possible to include award criteria based on the total emissions arising from the delivery of goods and services. Manchester City Council has introduced a sustainable procurement policy promoting the use of local suppliers to reduce transport emissions where possible and support the local economy - **See Box 4.**

#### Box 4: Manchester City Council Policy on Sustainable Procurement

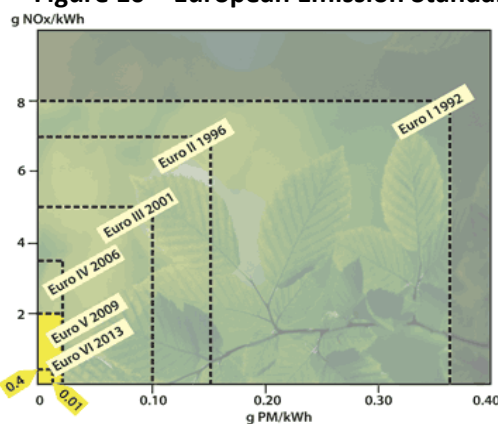
**Manchester City Council** spends around £600m in revenue and £250m in capital per annum on procurement of buildings, goods and services and is developing a **Sustainable Procurement Policy** that includes the following as an objective:  
**“Access local products and services to minimise the environmental impact associated with transportation and support the local economy”**  
 For further information see [www.manchester.gov.uk](http://www.manchester.gov.uk)

In terms of vehicle procurement, the most common environmental performance criteria relate to either Carbon Dioxide emissions, expressed as g/km or g/kWhr (for heavy goods vehicles), or regulated air quality pollutants, expressed in relation to the European Emission Standards, or both combined. **Figure 9** shows the relative emission improvements in CO<sub>2</sub> for new cars. A comprehensive database for the emissions of all makes and models of cars registered since 2001 can be found on the **Society of Motor Manufacturers and Traders (SMMT) Database**<sup>28</sup>. The emissions of all makes and models of vans available in the UK can be found on the **Vehicle Certification Agency CO<sub>2</sub> and Fuel Consumption Database**<sup>29</sup>. **Figure 10** shows the relative improvement in emissions of NO<sub>x</sub> and PM<sub>10</sub> with increasingly stricter European Emission Standards. An additional standard has been created for an Environmentally Enhanced Vehicle (EEV) – this standard anticipated the Euro 6 Standard. It should be noted that both types of emission classification are evaluated over the NEDC.

**Figure 9 – Source SMMT**



**Figure 10 – European Emission Standards**<sup>30</sup>



<sup>28</sup> <http://www.smmtco2.co.uk/co2search2.asp>

<sup>29</sup> <http://vanfueldata.dft.gov.uk/Default.aspx>

<sup>30</sup> [http://ec.europa.eu/enterprise/sectors/automotive/environment/euro5/index\\_en.htm](http://ec.europa.eu/enterprise/sectors/automotive/environment/euro5/index_en.htm)

In addition to engine emission criteria, including noise, it is also possible to specify additional criteria such as tyre type, air conditioning function and gear change indicators. The **Government Buying Standards for Transport**<sup>31</sup> were published in November 2010 and became mandatory for central Government buying departments in February 2011. These Standards include mandatory and also more aspirational, best practice criteria for the procurement of cars, vans, buses and waste collection vehicles. The Government Buying Standards for Transport, including recommended EU verification criteria can be found in **Annex A. These specifications provide a useful benchmark for all public sector vehicle purchasing and should be seen as minimum standards.**

Authorities, including Bracknell Forest have already adopted the Government Buying Standards as part of their sustainable procurement strategy. See **Box 5.**

#### Box 5: Bracknell Forest Vehicle Specification

**Bracknell Forest** produced a **Sustainable Procurement Guide** in February 2011 which incorporates a risk based approach to sustainability and also adopts the **Government Buying Standards**. The Guide includes the following wording in relation to vehicle procurement:

*“Vehicles, machinery and equipment procured and used for this contract to meet Euro 5 emissions standard and for vans and cars have CO<sub>2</sub> emissions near or below 120g/km”*

<http://www.bracknell-forest.gov.uk/your-council/yc-procurement/yc-selling-to-the-council.htm>

Where a certain technology has been evaluated to have proven benefits or the contracting authority wishes to assist in market penetration, help promote innovation, develop the low carbon economy, develop fuel sustainability and security or create alignment with a local renewable source (such as an anaerobic digestion facility) a preferred vehicle or fuel type may be directly specified as a mandatory requirement. **Birmingham City Council** has specified that all new vehicle procurement should be either electric or LPG/CNG/H2 by 2015<sup>32</sup>

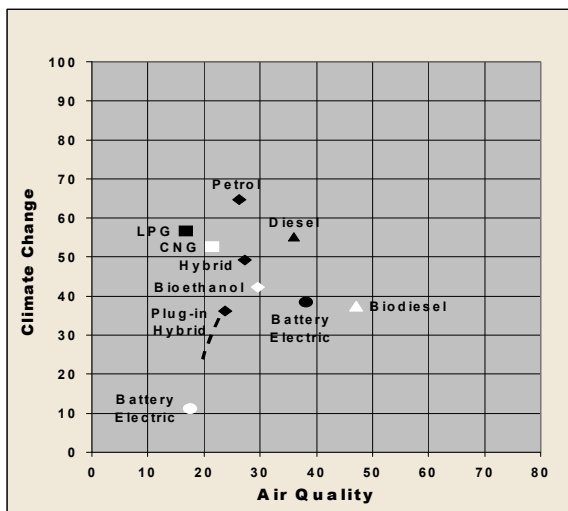
**Camden Council** has demonstrated several clean vehicle technologies, including electric, electric-diesel hybrid, electric- petrol hybrid, biomethane and hydrogen powered vehicles. These trials have been evaluated and the technologies ranked, with the assistance of a life cycle analysis tool. The resulting technology hierarchy relates to both the CO<sub>2</sub> and air quality impacts assessed and this informs the vehicle procurement strategy, with requirements to procure a specified percentage of technologies from each hierarchy banding, thus promoting the cleanest vehicles and fuels. There is an additional requirement to increase the percentage of cars procured each year that comply with improving European Emission Standards. The Camden Green Vehicle Procurement Strategy is outlined in **Box 6.**

<sup>31</sup> <http://sd.defra.gov.uk/advice/public/buying/products/transport/standards/>

<sup>32</sup> Birmingham Declaration 2010

### Box 6: Camden Green Fleet Procurement Strategy

**Camden Council** has demonstrated a wide variety of alternatively fuelled vehicles and has evaluated the relative emissions of these technologies in terms of their impact on air quality and climate change. The results are shown in the matrix below. Further to this evaluation, **Camden Council** has ranked 15 vehicle technologies into a **Clean Fuel & Vehicle Technology Hierarchy**, according to their combined benefits. This hierarchy then informs the fleet procurement strategy, providing target dates for up-take over a 4 year period to 2012/13. Over the same period, a specified percentage of passenger cars/light commercial vehicles purchased need to comply with progressive European Emission Standards



#### Clean Fuel & Vehicle Technology Hierarchy:

- 1) Electric
- 2) Plug-in hybrid
- 3) Bio-methane fitted with hybrid assist
- 4) Bio-methane
- 5) Compressed Natural Gas/Liquid Natural Gas fitted with hybrid assist
- 6) Bi-fuel Liquid Petroleum Gas fitted with hybrid assist
- 7) Compressed Natural Gas/Liquid Natural Gas
- 8) Bi-fuel Liquid Petroleum Gas
- 9) Petrol Hybrid
- 10) Diesel Hybrid
- 11) Bio-diesel produced from used cooking oil
- 12) Bio-diesel produced from virgin plant oil

- 13) Bio-ethanol
- 14) Ultra low sulphur petrol
- 15) Ultra low sulphur diesel

#### Clean Vehicles & Target Dates:

| 2009/10   | 2010/11   | 2011/12   | 2012/13   |
|---|---|---|---|
| 15% from options 1-4<br>70% from options 5-10<br>15% from options 11-15 | 20% from options 1-4<br>65% from options 5-10<br>15% from options 11-15 | 25% from options 1-4<br>65% from options 5-10<br>10% from options 11-15 | 30% from options 1-4<br>60% from options 5-10<br>10% from options 11-15 |

#### European Emission Standard Targets:

|   | 2009/10 | 2010/11 | 2011/12 | 2012/13 |
|---|---------|---------|---------|---------|
| Passenger cars/light commercial (<3.5T) |         |         |         |         |
| Euro 4                                  | 100%    | 75%     |         |         |
| Euro 5                                  |         | 25%     | 75%     | 50%     |
| Euro 6                                  |         |         | 25%     | 50%     |

For further information see [www.camden.gov.uk/print/theme/clearleft-camden/ccm/content/environment/air-quality-and-pollution/air-quality/greening-camdens-vehicle-fleet.en](http://www.camden.gov.uk/print/theme/clearleft-camden/ccm/content/environment/air-quality-and-pollution/air-quality/greening-camdens-vehicle-fleet.en)

## **ECONOMIES OF SCALE**

Clean and energy efficient vehicle are often more expensive than their standard technology counterparts, often due to low volume manufacture and take up, and also due to the incremental cost of infrastructure required for re-charging/refuelling. Aggregated procurement techniques have been used successfully to reduce the costs associated with vehicle purchase and are being used more widely to achieve low emission vehicle price competitiveness with standard technologies and accelerate market penetration.

The **EU PROCURA Project**<sup>33</sup> reported in 2009 and involved public procurement authorities working with automotive manufacturers to strengthen the supply chain through the creation of aggregated demand. The economies of scale achieved resulted in lower pricing and helped accelerate a broader market penetration of clean and fuel efficient vehicles. The **EU COMPRO Project**<sup>34</sup> aims to create an international buyers consortium for the pan-European procurement of clean and fuel efficient vehicles. Both projects were funded under the Intelligent Energy Europe (IEE) Programme.

The **Greater London Authority** and **Transport for London** are part of the **C40 Cities – Climate Leadership Group**<sup>35</sup> and have combined with other worldwide city authorities to look at the potential for cost savings through the aggregated procurement of hybrid buses and LED lighting.

**Royal Mail** has a fleet of around 30,000 vehicles<sup>36</sup> and is able to procure vehicles at considerable cost reduction due to its volume purchasing ability. Royal Mail is looking at co-ordinated procurement potential of working with both European and International Postal Organisations to reduce the costs of clean vehicle technology and assisting market penetration of new technologies.

Further information on approaches to collaborative procurement can be obtained from the Efficiency and Reform Group (ERG- Cabinet Office)<sup>37</sup>

### ***Procurement Frameworks***

Several low emission vehicle & infrastructure procurement frameworks have been developed in the UK, with the intention of securing cost savings to end purchasers. A procurement framework is where multiple suppliers are invited to tender (ITT) to supply goods and services competitively through a framework with an overall pre-defined budget. Suppliers are selected according to weighted heading criteria, including volume pricing, product specification, financial standing and quality criteria, such as technical back up. Sustainability criteria may also be incorporated at this stage in the specification. Once the suppliers have been chosen, customers are invited to procure using their own specification requirements and mini-competitions establish the supplier who best meets the award criteria, including sustainability.

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<sup>33</sup> <http://www.procura-fleets.eu/category/home>

<sup>34</sup> <http://www.compro-eu.org/>

<sup>35</sup> <http://www.c40cities.org/>

<sup>36</sup> Communication with Head of Vehicle Procurement, Royal Mail

<sup>37</sup> [http://www.ogc.gov.uk/efficiency\\_collaborative\\_procurement\\_documents.asp](http://www.ogc.gov.uk/efficiency_collaborative_procurement_documents.asp)

**Transport for London** has set up the **London Electric Vehicle and EV Infrastructure Procurement Framework** to achieve cost reductions in the EV market, allowing accelerated market penetration. See **Box 7**

#### Box 7: London Electric Vehicle (EV) & EV Infrastructure Procurement Framework

As part of the **Mayor for London's EV & EV Infrastructure Strategy**, **Transport for London (TfL)** has two procurement frameworks in place – the first relates to the provision of 8,525 EV recharging points and the second relates to the supply of up to 1000 EVs for the GLA fleet by 2015. Under these frameworks, other local authorities can take advantage of the financial benefits secured through bulk purchase and are able to procure an additional 300 vehicles and also EV recharging infrastructure to a value of £10m. The two frameworks are worth a total of £97m, £71.6m in London and a further £25.4m for other local authorities. For more information contact [markpoulton@tfl.gov.uk](mailto:markpoulton@tfl.gov.uk)

The **Pro-5 Procurement Framework** is one of the largest in the UK, valued at £500m. The framework relates to vehicles over 3.5 tonnes and is managed by the **Yorkshire Purchasing Organisation (YPO)**. The YPO provide fleet procurement services to over 100 local authorities in the UK, including all Welsh Authorities. See **Box 8**

#### Box 8: Pro-5 HGV Procurement Framework

**Pro5 - the five major local authority purchasing consortia in the UK** are in the process of establishing a suite of fleet related frameworks. The first two major joint ventures are for the outright purchase of cars and light commercials and the other for specialist vehicles (any vehicle over 3.5 tonne typically used in a municipal environment e.g. refuse collection vehicles, sweepers, winter maintenance vehicles, tippers, mobile libraries etc). The framework for specialist vehicles was led by the Yorkshire Purchasing Organisation on behalf of Pro5, is enabled for use by all local authorities in the UK, and was advertised in OJEU has having a value of approximately £500 million. Prices for vehicles purchased against this framework are obtained by way of mini-competitions, and is not based on any price matrix, so therefore not restricted to any particular specification; allowing for new developments and technologies to be included, without the need to conduct a fully blown OJEU project. For further information from your local Pro5 consortium contact:  
**Yorkshire Purchasing Organisation (YPO)** Roy Orchard [roy.orchard@ypo.co.uk](mailto:roy.orchard@ypo.co.uk)  
**Eastern Shires Purchasing Organisation (ESPO)** Kevin Matthews [k.matthews@espo.org](mailto:k.matthews@espo.org)  
**North East Purchasing Organisation (NEPO)** Michael Curtis [michaelcurtis@gateshead.gov.uk](mailto:michaelcurtis@gateshead.gov.uk)  
**Central Buying Consortium (CBC)** Clive Hammond [clive.hammond@suffolk.gov.uk](mailto:clive.hammond@suffolk.gov.uk)

The fifth consortium (West Mercia) making-up Pro5 is not currently dealing with vehicles.

The **Low Carbon Vehicle Procurement Programme (LCVPP)** is a £50m framework funded by DfT to achieve economies of scale with respect to low carbon vans, strengthening the UK automotive supply chain and accelerating market entry. Procurement consortia have been chosen for

involvement in the framework based on demonstrated low carbon commitment and are able to procure vehicles at standard technology pricing levels. The LCVPP is managed by **Cenex**. See **Box 9**.

#### Box 9: Low Carbon Vehicle Procurement Programme

The **£50m DfT Low Carbon Vehicle Procurement Programme (LCVPP)** seeks to utilise economies of scale to assist market entry for 6 m<sup>3</sup> electric and hybrid vans in the UK. Based on tank to wheel carbon reduction specification, several UK vehicle manufacturers or modifiers (**Smiths, Allied, Modec\* and Ashwoods**) have been chosen to develop vehicles for subsidised purchase by public sector organisations, including:

**Royal Mail Tfl Environment Agency Government Car Service**

and local authority consortia, including:

**Central London Coventry/Warwick Newcastle Leeds/Wakefield**

It is envisaged that the volume of vans procured will enable a competitive pricing structure for wider market entry.

For further information see [www.cenex.co.uk/lcvpp](http://www.cenex.co.uk/lcvpp)

\* Modec have since gone into administration

It is anticipated that further low emission vehicle procurement frameworks will be set up, given the policy and legislative drivers that are being introduced and the size of the public sector fleet.

Further assistance in aggregated vehicle procurement may be provided through **Regional Improvement and Efficiency Partnerships**<sup>38</sup>

### INNOVATION OF PROCUREMENT

Procurement has a role in promoting innovation and encouraging the transition to a low carbon economy. To fulfil this role, procurement procedures may need to adapt and become more innovative.

For example, often low emission vehicle alternatives have a low residual price that affects the cost of leasing them, increasing the price. In 2007, electric vans were considered by leasing organisations to have a residual price after 4 years of 15% of purchase price<sup>39</sup>. This is due to extreme evaluation of risk based on lack of UK second hand market data. Financial institutions have been prepared to underwrite the residual value to 30%, based on increasing knowledge of depreciation, thus lowering the cost of leasing and increasing the attractiveness of electric van technology.

Similarly, the lack of available low emission vehicle refuelling infrastructure and the additional cost of providing it often deters SMEs from transitioning to low emission vehicle alternatives. HMRC now provide an Enhanced Capital Allowance (ECA) for low emission vehicle refuelling infrastructure (100% write off against tax) which enables low emission vehicle technology transition to be price competitive. The ECA cannot be used by local authorities as they do not pay tax.

<sup>38</sup> <http://www.idea.gov.uk/idk/core/page.do?pageId=8595264>

<sup>39</sup> Communications with electric van manufacturers

The following are examples of innovative techniques that have been considered for the procurement of low emission vehicles and infrastructure.

### ***Forward Commitment***

The slow introduction of innovative technology onto the market is often due to supply chain failure to overcome the 'valley of death' between high cost prototype development/low volume demonstration fleet production and competitive mass market entry. While there needs to be supply side push to introduce new technologies there also needs to be demand side pull to give confidence to manufacturers. One way of achieving this is through a technique known as **Forward Commitment**. This is where a consumer articulates a need for a technological solution and the market responds. Through established procurement procedure, a customer outlines the desired product and issues an ITT. Through a process of competitive dialogue, the required specification is arrived at and the supplier chosen, with a commitment to procure at a given volume. This commitment allows the supplier to secure investment and scale up production. For further information on Forward Commitment and the use of procurement to secure innovation contact the Efficiency and Reform Group (ERG – Cabinet Office)<sup>40</sup>

### ***eProcurement***

Local authorities have been encouraged to use web-based/on-line techniques in their purchasing practices to speed up the process of procurement, reduce overhead costs and potentially drive down the pricing of goods and services. **eTendering**, **eAuctions** and **eInvoicing** have been demonstrated widely<sup>41</sup>.

### ***eAuctions***

An **eAuction** is a process for conducting a Dutch-style reverse auction via the web, essentially driving down prices in highly competitive markets as an alternative to the traditional tender process. It is usually facilitated by a specialist provider for a one-off fee, using their own software and website.

**Wolverhampton City Council** has demonstrated the use of eAuctions to procure school bus services on line, whereby vehicle suppliers, aware of their customer preferred ranking at staged intervals in the auction, are encouraged to reduce their pricing in decrements and/or enhance their specifications, potentially including sustainability, to secure the contract award. Further cost savings are made for the purchaser due to a decrease in administrative overheads etc. For further information see **Box 10**

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<sup>40</sup> [http://www.ogc.gov.uk/delivering\\_policy\\_aims\\_through\\_public\\_procurement\\_innovation.asp](http://www.ogc.gov.uk/delivering_policy_aims_through_public_procurement_innovation.asp)

<sup>41</sup> Dept for Communities and Local Govt (CLG) review of Local Govt National Procurement Strategy, August 2006

### Box 10: Innovation in Procurement – eAuctions

**Wolverhampton City Council** has demonstrated the use of **eAuctions** as a method of achieving cost reductions in the procurement of school bus services, while encouraging vehicle suppliers to compete in relation to performance criteria. The exercise achieved a 19% cost saving and has encouraged Wolverhampton to repeat the exercise again this year for the procurement of fleet vehicles, including sustainability criteria in the process. For further information contact [Rachel.Orme@wolverhampton.gov.uk](mailto:Rachel.Orme@wolverhampton.gov.uk)

### Wet Leasing

The cost of providing infrastructure for alternatively fuelled vehicles often deters fleet operators from taking up these technologies, even where cost savings can be made when vehicle numbers reach a break- even point. This is particularly relevant in terms of demonstrations whereby the cost of providing infrastructure cannot be justified in relation to such a small number of vehicles. Wet leasing overcomes this issue by allowing the cost of the infrastructure to be paid via an incremental cost to the fuel consumed through the nozzle or plug.

### Box 11: Innovation in Procurement – Wet Leasing

**Wet leasing** allows an organisation to pay for the cost, or incremental cost, of alternatively fuelled vehicles and/or infrastructure through a supplementary payment added onto the standard price for the vehicle energy supplied. The level of supplementary payment is determined by the volume of vehicle energy to be used, the length of vehicle/infrastructure lease or agreed payback period where outright purchase is preferred. Wet leasing is similar to a monthly contract with a mobile phone company, whereby the phone is provided free-of-charge and the cost is recouped through guaranteed, elevated monthly payments over an agreed period. **Leeds City Council** wanted to assess the benefits of using two RCVs operating on biomethane as part of their refuse collection services – dedicated CNG & dual fuel. For the initial trial period, Leeds wet leased the provision of a refuelling station, paying a supplement to their biomethane supplier, on top of the standard fuel cost, for the hire of the station. This trial has encouraged Leeds CC to invest in a permanent biomethane station, securing 50% of the costs through the DfT Alternative Fuels Infrastructure Grant Programme. For further information contact [Richard.Crowther@leeds.gov.uk](mailto:Richard.Crowther@leeds.gov.uk)



**Leeds City Council** has used wet leasing to enable a demonstration of refuse collection vehicles operating on biomethane. The refuelling infrastructure was leased with the cost covered through an incremental charge for the fuel supplied. The demonstration project allowed Leeds to ascertain robust data to build the business case to install a permanent station. See **Box 11**

## ECO-LABELLING

The identification and certification of low emission vehicles through nationally approved schemes, can play an important role in helping consumers make informed buying decision, allowing them to demonstrate their green credentials and also gear the market towards vehicles with reduced emissions.

For green labelling to work it must be clearly understood, credible to consumers and genuinely reflect environmental improvement. There are many environmental labelling schemes including:

- EU Ecolabel
- Green Claims (Defra)
- European Energy Label

However, these schemes do not cover road transport.

The **SMMT**, with support from the **AA**, **RAC**, **Low Carbon Vehicle Partnership (LowCVP)** and other automotive






support organisations have introduced a vehicle energy classification scheme, similar to the product classification information provided for consumables such as fridges and electrical appliances. The scheme is based on the Vehicle Excise Duty bandings for vehicles and has become a voluntary industry standard (see above).

The regulated pollutant emissions of vehicles can also be identified by their European Emission Standard.

Several fleet recognition schemes have emerged, rewarding operators for adopting best practice, including emission reduction. **Transport for London** awards gold, silver and bronze standards for fleets achieving a variety of targets, including emissions, as part of the **Freight Operators Recognition Scheme (FORS)**, and takes the awards into account when awarding logistics contracts.

**Care4Air** – the **South Yorkshire Air Quality Local Authority Group** and **Mid Devon** have pioneered the **Eco-Stars** freight recognition scheme, targeted at encouraging fleet emission reductions.

Operators register for the scheme and their fleets evaluated in terms of regulated air pollutant and CO2 emissions with stars awarded up to a best in class 5 star standard. Operators are also given practical emission reduction advice. See **Box 12**. There is significant potential to use the fleet classification system as part of public sector contract award criteria.

| Fuel Economy   |                       | Ford Fiesta 1.4 ZETEC      |
|--|-----------------------|----------------------------|
| <b>Carbon dioxide emissions</b><br>CO2 grams per kilometre<br>VED bands equivalents<br><100 A AAA<br>101-120 B AA<br>121-150 C A<br>151-165 D B<br>166-185 E C<br>186+ F D   |                       | <b>D</b> 159g/km           |
| <b>Running costs</b><br>Fuel cost for 10,000 miles (16,000 km)<br>Calculated on a combined (town centre and motorway) drive cycle with a base fuel price of 80 pence/litre. Fuel costs may differ from this due to driving behaviour as well as other non-technical factors.<br>VED for 12 months<br>Vehicle excise duty (VED) or road tax is graduated according to the CO2 emissions of the vehicle and can be found at: <a href="http://www.gov.uk">www.gov.uk</a>  |                       | <b>£858</b><br><b>£125</b> |
| <b>Environmental Information</b><br>A free guide on fuel economy and CO2 emissions which contains data for all new passenger car models is available at any point of sale and on the web at: <a href="http://www.vca.gov.uk">www.vca.gov.uk</a> . Some specifications of this make/model may have lower CO2 emissions than this. Check with your dealer. 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 CO2 emissions. Carbon dioxide is the main green house gas responsible for global warming. |                       |                            |
| Make/Model   | Ford Fiesta 1.4 ZETEC | Fuel type                  |
| Engine capacity (cc)   | 1399                  | Transmission type          |
|  |                       | Patrol 5 speed manual      |
| <b>Fuel Consumption</b> Measured according to Directive 93/116/EEC   |                       |                            |
| Drive cycle  | litres/100km          | mpg                        |
| Urban (e.g. town centre)   | 8.8                   | 32.1                       |
| Extra-urban (e.g. motorway)  | 5.4                   | 52.3                       |
| Combined (e.g. town centre and motorway)   | 6.7                   | 42.2                       |
| Carbon Dioxide Emissions: 159g/km<br>Important note: Some specifications of this make / model may have lower CO2 emissions than this. Check with your dealer.  |                       |                            |
|        |                       |                            |

### Box 12: Fleet Emission Reduction Recognition Schemes

**Transport for London (TfL)** has introduced a **Fleet Operators Recognition Scheme (FORS)**. The scheme awards gold, silver and bronze standards to fleet operators meeting set criteria, including environmental performance. **FORS** is taken into account when awarding key TfL contracts such as internal mail delivery.

For more information see [www.tfl.gov.uk/fors](http://www.tfl.gov.uk/fors)

**South Yorkshire Authorities** have pioneered the **Eco-Stars Fleet Recognition Scheme** with **Mid Devon** also introducing the scheme. Registering fleets are evaluated and awarded stars according to their environmental performance. As yet these schemes are not recognised in terms of procurement award criteria but have the potential to be encouraged through reference in procurement specification criteria. For further information see [www.care4air.org/ecostars/index.html](http://www.care4air.org/ecostars/index.html) or for the Mid Devon scheme contact [snewcombe@middevon.gov.uk](mailto:snewcombe@middevon.gov.uk)

### PUBLIC PRIVATE PARTNERSHIPS

There is significant potential to accelerate the uptake of cleaner fuels and technologies and help stimulate local economies by strengthening the relationship between the public and private sector.

This can include:

- Transfer of knowledge relating to vehicle performance
- Cost reductions through aggregated procurement
- Supply chain development through clarity of green vehicle procurement procedures and articulation of ambition
- Sharing of infrastructure
- Sponsorship of mutually beneficial technologies
- Innovation demonstration projects
- Close working with Universities and research institutes

Several public private partnerships have demonstrated the ability to potentially reduce emissions through co-ordinated partnership working.

The **Smart ED** (electric drive) trials illustrate how public private working can support the development of new, clean powered technology. In 2007/8 **Mercedes**, in association with **Zytek**, **Mesdea** and funding from **Cenex** and the **Energy Savings Trust (EST)**, developed a prototype electric Smart car – a car originally designed to be electric, and with the support of public and private organisations placed the cars on an evaluated leasing trial. This initial project demonstrated how public and private organisations can work together, supporting the development of innovative technology, and has encouraged Mercedes to enter full production of the Smart ED in 2012 – **See Box 13.**

### Box 13 – Smart ED Prototype Trial

In 2007, **Mercedes** articulated the ambition to develop a **Smart Four-Two electric drive (ED) vehicle**. With funding support from **Cenex** and the **Energy Savings Trust (EST)**, Mercedes brought 100 Smart gliders (no engine) to the UK in 2008 to be fitted with electric drive trains by **Zytek**, based in the Lichfield, and solid oxide (Zebra) batteries, supplied by **Mesdea**, Italy. These prototype vehicles were allocated to public and private sector organisations on a 4 year lease to evaluate their performance. While the leasing costs were significantly greater than for standard vehicle technologies, the recognition of potential by public sector organisations to commit to supporting the trials was a key factor in its success. **Sheffield City Council** committed to the largest allocation and, in association with **Sheffield University**, tested the vehicle over undulating terrain and urban drive cycles, and the findings fed back to Mercedes. In turn, Mercedes up-skilled local dealerships to support the trials.



(©Elektromotive – Charging Point at Maclaren HQ)

In 2011, Mercedes launched the second prototype Smart ED trials, including 100 cars with factory fitted lithium ion batteries, placed on fixed term leases. The success of all these trials has led to Mercedes announcing that the Smart ED will go into full production and be available from 2012.

For further information contact Tom Morrison-Jones at [tom@nudgeadvisory.com](mailto:tom@nudgeadvisory.com)

**Greenwich Council** has worked in co-operation with the private sector and using Section 106 Air Quality funding to undertake a trial of a dedicated gas refuse vehicle in a back to back trial with a standard diesel truck to inform its future waste vehicle procurement strategy. In a partnership with **Chesterfield Biogas** and also involving co-operation with **Tesco** and **Mercedes**, **Greenwich** has demonstrated that public private partnerships can help deliver cost efficient vehicle demonstrations that also benefit the market penetration of low emission vehicles and infrastructure. See **Box 14**

### Box 14 – Greenwich Gas Vehicle Trials

**Greenwich Council** is undertaking an evaluation of a dedicated CNG refuse vehicle in a back to back trial with a standard diesel truck. The trial will inform the future waste vehicle procurement strategy and potentially tie in with plans to develop a 40,000 tonne per annum anaerobic digestion (AD) facility. In order to facilitate the trial, Greenwich are working in co-operation with **Chesterfield Biogas**, who are providing the gas refuelling facility free of charge for the first 6 months of the year-long demonstration (the station was part funded through the DfT Alternative Fuels Infrastructure Grant Programme). The **Mercedes Eonic** truck was bought second hand from **Tesco** (see below) and modified into a refuse collection vehicle. The demonstration has been part funding through **Section 106 Planning Agreements**, secured by Greenwich to improve air quality. The refuelling station will be available for 3<sup>rd</sup> party use by both public and private sector organisations.



(Source: Tesco)

For further information contact – [Chris.Banks@greenwich.gov.uk](mailto:Chris.Banks@greenwich.gov.uk)

## **DEVELOPING A LOW EMISSION VEHICLE PROCUREMENT (LEVP) STRATEGY**

The following key principles should be taken into account when developing a **Low Emission Vehicle Procurement Strategy (LEVPS)**:

### ***Organisational Buy –in***

The development of the strategy should be supported by senior management and politicians (where applicable) with the aims and potential outcomes clearly communicated throughout the organisation.

### ***Identify Organisational Needs & Risks***

All vehicle procurement needs, including any transportation requirement of goods and services supplied to the organisation should be identified and screened for necessity and opportunities for emission reduction intervention. The organisation needs to assess its environmental obligations and the risks associated with purchasing decisions.

### ***Legal Compliance***

The organisation needs to be aware of current and forthcoming legal requirements and ensure that the strategy will meet them

### ***Define the LEVP Strategy***

This should include:

***Identification of Suitable Technologies-*** a review of available and potential future technologies should be undertaken and appropriate solutions selected.

***Demonstration and Evaluation of Technologies-*** selected technologies should be trialled and performance evaluated under local conditions of use. A hierarchy of technologies could be compiled according to environmental performance in line with an operational lifetime costing approach

**Vehicle Specification & Verification**- information gathered during evaluation or provided by recommended standards should inform the procurement specification. Consideration as to award criteria, sustainability weighting and possible monetisation of environmental emissions should form part of the operational lifetime costing approach

**Supply Chain Engagement** – suppliers and opportunities for partnerships identified. Low emission vehicle requirements should be articulated to the supply chain

**Identify Appropriate Procurement Techniques** – opportunities for cost reduction and innovation should be considered for the procurement stage, including the use of procurement frameworks and eProcurement

### **Evaluate and Award Contract**

The approach should comply with the requirements of the Cleaner Road Transport Vehicle Regulations

### **Implement & Manage Contract**

Performance data should be gathered regarding maintenance, fuel consumption and operator observations to inform the further development of the LEVP Strategy

### **Review and Learn**

The procurement process should be reviewed and learnings used to refine the LEVP Strategy

### **Communication**

The LEVP Strategy outcomes should be communicated both internally and externally

**For further information about developing a Low Emission Vehicle Procurement Strategy for your organisation please contact the Low Emission Strategies Partnership –**

**[info@lowemissionstrategies.org](mailto:info@lowemissionstrategies.org)**

## Annex A

### Government Buying Standards for Transport Vehicles and Services, including EU recommended verification (reproduced from Defra Regulatory Impact Assessment of Cleaner Road Transport Vehicle Regulations, 2010)

| TYPE   | Mandatory   | Best practice   |
|--|---|---|
| <b>Passenger cars and light-duty vehicles including vans (purchase or lease of low emission vehicles)</b><br><i>Mandatory for M1 and N1 class in Directive 2001/116/EC</i> |   |   |
| CO <sub>2</sub> emissions  | CO <sub>2</sub> emissions for fleet average of new <b>cars</b> should not exceed 130 g CO <sub>2</sub> /km<br>By 2012/13 CO <sub>2</sub> emissions for fleet average for new <b>vans</b> should not exceed 175 g CO <sub>2</sub> /km<br><b>Verification:</b> technical sheet of the vehicle where CO <sub>2</sub> emissions are stated. | CO <sub>2</sub> emissions for fleet average of new <b>cars</b> should not exceed <b>130g CO<sub>2</sub>/km</b> .<br>CO <sub>2</sub> emissions for fleet average for new <b>vans</b> should not exceed 175 g CO <sub>2</sub> /km<br><b>Verification:</b> technical sheet of the vehicle where CO <sub>2</sub> emissions are stated.  |
| Exhaust emissions  | N/A   | Vehicles must comply with EURO 5 standard<br><b>Verification:</b> technical sheet of the vehicle where emissions are stated.  |
| <i>Award criteria (additional points will be awarded for)</i>  |   |   |
| Fuel type  | Capability to use fuel from renewable sources (for example biofuels, renewable electricity or hydrogen)<br><b>Verification:</b> technical sheet of the vehicle where these technical or fuel technology specification are displayed   | As core technical specification   |
| Noise emissions  | Noise emissions to be lower than those established by law (in member state)<br><b>Verification:</b> technical sheet of the vehicle where information or test results are displayed  |   |
| CO <sub>2</sub> emissions  | N/A   | CO <sub>2</sub> emissions for fleet average for new <b>cars</b> or <b>vans</b> (after 2012/13) to be <b>lower</b> than those required in the core technical specification.<br><b>Verification:</b> technical sheet of the vehicle where CO <sub>2</sub> emissions are stated.   |
| Efficient driving  |   | The vehicle is equipped with gear shift indicators<br><b>Verification:</b> technical sheet of the vehicle where this information is stated.   |
| Tyre pressures   |   | The vehicle is equipped with tyre pressure monitoring systems<br><b>Verification:</b> technical sheet of the vehicle where this information is stated.  |
| Gases used in air conditioning   |   | Where vehicles have air-conditioning systems using fluorinated gases, the gas used must have a global warming potential (GWP) less than or equal to 150. If the GWP is higher than 150 the leakage rate from the system must not exceed a specified rate depending on the type of gas / system <sup>1</sup> .<br><b>Verification:</b> details of gases used in the system <sup>1</sup> .  |
| Lubricant oils (mostly relating to leased vehicles) <sup>2</sup> .   |   | Commitment to use low viscosity engine lubricant oils or regenerated lubricant oils with a min. 25% regenerated oil base in vehicle maintenance. Grades stipulated in product sheets.<br><b>Verification:</b> Technical sheet of lubricants and signed declaration of commitment for the duration of the contract to use these products   |
| Vehicle tyres (mostly relating to leased vehicles) <sup>2</sup> .  |   | Noise from tyres: equip vehicles with tyres with noise emissions below maximum established by law<br>Efficient tyres: commitment to use low rolling resistance tyres – potential limit values set out in the product sheet<br>Oils in tread rubber: commitment to use tyres that do not contain oils that are subject to labelling in accordance with Directive 67/548/EEC in the tread rubber.<br><b>Verification:</b> for detailed requirements see the product sheets. |
| <i>Contract performance clauses (relating to lease contracts)</i>  |   |   |
| Waste management   | N/A   | The contractor must selectively collect used lubricant oils and tyres and have a contract with one or several authorised waste management organisations for the correct treatment of these waste fractions.   |
| TYPE   | Mandatory   | Best Practice   |
| <b>Bus procurement (purchase or lease of low emission buses)</b>   |   |   |
| Exhaust emissions  | Vehicle engines must be certified as meeting EURO V standard for emissions according to EC Directive 2005/55/EC<br><b>Verification:</b> technical sheet of the vehicle where emissions are stated.  | As mandatory specification  |

|   |   |   |
|---|---|---|
| <i>Efficient driving</i>  | N/A   | The vehicle is equipped with gear shift indicators<br><b>Verification:</b> technical sheet of the vehicle where this information is stated  |
| <i>Tyre pressures</i>   |   | The vehicle is equipped with tyre pressure monitoring systems<br><b>Verification:</b> technical sheet of the vehicle where this information is stated.  |
| <i>Placement of exhausts</i>  |   | Vehicles' exhaust pipes must not be located on the same side as the passenger door<br><b>Verification:</b> technical sheet of the vehicle where this information is stated.   |
| <i>Gases used in air conditioning</i>   |   | Where vehicles have air-conditioning systems using fluorinated gases, the gas used must have a global warming potential (GWP) less than 2,500. Further details are set out in the Product Sheet <sup>2</sup> .<br><b>Verification:</b> details of gases used in the system see the Product Sheet <sup>3</sup> . |
| <i>Award criteria (additional points will be awarded for)</i>                 |   |   |
| <i>Exhaust emissions</i>  | Vehicle engines must be certified as meeting EURO VI standard (where available) for emissions<br><b>Verification:</b> technical sheet of the vehicle where emissions are stated.  | As core technical specification   |
| <i>Fuel type</i>  | Capability to use fuel from renewable sources (for example biofuels, renewable electricity or hydrogen)<br><b>Verification:</b> technical sheet of the vehicle where these technical or fuel technology specification are displayed   |   |
| <i>Noise emissions</i>  | Noise emissions to be lower than those established by law (in member state)<br><b>Verification:</b> technical sheet of the vehicle where information or test results are displayed  |   |
| <b>TYPE</b>   | <b>Mandatory</b>  | <b>Best Practice</b>  |
| <b>Public transport services (Contract for the provision of bus services)</b> |   |   |
| <i>Technical specification</i>  |   |   |
| <i>Exhaust emissions</i>  | All vehicles used in carrying out the service must have engines meeting EURO IV standards, according to EC Directive 2005/55/EC. Where vehicles are not certified as EURO IV, but technical after-treatment has achieved the same standard, this should be documented in the tender application.<br><b>Verification:</b> technical sheet of the vehicle where emissions are stated or evidence of upgrade with credible third party approval. | As best practice technical specification  |
| <i>Award criteria (additional points will be awarded for)</i>                 |   |   |
| <i>Exhaust emissions</i>  | Proportion of vehicles to be used in carrying out the service complying with stricter EURO standards (EURO V or VI where applicable).<br><b>Verification:</b> provide a list of all the vehicles to be used in the service with their EURO standard and their respective technical sheets where emission standards are defined.   | As core award criteria  |
| <i>Fuel type</i>  | N/A   | Capability to use fuel from renewable sources (for example biofuels, renewable electricity or hydrogen from renewable sources)<br><b>Verification:</b> technical sheet of the vehicle where these technical or fuel technology specification are displayed  |
| <i>Noise emissions</i>  | Noise emissions to be lower than those established by law (in member state)<br><b>Verification:</b> technical sheet of the vehicle where information or test results are displayed  | As core award criteria  |
| <i>Efficient driving</i>  | N/A   | Proportion of vehicles equipped with gear shift indicators<br><b>Verification:</b> technical sheet of the vehicles where this information is stated.  |
| <i>Tyre pressures</i>   |   | Proportion of vehicles equipped with tyre pressure monitoring systems<br><b>Verification:</b> technical sheet of the vehicles where this information is stated.   |
| <i>Gases used in air conditioning</i>   |   | Proportion of vehicles to be used in the service - where vehicles have air-conditioning systems, the gas used must have a global warming potential (GWP) less than 2,500. Further details are set out in the Product Sheet <sup>4</sup><br><b>Verification:</b> details of gases used in the system.            |
| <i>Contract performance clauses (relating to lease contracts)</i>             |   |   |

|  |   |  |
|--|---|--|
| <i>New vehicles</i>  | All vehicles newly purchased after the award of the contract and used in carrying out the service must comply with the Euro VI standard and be fitted with GSI (Gear shift indicator) and TPMS (Tyre pressure monitoring system). The vehicle's exhaust pipe must not be located on the same side as the passenger door.<br><b>Verification:</b> The contractor will present the authority with the relevant information to demonstrate that the clause is fulfilled. | As core contract performance clause  |
| <i>Fuel consumption and CO2 emissions data</i>                         | The contractor must provide at the end of each year a report stating the amount of fuel consumed in carrying out the service (petrol, diesel, biofuel, CNG, electricity...) and the CO2 emissions derived from that consumption.  | As core contract performance clause  |
| <i>Lubricant oils (mostly relating to leased vehicles)<sup>2</sup></i> | N/A   | Use of low viscosity engine lubricant oils or regenerated lubricant oils with a min. 25% regenerated oil base in vehicle maintenance. Grades stipulated in product sheets.<br><b>Verification:</b> Technical sheets of lubricants used each year   |
| <i>Vehicle tyres (mostly relating to leased vehicles)<sup>2</sup></i>  |   | Efficient tyres: commitment to use low rolling resistance tyres – potential limit values set out in the product sheet<br>Oils in tread rubber: commitment to use tyres that do not contain oils that are subject to labelling in accordance with Directive 67/540/EEC in the tread rubber.<br><b>Verification:</b> for detailed requirements see the product sheets. |
| <i>Driving style</i>   |   | All drivers involved in carrying out the service must be trained in a recognised institution on environmentally-conscious driving on a regular basis to increase fuel efficiency.<br><b>Verification:</b> The contractor will provide a list of the drivers and their certificates of eco-driving training   |

| TYPE | Mandatory | Best Practice |
|------|-----------|---------------|
|------|-----------|---------------|

**Waste collection trucks procurement (purchase or lease of low emission waste collection trucks)**

|   |  |   |
|---|--|---|
| <i>Exhaust emissions</i>                                      | Vehicle engines must be certified as meeting EURO V standard for emissions according to EC Directive 2005/55/EC<br><b>Verification:</b> technical sheet of the vehicle where emissions are stated.   | As core technical specification   |
| <i>Award criteria (additional points will be awarded for)</i> |  |   |
| <i>Exhaust emissions</i>                                      | Vehicle engines must be certified as meeting EURO VI standard (where available) for emissions<br><b>Verification:</b> technical sheet of the vehicle where emissions are stated.   | As core technical specification   |
| <i>Fuel type</i>  | Capability to use fuel from renewable sources (for example biofuels, renewable electricity or hydrogen from renewable sources)<br><b>Verification:</b> technical sheet of the vehicle where these technical or fuel technology specification are displayed |   |
| <i>Noise emissions</i>  | Noise emissions to be lower than 102dB (A) measured according to Directive 2000/14/EC.<br><b>Verification:</b> technical sheet of the vehicle where information or test results are displayed  |   |
| <i>Tyre pressures</i>   | N/A  | The vehicle is equipped with tyre pressure monitoring systems<br><b>Verification:</b> technical sheet of the vehicle where this information is stated.  |
| <i>Emissions from auxiliary units</i>                         | N/A  | The vehicle's emissions from the separate engines for auxiliary units meet the exhaust emission limits below according to Directive 97/68/EEC, level IIIa (constant rpm). potential limit values set out in the product sheet<br><b>Verification:</b> for detailed requirements see the product sheets. |

**Additional Award criteria – for all vehicles**

**Note: this is criteria which goes beyond the current EU GPP standard**

- Recycled content. Most vehicles already include some form of **recycled content**. Procurers can distinguish between vehicles in this respect;
- Bio-content/materials** are included in some vehicles (for example components which comprise starch rather than plastic) and as they may be more sustainable in some applications, can be indicated in the vehicle specification;
- Vehicles designed to **facilitate (maximise opportunities) to recycle or recover parts at the end of the vehicles life** with the benefit of minimising waste to landfill, minimise energy consumption to dispose of vehicles, as well as reduce future demand for resources; and

Vehicles that are designed to be able to **enhance their repair-ability and availability of more frequently used spares** (for example; windows, bulbs, plugs, air and oil filters or batteries) may prolong the useful life of products which, given the overall expense of vehicles, can have represent a significant cost savings for procurers even if the life is extended by 10%.

## Annex B

### Methodology for the Calculation of Operational Lifetime Costs (reproduced from Directive)

#### Article 6 – Directive 2009/33/EC

##### Article 6

##### Methodology for the calculation of operational lifetime costs

1. For the purposes of Article 5(3)(b), second indent, operational lifetime costs for energy consumption, as well as for CO<sub>2</sub> emissions and pollutant emissions as set out in Table 2 of the Annex, which are linked to the operation of the vehicles under purchase, shall be monetised and calculated using the methodology set out in the following points:

(a) The operational lifetime cost of the energy consumption of a vehicle shall be calculated using the following methodology:

- the fuel consumption per kilometre of a vehicle according to paragraph 2 shall be counted in units of energy consumption per kilometre whether this is given directly, which is the case for instance for electrical cars, or not. Where the fuel consumption is given in different units, it shall be converted into energy consumption per kilometre, using the conversion factors as set out in Table 1 of the Annex for the energy content of the different fuels,
- a single monetary value per unit of energy shall be used. This single value shall be the lower of the cost per unit of energy of petrol or diesel before tax when used as a transport fuel,
- operational lifetime cost of the energy consumption of a vehicle shall be calculated by multiplying the lifetime mileage, where needed, taking into account the mileage already performed, according to paragraph 3, by the energy consumption per kilometre according to the first indent of this point, and by the cost per unit of energy according to the second indent of this point.

(b) The operational lifetime cost for the CO<sub>2</sub> emissions of a vehicle shall be calculated by multiplying the lifetime mileage, where needed, taking into account the mileage already performed, according to paragraph 3, by the CO<sub>2</sub> emissions in kilograms per kilometre according to paragraph 2, and by the cost per kilogram taken from the range as set out in Table 2 of the Annex.

(c) The operational lifetime cost for the pollutant emissions, as listed in Table 2 of the Annex, of a vehicle shall be calculated by adding up the operational lifetime costs for emissions of NO<sub>x</sub>, NMHC and particulate matter. The operational lifetime cost for each pollutant shall be calculated by multiplying the lifetime mileage, where needed, taking into account the mileage already performed, according to paragraph 3, by the emissions in grams per kilometre according to paragraph 2, and by the respective cost per gram. The cost shall be taken from the Community-averaged values set out in Table 2 of the Annex.

Contracting authorities, contracting entities and operators referred to in Article 3 may apply higher costs provided these costs do not exceed the relevant values set out in Table 2 of the Annex multiplied by a factor of 2.

2. Fuel consumption, as well as CO<sub>2</sub> emissions and pollutant emissions as set out in Table 2 of the Annex per kilometre for vehicle operation, shall be based on standardised Community test procedures for the vehicles for which such test procedures are defined in Community type approval legislation. For vehicles not covered by standardised Community test procedures, comparability between different offers shall be ensured by using widely recognised test procedures, or the results of tests for the authority, or information supplied by the manufacturer.

3. Lifetime mileage of a vehicle, if not otherwise specified, shall be taken from Table 3 of the Annex.