

Transport for London

# Fuel and fleet management guide

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# 1. Introduction

Over the last 10 years a range of cleaner vehicle technologies and alternative fuels has become available, giving fleet managers a number of options for improving the environmental performance of their vehicles. However, there is no single solution to environmental improvements that can be applied to all fleets. Choices need to take account of a number of factors; in particular the individual operational requirements of the fleet and local environmental factors, such as whether there are air quality problems in the areas that vehicles operate.



## Purpose of this guide

Transport for London (TfL) has published this guide to take you through a logical selection process to help define your operational requirements and environmental priorities and so identify the fuel that is most appropriate for your particular circumstances.

It will also discuss how you can maximise environmental and operational benefits in the longer term, through adopting green fleet management techniques and by incorporating green fleet management into company policies, such as workplace travel plans and Corporate Social Responsibility reporting.

A 'green' fleet is one that does its best to lessen its environmental impacts in order to minimise fuel consumption, carbon dioxide (CO<sub>2</sub>) emissions and other exhaust pollutants, and reduce the need for travel. It will do so, for example, by:

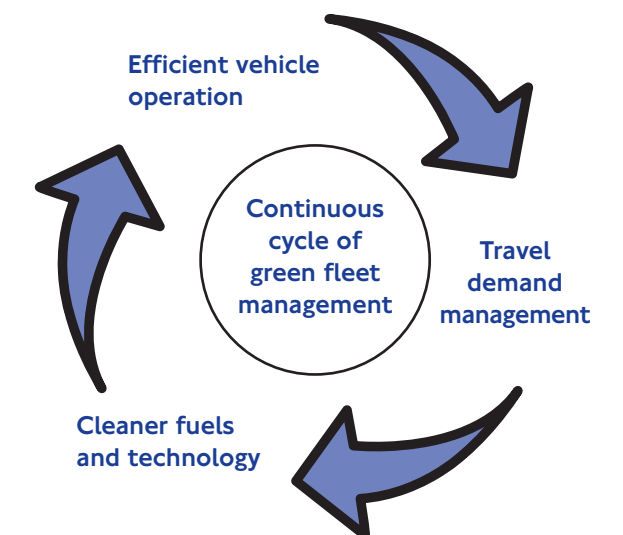
1. Maximising the efficiency of its existing vehicle fleet
2. Reducing vehicle use where possible, for example through a workplace travel plan
3. Reviewing the choice of alternative fuels and vehicle technologies

This guide is intended to assist you with reviewing your choice of cleaner fuels and technology. However, the full benefits of undertaking this review will not be realised unless you are already implementing the first two steps of the 'green' fleet process.

Indeed, this process can be regarded as a continuous cycle, with vehicle and fuel specification, fleet management and travel demand management all working together to deliver long term environmental benefits.

Section 8 of this guide discusses these processes in greater detail.

## Continuous cycle of green fleet management



## Why implement green fleet management?

There are a number of reasons why you may wish to adopt green fleet management principles; some could be based on purely commercial considerations, others on wider environmental, safety or transport policies. Some examples are provided below:

- To save money, by making more efficient use of company transport
- As a strategic business tool, where efficiencies in the fleet can be found to meet wider company needs
- As part of a travel plan, where an organisation intends to reduce the amount of traffic it generates, often because of planning needs or parking and traffic problems

- As part of a road safety management policy, to take full advantage of the cost savings and other benefits that are derived from a safer fleet
- To comply with a corporate environmental policy, for example under ISO14,001 or an environmental management system (EMS), or because the organisation wishes to adopt a responsible stance

Much of greener fleet management is simply good business practice, so can be justified on its own commercial merits.

Improving fleet performance on purely commercial or cost efficiency grounds almost always involves better fuel economy and lower emissions, so the environmental gains come as a bonus.

## Audience for this guide

This guide is aimed at those individuals within an organisation who have management or financial control over a fleet of vehicles. This could range from the fleet manager to the company secretary, department secretary or facilities manager. It will also assist travel plan coordinators to incorporate vehicle management into an organisation's travel plan.

In many cases environmental issues can form the ideal stimulus to review your fleet policy, and examine the improvements that can be made. For many fleets, the financial gains to be made will outweigh any of the implementation costs, typically within a single replacement cycle, ie 24–36 months. Well within this timeframe, the environmental benefits will already have started to make an impact.



## 2. Overview of vehicles and the environment

Although improvements in vehicle technology over the last 20 years have led to dramatic reductions in the exhaust emissions that cause poor air quality, there has been less progress on reducing CO<sub>2</sub> emissions. The average fuel consumption of new cars sold today is only slightly better than the average of those sold in the mid 1980s, despite significant improvements in the fuel efficiency achieved by comparable engines. This is because there has been an increase in average vehicle size, weight and power over the same period, due to a number of factors, including:

- Improved vehicle safety features
- The addition of comfort features such as power steering and air conditioning
- Consumers choosing larger and more powerful models

The effect of consumer choice is an important factor when making fleet decisions. Many staff members will have their own preferences regarding vehicle types and makes. This usually manifests itself through badge and status envy, where staff members are only happy when they receive a certain brand of vehicle. However, an efficient fleet does its best to ensure that such choice is restricted to those vehicles within certain makes and brands that reach certain fuel-efficiency levels.

### Fuel efficiency

It is important to note that there is significant variation in miles per gallon (mpg) between different vehicle types. At the most efficient end of the scale are small diesel super-minis, which can achieve 60mpg or more, with CO<sub>2</sub> emissions less than 120 gCO<sub>2</sub>/km, while at the other end of the scale are large off-road vehicles and high-performance sports cars, achieving less than 20mpg, and with CO<sub>2</sub> emissions greater than 300 gCO<sub>2</sub>/km.

Furthermore, even within each vehicle type there can be a significant variation in fuel efficiency, in some cases up to 45 per cent, providing considerable scope for fuel savings through an efficient vehicle selection policy.

To ensure you are running the most fuel-efficient vehicles, you need to:

1. Identify the most appropriate class of vehicle that is suitable for your operational requirements
2. Select the 'best in class' for mpg for that class of vehicle
3. Select for other criteria such as safety, cost, load capacity, etc

### Impacts of vehicle use

The majority of fuel used in the UK is unleaded petrol with about 60 per cent of cars and 30 per cent of vans running on this fuel. Diesel accounts for about 40 per cent of cars, and 65 per cent of vans. To date (early 2006), few vehicles run on alternative fuels with only small percentages of cars and vans using gaseous fuels (eg Liquid Petroleum Gas (LPG) or Compressed Natural Gas (CNG)), bio-diesel, electric or hybrid power sources.

#### Environmental impacts of vehicle use

Road transport accounts for around 25 per cent of all CO<sub>2</sub> emissions in the UK. It is the most significant of the greenhouse gases contributing to climate change. Additionally, and especially in urban areas, road transport is also one of the major sources of local air pollutants, eg oxides of nitrogen (NO<sub>x</sub>) and fine particles (Particulate Matter: PM), which are harmful to human health.

When petrol, diesel and certain alternative fuels are burnt in an engine the main by-products are water and CO<sub>2</sub>. For a given type of fuel, the CO<sub>2</sub> emissions of a car are always directly proportional to the quantity of fuel consumed.

The main air pollutants from petrol, diesel and alternative fuel engines are NO<sub>x</sub>, PM, carbon monoxide (CO) and un-burnt hydrocarbons (HC). Unlike CO<sub>2</sub>, emissions of these pollutants are not directly linked to the amount of fuel consumed but vary with factors including the type of fuel, the design and size of the engine, its age, level of maintenance and the way the vehicle is driven.



# 3. The decision making process

## Health impacts of vehicle use

The main exhaust pollutants and their effects on health are described in more detail below:

### Oxides of nitrogen (NO<sub>x</sub>)

NO<sub>x</sub> refers to nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). NO is formed in the engine when nitrogen present in the atmosphere is oxidised during combustion. It then further reacts in the atmosphere to produce NO<sub>2</sub>; which can have adverse effects on health, particularly among people with respiratory illness. High levels of NO<sub>2</sub> exposure have been linked with increased hospital admissions due to respiratory problems, while long-term exposure may affect respiratory function and increase the response to allergens in sensitive people. NO<sub>x</sub> also contributes to smog formation, acid rain, can damage vegetation and contributes to ground level ozone formation.

### Fine particles (Particulate Matter: PM)

Fine particles can have an adverse effect on human health, particularly among populations experiencing long-term exposure. Fine particles have also been associated with increased hospital admissions due to respiratory problems and bringing forward the deaths of those with existing respiratory disorders. There are a number of different measurements used to monitor levels of exposure to particles, the most common is known as PM<sub>10</sub>, which refers to particles that are small enough to pass into the human respiratory system.

## Carbon monoxide (CO)

CO reduces the blood's oxygen carrying capacity, which can reduce the availability of oxygen to key internal organs. Extreme levels of exposure, such as that which might occur due to blocked flues in domestic boilers, can be fatal. At lower concentrations CO may pose a health risk, particularly to those suffering from heart disease. Modern vehicles produce very low levels of CO and widespread health problems are not expected at the levels of carbon monoxide currently found in the UK.

## Hydrocarbons (HC)

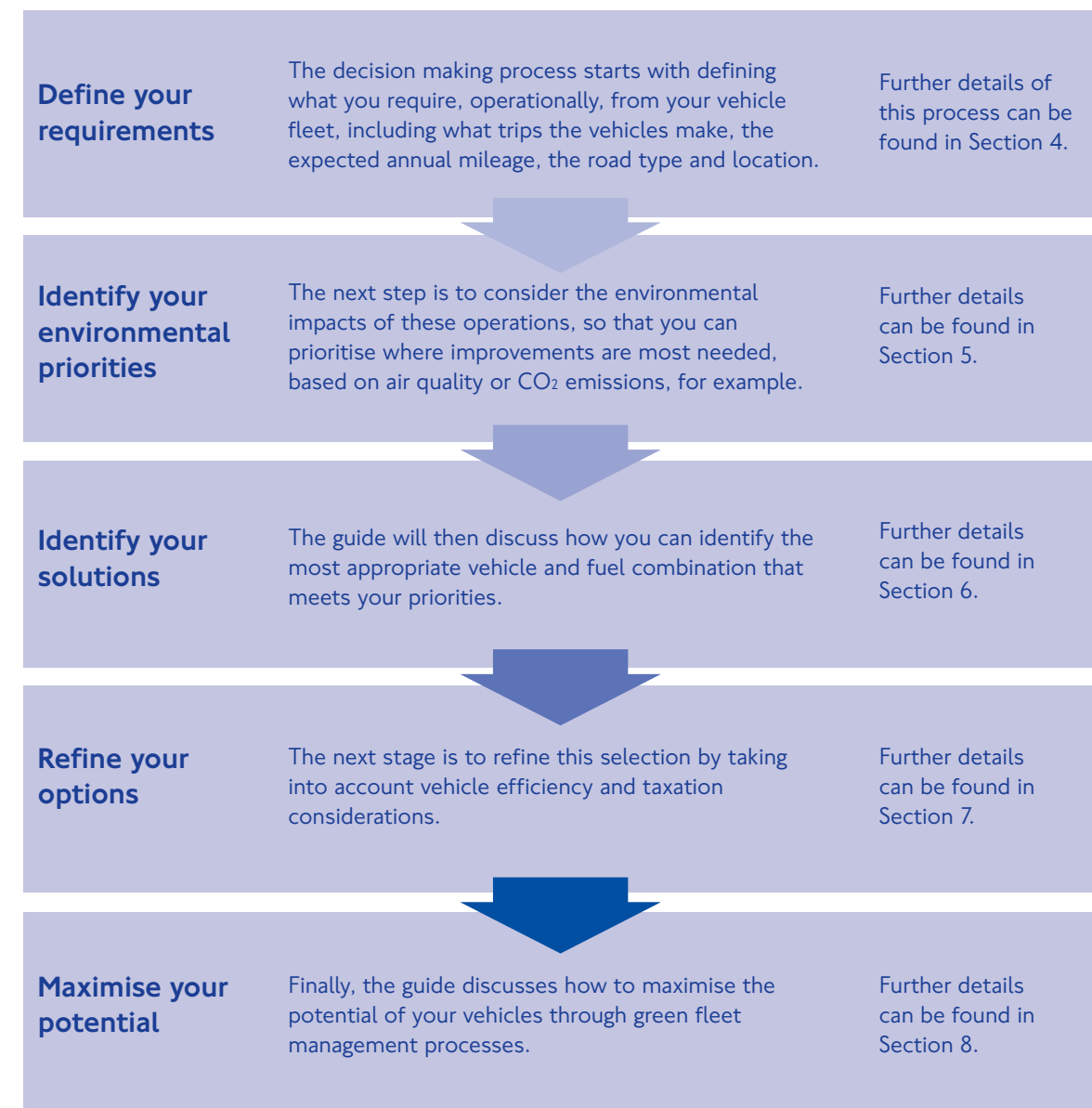
HC contribute to ground level ozone formation leading to risk of damage to the human respiratory system. In addition, some types of HC are carcinogenic and are indirect greenhouse gases.

Of the above, NO<sub>2</sub> and PM are considered to be two of the most significant air pollutants, especially in urban areas. As a result, the Government is convinced that action to reduce harmful emissions must continue. Its approach to tackling air pollution is outlined in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland. This sets out health based standards for eight main air pollutants, from which air quality objectives are derived, together with a timescale for their achievement. The strategy identifies the action required at a national and international level and the contribution industry, transport and local government can make to ensure objectives are met.

For more information on air quality monitoring and the effects of air pollution see: [airquality.co.uk](http://airquality.co.uk).

This guide will set out a logical process for selecting the most appropriate vehicle fuel/combination for your fleet. The process is summarised in the diagram below, which also includes a quick reference to the relevant section of the guide for each stage of the process.

**This selection process should be carried out for every specific operation your fleet carries out.**



## 4. Define your requirements

In all cases, selection of the most appropriate vehicle will depend upon a number of factors, including operational requirements, journey types, local environmental considerations and financial constraints.

There is a risk that, if these factors are not taken into account, the purchased vehicles may not be suitable for their intended use. It is particularly important to take account of local environmental issues. For example, there may be less justification for specifying liquid petroleum gas vehicles if they will have limited use in urban areas and are likely to operate away from suitable refuelling sites.

The most appropriate approach to vehicle selection is to look beyond the specified list price and rental costs, and to take a wider approach by looking at the vehicle's 'whole life' costs. These cover those expenses incurred by the vehicle operator during the time the vehicle is on their fleet. If you take any number of different vehicles and look at their whole life costs it soon becomes apparent how the fuel, insurance and maintenance costs affect the true cost of the entire package. More information on this can be found in Section 7.

The key, therefore, is to study the needs of the fleet operation and obtain the relevant information and data, eg anticipated annual mileage of each vehicle. This will give you a better understanding of their requirements, which is likely to lead to a more suitable vehicle and fuel type being chosen. To assist you with this process, a simple form you could use has been provided in Appendix 2.

The vehicle fleet should be viewed simply as another tool used by an organisation to carry out its business operation, whether it is to transport goods or equipment (eg a courier) or to carry out a service task (eg an electrical engineer). For many organisations the control of these vehicles rests with the fleet management department. However, for some organisations this task may be carried out by a variety of personnel – from the company secretary to the facilities manager.

One of the influencing factors to consider, when undertaking a fuel review, is the type of car users within your organisation. Each user type will have unique factors associated with them, which need to be addressed when considering the most appropriate fuel choices for your fleet operation.

A description of the three main user types is provided below.

**Company car users:** In general this is defined as when an employee is given a monthly budget that can be used to fund the purchase costs of a car from a defined selection list. There are different types of company car schemes, from fully funded to employee car ownership schemes, each of which have their own individual taxation and fleet management factors to consider. The company car user is one of the easiest to influence, as the vehicle selection list provided, along with the monthly allowable budget, can be modified to incentivise those fuel types deemed most appropriate. For example, you could set a benchmark of 42mpg and apply an incentive scheme whereby those individuals selecting vehicles that exceed this benchmark (eg 48mpg) have an agreed amount added to their monthly budget (eg £2 per mpg point), whereas those that select vehicles below this benchmark (eg 34mpg) have a similar amount subtracted from their monthly budget.

**Cash for car users:** This is when an employee is given a monthly amount that can be used to fund the purchase costs of any car. Any additional business related fuel costs are normally covered by a pence-per-mile reimbursement system. The 'cash for car user' is one of the hardest to influence as the selection of the vehicle is often down to the personal choice of the individual employee.

**Private car users:** Often termed the 'grey fleet', this can be defined as those members of staff who use their own private vehicle to undertake company business. As with 'cash for car users', this group is difficult to influence as the vehicle selection is down to personal choice. Despite this, it is suggested that you look at ways of promoting the environmental, and health and safety, aspects of driving to these staff members, as they may see the benefits of undertaking such mileage in pool cars, or on public transport. These factors can be influenced through the production of a workplace travel plan. Further information on travel plans is provided in Section 8.

Although environmental considerations are important when specifying a new vehicle, there are other operational and financial considerations that need to be taken into account. A breakdown of additional factors to consider is given over the page. However, it must be recognised that this list is not exhaustive.

## Factors to consider when specifying a new vehicle

Operational factors	Implications for vehicle specification
Type of operation	Storage and passenger space, interior fittings/design, drive type, vehicle size
Operating environment	Environmental considerations including operating location, eg urban, rural etc (see Section 5); fuel costs, location of refuelling infrastructure, reliability and servicing, pedestrian safety
Annual mileage	Environmental considerations (see Section 5); fuel costs, maintenance, tyre wear
Load type	Storage space, body type, internal fittings, vehicle size
Operational restrictions	Emissions (see Section 5), noise
Financial factors	
Acquisition type	Lease, contract hire or outright purchase
Acquisition cost	Unit cost, any special offers
Whole life costs	Fuel, servicing, maintenance, tyres
Standing costs	Overheads and insurance
Taxation costs	Graduated Vehicle Excise Duty (GradVED) band, company car tax, any concessions
Re-selling costs	Residual values, depreciation, auction costs
Technical factors	
Body type	Saloon, estate or long wheelbase
Vehicle reliability	Mechanical durability, vehicle test reports
Additional equipment	Air conditioning, telematics, tail-lift, equipment racking
Vehicle support factors	
Servicing and maintenance	Garage locations, costs, frequency of servicing
Breakdown assistance	Costs, roadside assistance, out-of-hours cover
Downtime issues	Estimated lead-time for major work and parts
Dealer issues	Location, network, relationship, professionalism, customer service
Manufacturer issues	Reputation, customer service, warranties
Repair issues	Garage locations, cost of repair

Health and safety factors	Implications for vehicle specification
Safety specification	European New Car Assessment Programme (Euro NCAP)
Fit with health and safety policy	Accident reporting, manual handling
Safe operation	Induction training
Driver factors	
Comfort	Prevention of stress, injuries, accidents
Induction	Appropriate driver training
Acceptance	Reliability, trust, prestige

After gaining a thorough understanding of your fleet operation, the next step is to consider the environmental impacts of these activities so that you can prioritise where improvements are most needed. More information on these considerations can be found in the following section.



# 5. Identify your environmental priorities

Before you can identify which fuel is most suitable for your circumstances you first need to prioritise which environmental priorities are most important to you. For example, should you focus your resources on reducing CO<sub>2</sub> emissions, or is air quality the priority? There are several factors that affect this decision and these can be grouped into three main categories:

1. The environmental impacts of your fleet and operations
2. Air quality problems specific to the areas in which your vehicles operate, usually identified by the local authority and potentially involving local restrictions on vehicle emission
3. Corporate environmental policies affecting your fleet, for example targets to cut CO<sub>2</sub>



## Local impacts

NO<sub>x</sub> and PM are most harmful in those locations with high concentrations, particularly city centres, but become less of a concern as they disperse away from their source. The Mayor of London has produced a number of strategies on environmental issues, which set out the priorities and proposals for making London a cleaner, greener and more sustainable city. Of these, the Mayor's Air Quality Strategy sets out what the Mayor, TfL and others are doing to improve air quality in the Capital.

There are a number of sources of information on existing air quality:

- The London Air Quality Network (LAQN) provides information on local pollution from air pollution monitoring sites across London
- The National Air Quality Database website also provides information on pollution in London and across the UK

In addition, many London boroughs' websites provide information on the air quality in their borough, and of specific measures that are in place to address local air quality problems. More information can be found at: [airquality.co.uk](http://airquality.co.uk).

### Air Quality Management Areas (AQMAs)

Since 1997 local authorities in the UK have been carrying out a review and assessment of air quality in their area. The aim of the review is to assist authorities in carrying out their statutory duty to work towards meeting the national air quality objectives. If a local authority finds any places where the objectives are not likely to be achieved, it

must declare an AQMA. Most London boroughs have declared AQMAs for NO<sub>2</sub> and PM. Further details can be found on the Greater London Authority (GLA) website at [london.gov.uk](http://london.gov.uk) and the London Air Quality Network (LAQN) at [erg.kcl.ac.uk/london/asp/home.asp](http://erg.kcl.ac.uk/london/asp/home.asp).

### Low Emission Zones (LEZ)

The introduction of LEZ in some city centres, or the provision of congestion charges, are factors that must also be considered. If a business needs vehicular access to premises inside a LEZ, for example, it will have to consider how it will be able to achieve this, once the scheme is set up. Using only vehicles, which conform to the latest Euro standards, may be one way; using alternatively fuelled vehicles could be another.

Public consultation on proposals for a London-wide LEZ began on 30 January 2006. The aim is to improve London's air quality by encouraging vehicle operators to clean up their fleets.

Other local impacts that need to be addressed include noise pollution, which can influence the delivery schedule of courier and delivery organisations as many local authorities restrict the operational times of large diesel vehicles, and dirt produced by large particles created by the internal combustion process.

## Global impact

CO<sub>2</sub> is essentially harmless at a local environment level, but is cumulatively harmful as global concentrations rise.

In the UK, a number of steps have already been taken by the Government to promote the purchase and use of more carbon efficient vehicles:

- Since March 2001, a system of Graduated Vehicle Excise Duty (GradVED) has been in operation for new cars based on their level of CO<sub>2</sub> emissions
- Since April 2002, company car tax has been based on the car's CO<sub>2</sub> emissions

HM Customs and Revenue research suggests that, due to the changes in company car tax, the average CO<sub>2</sub> emissions of new company cars have decreased significantly. In line with this, the numbers of diesel vehicles being purchased has risen. This has played a part in reducing the levels of transport related CO<sub>2</sub> emissions in the UK and HM Customs and Revenue estimate that in 2003 there was a reduction of around 200,000 million tonnes of carbon due to the tax reform.

Due to this positive impact on CO<sub>2</sub> emissions, it is likely that taxation based on CO<sub>2</sub> emissions will continue. The 2006 budget has given vehicle users a strong indication of how this is likely to continue, with new Vehicle Excise Duty (VED) bands being introduced for the lowest and highest CO<sub>2</sub> emitting vehicles. With the cost differential between these vehicles expected to increase in subsequent budgets, there will be an impact on the residual values of these higher polluting vehicles.

Therefore, with CO<sub>2</sub> emissions having a direct impact on the amount of VED and company car tax that is paid, it is important to look at ways of reducing these emissions from your vehicle fleet, thus reducing your tax bill.

The increase in use of diesel power by company car fleets is expected to influence vehicle manufacturers, as they in turn invest to make diesel technology cleaner and more efficient. Ford, Citroen and Peugeot are currently developing diesel hybrid engines, which are expected to return around 70–80 mpg.

The following flow chart should give you a clear indication of the environmental priorities relating to your fleet operations.

Having identified the environmental priorities relating to your vehicle fleet the next step is to identify the most appropriate fuel to meet your needs.

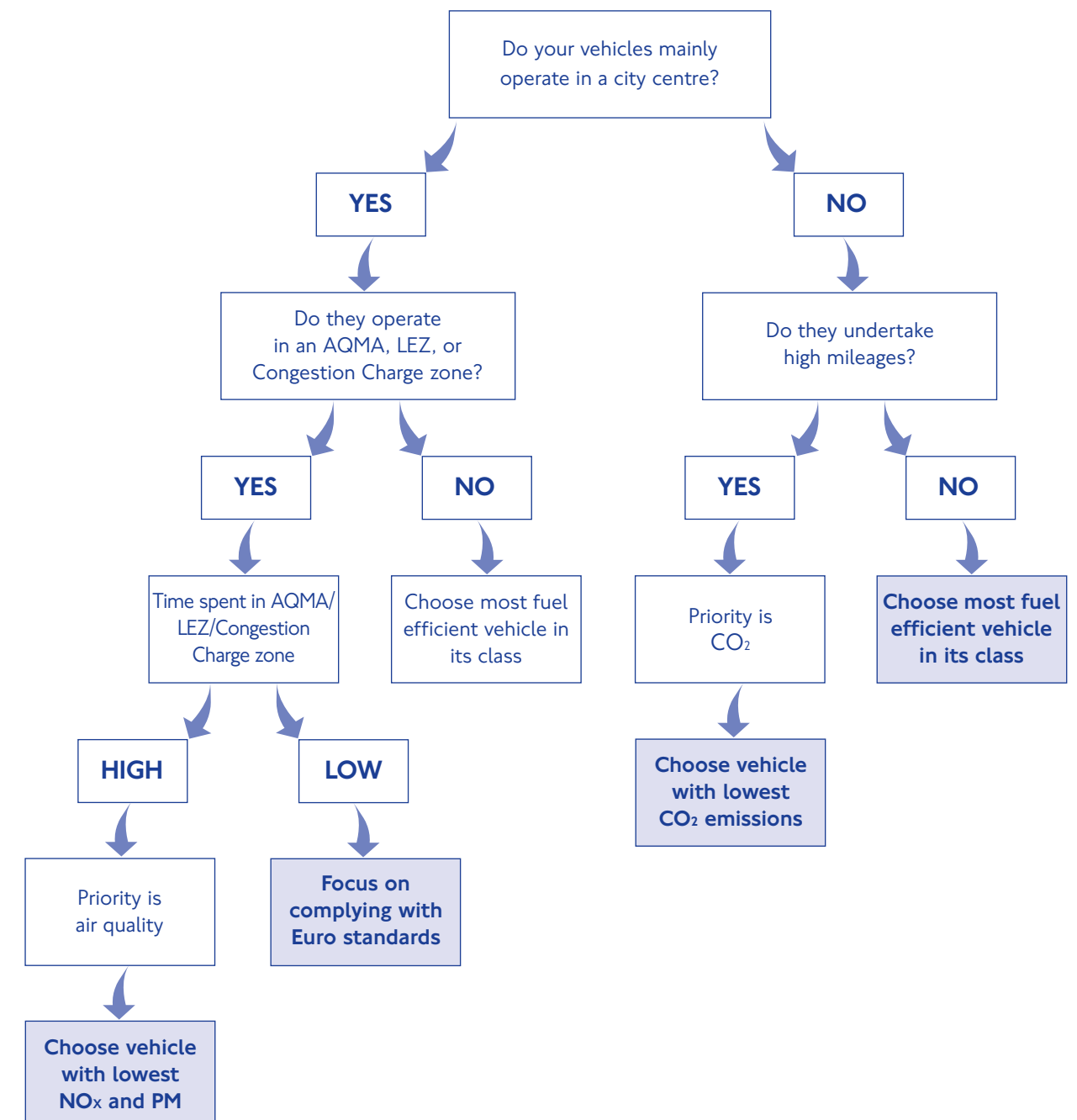
A simple selection process can be found in the next section.

### Environmental priority depends upon where vehicles operate

- For vehicles that operate significantly in urban centres, especially where air quality standards are exceeded, reducing NO<sub>x</sub> and PM will have greatest priority
- For vehicles with high mileage and high fuel consumption that operate mostly away from places with air quality problems, reducing CO<sub>2</sub> will be the highest priority



**This process should be carried out for every specific operation that your fleet carries out.**





## 6. Identify your solutions

Changing from conventional to alternative fuels requires careful consideration, but can be a part of fleet environmental best practice. Apart from cost factors, the levels of different emissions make some fuels more suitable for certain types of use than others. The following fuel and operational comparison tables should help you come to a decision as to the most appropriate fuel for your needs.

In general, different fuels have different benefits. These are detailed below:

- LPG, CNG and petrol hybrids offer lower NO<sub>x</sub> and PM emissions, so are good in areas with air quality problems
- Diesel has higher fuel efficiency and lower CO<sub>2</sub> emissions, so is good for high-mileage vehicles
- Adding biodiesel can further help to reduce CO<sub>2</sub> emissions from diesel vehicles, although it is unlikely to provide significant air quality benefits

The use of alternative fuels is part of a suite of activities that must be undertaken to reduce the emission levels of your fleet. Such activities include:

- Maximising the use of your existing vehicle fleet, through effective fleet management (eg fuel and mileage monitoring, driver training, maintenance regimes etc)
- Reducing your vehicle use, where possible, through efficient route planning, changes in working practices etc

## General comparisons

The following table gives a breakdown of the major fuel types available in the UK, along with the pros and cons of using such fuels.

Fuel type	Description	Pros	Cons	Best suited for
<b>Unleaded petrol</b>	-	Widely available, familiar and proven technology; vehicle is relatively inexpensive to purchase; extensive refuelling infrastructure.	High CO <sub>2</sub> emissions and poor fuel economy; higher evaporative emissions.	Multi destination journeys, in rural and urban areas with an AQMA.
<b>Low sulphur diesel</b>	-	Widely available, familiar and proven technology; extensive refuelling infrastructure; better fuel economy and CO <sub>2</sub> emissions than petrol.	High PM (unless fitted with a particulate trap); high NO <sub>x</sub> emissions; technology more expensive to buy, adding to initial purchase cost; diesel engines tend to be louder than equivalent technologies.	High-mileage rural, inter urban and motorway journeys.
<b>Biodiesel</b>	Biodiesel is a renewable fuel derived from natural vegetable oils. Typically it is used in a 5% mix with conventional diesel, with no engine modification. Higher levels of mixes can be used, however, there can be manufacturer vehicle warranty issues. Check with vehicle manufacturers before using biodiesel at more than 5% concentrations. The Government's Renewable Transport Fuels Obligation requires that 5% of all UK fuel sold on UK forecourts will come from a renewable source by 2010.	Better CO <sub>2</sub> emissions than conventional diesel, the improvement being determined by the percentage of biodiesel in the mix and the extent to which source of the biodiesel is renewable; biodiesel can be produced in-house from waste vegetable oil by suitably equipped organisations.	Nitrogen oxide emissions are comparable with conventional diesel but care must be taken with fuel quality and engine adjustment; some concerns about odour problems; there is currently a limited refuelling infrastructure (but likely to grow); increased pump price; use of in-house produced biodiesel may require modification to vehicle engine mapping.	High-mileage rural, inter urban and motorway journeys; in-house biodiesel useful for return-to-base fleet operations.
<b>Bioethanol</b>	Bioethanol (also known as biopetrol) is an alcohol-based fuel made through the fermentation of crops such as sugar beet or wheat. Typically bioethanol is used in a 5% mix with conventional petrol. The Government's Renewable Transport Fuels Obligation requires that 5% of all UK fuel sold on UK forecourts will come from a renewable source by 2010.	Reduced CO, CO <sub>2</sub> and HC compared with conventional petrol.	Currently limited refuelling infrastructure (but likely to grow); increased pump price; likelihood of conversion required.	Multi-destination journeys, in rural and urban areas with an AQMA.

Fuel type	Description	Pros	Cons	Best suited for
<b>Liquid petroleum gas (LPG)</b>	An alternative fuel, which is the most common of the gaseous fuels to be used in cars and light commercial vehicles. In the UK this is in the form of 'bi-fuel' or 'dual fuel', which allows vehicles to run on either LPG or petrol, due to limitations on the refuelling infrastructure.	Low CO <sub>2</sub> emissions, similar to diesel; lower CO and HC emissions than petrol; lower fuel tax duty, therefore a cheaper alternative to petrol/diesel; option to retrofit petrol driven vehicles.	Currently limited refuelling infrastructure; lower fuel economy; loss of some boot/load space; vehicles are significantly more expensive to purchase than conventionally fuelled vehicles; uncertainty over residual values; some aftermarket conversions can result in an increase in emissions.	Inner city journeys, especially those in AQMAs.
<b>Compressed natural gas (CNG)</b>	An alternative fuel which is more typically used in heavy goods vehicles and buses, although some car manufacturers offer this as an option. In the UK this is in the form of 'bi-fuel' or 'dual fuel', which allows vehicles to run on either CNG or petrol, due to limited refuelling infrastructure.	Lower CO <sub>2</sub> emissions than diesel; low particle, CO and HC emissions; lower fuel tax duty, therefore a cheaper alternative to petrol/diesel.	Currently almost no refuelling infrastructure so requires dedicated refuelling equipment; lower fuel economy; often loss of some boot/load space (more so than LPG); vehicles are significantly more expensive to purchase than conventionally fuelled vehicles; uncertainty over residual values.	Inner city, 'return to base' type journeys, especially those in AQMAs.
<b>Electric</b>	-	Zero emissions at point of use and silent operation. Although pollution will still usually be produced at the power station, electrical power can be provided from renewable sources making very low life cycle emissions possible.	Requires special 'plug in' point; often requires many hours to recharge; batteries can be expensive; often either very slow or limited range between charges.	Short inner city journeys.
<b>Petrol hybrid</b>	Hybrid vehicles combine a petrol engine with an electric motor and battery. There are various ways in which hybrid vehicles can operate, for example the electric motor can be used to provide additional power during acceleration or high load conditions. The batteries are continually recharged by the engine or from energy absorbed during braking.	Lower emissions of CO <sub>2</sub> and other pollutants; similar fuel efficiency to diesel; extensive refuelling infrastructure.	Relatively new technology, so at present cars are quite expensive; currently limited vehicle choice – Honda Civic IMA, Toyota Prius, Lexus RX400h or Lexus GS450h; uncertainty over residual values.	Multi destination inner city journeys with an AQMA; mixture of urban and rural journeys, which allow effective use of both engine and electric motor.

## Future technologies

### Diesel hybrids

Diesel electric hybrids offer the benefits of diesel's high fuel efficiency and performance combined with the emission reduction of a hybrid transmission. Although a number of manufacturers are developing this technology, it is not yet commercially available.

### Hydrogen fuel cells

The ultimate goal is for a genuinely clean fuel, and the hydrogen fuel cell appears to offer possibilities in this area. Most major manufacturers have extensive research and development projects underway, with evaluation trials on cars and vans already in progress. However, commercially viable versions of this technology are some way off. Apart from getting the technology to function reliably in everyday working environments, there is also the issue of how the necessary re-fuelling infrastructure is to be put in place. As with electrical vehicles, while hydrogen fuel cells produce zero emissions at the point of use, there will still be emissions associated with the production of the hydrogen fuel, unless this comes from renewable sources.

## Comparing fuel type performance

To further assist in the selection of the appropriate fuel, the following tables compare each alternative fuel described to a standard fuel type. In this case, diesel has been used as this tends to be the fuel of choice for many fleets.

To aid this process, the following tables have been split into environmental and operational comparisons.

Please note that the classifications are indicative for comparable vehicles. Within each vehicle category there will always be a range of reported performance and there will be some overlap. For example, the most fuel-efficient petrol vehicle will have lower CO<sub>2</sub> emissions than the least efficient diesel vehicles.

## Environmental comparisons (compared to diesel)

Fuel type	CO <sub>2</sub>	Emission PM	NO <sub>x</sub>
Diesel <sup>1</sup>	★★★	★★★	★★★
Petrol <sup>1</sup>	★★	★★★★★	★★★★★
Biodiesel <sup>2</sup>	★★★★★	★★★	★★★
Bioethanol <sup>2</sup>	★★★	★★★	★★★
LPG	★★★	★★★★★	★★★★★
CNG	★★★★★	★★★★★	★★★★★
Electric <sup>3</sup>	★★★★★	★★★★★	★★★★★
Petrol hybrid	★★★	★★★★★	★★★★★

### Key

- ★ Significantly worse emissions than diesel
- ★★ Moderately worse emissions than diesel
- ★★★ Comparable emissions with diesel
- ★★★★ Moderately better emissions than diesel
- ★★★★★ Significantly better emissions than diesel

[1] The emission comparisons for diesel and petrol have been taken using the latest EU emission standards, in this case Euro 4.

[2] The emission comparisons for biofuels (in this case biodiesel and bioethanol) have been taken using the current standard five per cent blend. The CO<sub>2</sub> emission benefits of biofuels depend on the renewable nature of the 'bio' element of the fuel. Those bio-fuels that are sourced from renewable resources, for example waste vegetable oil or processed oil seed rape, will have the biggest CO<sub>2</sub> emission benefits. If, however, the bio-fuel has been sourced from a non-renewable resource or an energy intensive process, for example imported palm oil grown on land obtained through clearing rainforest, then there will be limited CO<sub>2</sub> benefits.

In some cases the CO<sub>2</sub> emissions can be higher than conventional diesel. For the purpose of the environmental comparisons, it is assumed that the biofuels have been sourced from a renewable resource. In all cases, when sourcing biofuels you need to check how and where the 'bio' element has been produced.

[3] The emission benefits of electric depend on where the pollutant measurement is taken. For the purpose of the environmental comparisons it is assumed that the measurement is taken at the vehicle source and that the electricity used to recharge the batteries is produced through renewable resources (eg wind power). If, however, the electricity is from a non-renewable resource, then battery electric will sit in the same location as petrol.



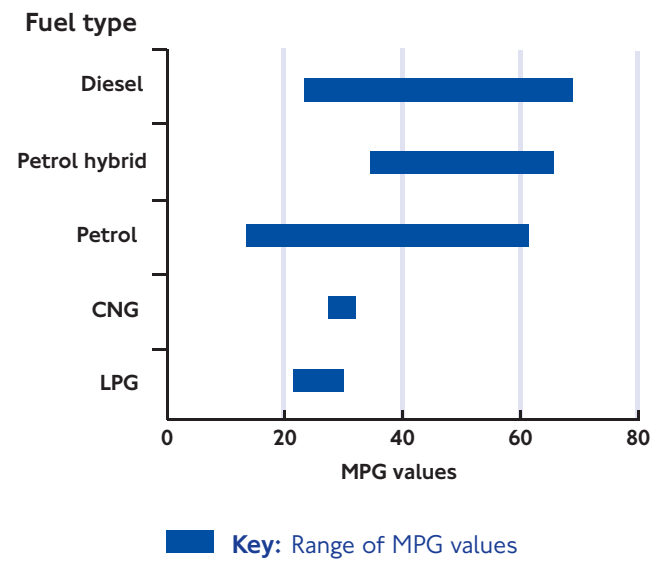
## Overlapping ranges in fuel efficiency

When comparing the CO<sub>2</sub> emissions from different fuels and technologies it is important to appreciate that there is a range of emissions within each type and that these ranges overlap with each other. This is illustrated in the accompanying charts of CO<sub>2</sub> and mpg for new cars, using data from the Vehicle Certification Agency (VCA) database.

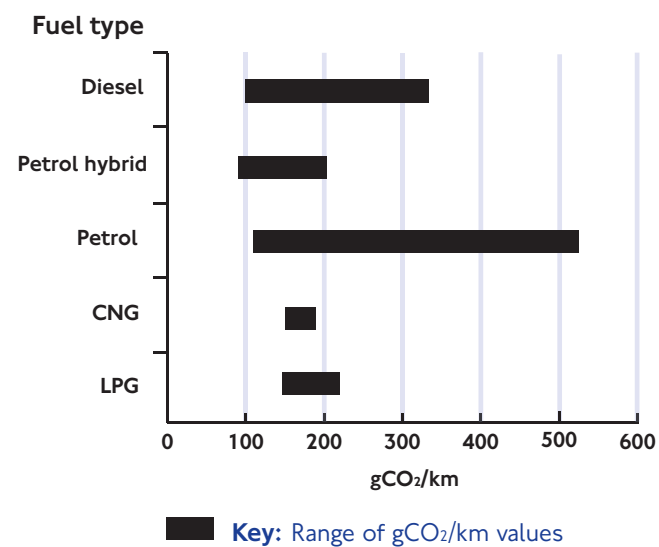
As the majority of vehicles are fuelled by diesel or petrol, these fuel types have the greatest numbers of models within them and display the widest range in emissions. At the most efficient end of the scale are small diesel super-minis, which can achieve in the region of 60mpg or more, with CO<sub>2</sub> emissions less than 120 gCO<sub>2</sub>/km. At the other end of the scale are large off-road vehicles and high-performance sports cars, achieving less than 20mpg and with CO<sub>2</sub> emissions greater than 300 gCO<sub>2</sub>/km.

The figures for LPG, CNG and petrol hybrid are based on a much smaller number of models with a narrower range of emissions. However, it is clear that the emission ranges for these alternatively fuelled vehicles lie almost entirely within the ranges of conventionally fuelled vehicles. In particular, the most efficient diesel cars produce lower CO<sub>2</sub> emissions than all but the best petrol hybrid vehicles.

Graph showing range of miles per gallon (MPG) values for different fuel types



Graph showing range of gCO<sub>2</sub>/km values for different fuel types



## Operational comparisons (compared to diesel)

Fuel type	Operational considerations						
	Fuel efficiency	Fuel cost (£/6,000km)	Vehicle purchase cost	Range per tank	Fuel availability	Maintenance costs	Available load space
Diesel	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Petrol	★★	★★	★★★★★	★★	★★★★	★★★★	★★★★
Biodiesel	★★★★	★★	★★★★	★★★★	★ <sup>2</sup>	★★★★	★★★★
Bioethanol	★★	★★	★★	★★	★ <sup>2</sup>	★★★★	★★★★
LPG	★★	★★★★★ <sup>1</sup>	★★	★★	★★	★★	★★
CNG	★★★★	★★★★	★	★★	★	★★	★★
Electric	★★	★★	★	★	★	★★	★★
Petrol hybrid	★★★★	★★★★	★★	★★★★	★★★★	★★	★★★★

### Key

- ★ Significantly worse than diesel
- ★★ Worse than diesel
- ★★★ Comparable with diesel
- ★★★★ Better than diesel
- ★★★★★ Significantly better than diesel

[1] LPG currently has a cost advantage due to the lower fuel duty tax level on the fuel.

[2] The availability of both biodiesel and bioethanol will increase over time as the Government's Renewable Transport Fuels Obligation, which requires that five per cent of all UK fuel sold on UK forecourts will come from a renewable source by 2010, starts to take effect.

To help illustrate the fuel selection process, a number of worked examples have been provided:

### Example 1

**Description:** A small courier firm operates from their base in Slough, with a fleet of 20 car-derived vans. The majority of their clients and deliveries are within central London resulting in around 20–30 drops per vehicle per day.

**Impact:** This is a high-mileage vehicle fleet that spends a significant amount of time in urban areas experiencing poor air quality.

**Options:** The firm needs to focus its attention on reducing those emissions relating to air quality. As CO<sub>2</sub> is a lower priority, it may wish to consider operating its vehicle fleet on LPG or CNG.

### Example 2

**Description:** A large sales fleet operates from Reading with 700 cars. The majority of its clients are to be found on the M3, M4 and M40 corridors.

**Impact:** This is a high-mileage fleet that spends the majority of its time on the motorway network.

**Options:** The company needs to focus its attention on reducing its CO<sub>2</sub> emissions. As air quality is a lower priority, it may wish to consider operating its vehicle fleet on diesel and five per cent biodiesel.

### Example 3

**Description:** An electrical engineering company operates within Guildford, with a fleet of 75 vans. The majority of its work involves driving to a client's site to undertake engineering work.

**Impact:** This is a low-mileage fleet that spends the majority of its time within Guildford, which is not designated as an AQMA.

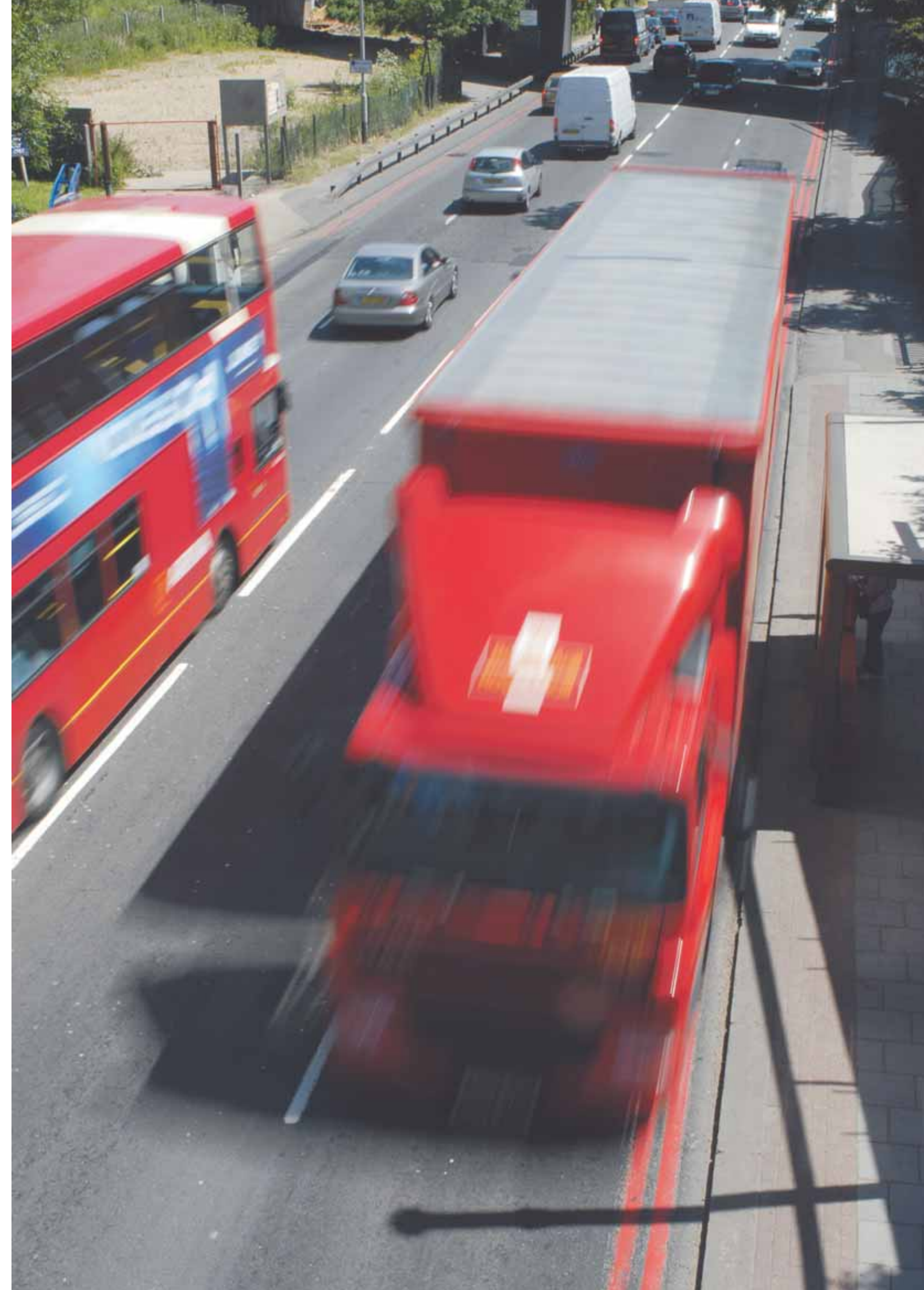
**Options:** The firm needs to focus its attention on ensuring that its fleet vehicles are the most fuel efficient within their class.

### Example 4

**Description:** A local business fleet operates from Newbury, with a fleet of 30 cars. The majority of its clients are to be found within a 30-mile radius.

**Impact:** This is a low-mileage fleet that spends the majority of its time driving on the local road network.

**Options:** The business needs to focus its attention on ensuring that its fleet vehicles are the most fuel efficient within their class.



# 7. Refine your decision

## Fit for purpose

While green fleet management practices can derive significant benefits to operators and the environment, it is clear that 'green' must make operational and practical sense to practitioners and users alike. The decision to employ environmentally friendly techniques to fleet management needs to be made in harmony with more mature and established considerations such as:

- Fit for purpose
- Vehicle safety
- Whole life costs
- Fuel economy
- Vehicle excise duty
- Benefit in kind tax

The purpose of this section is to help you consider other factors that may influence vehicle selection.

There are over 8,000 different car model variants available in the UK – ranging from small city cars to large estates and off-road vehicles. There is also a wide range of van types and sizes from small car derived variants to large panel vans.

It is important to ensure that any vehicle selected is fit for purpose and able to carry out the tasks it is required to. This is important with respects to maintenance and servicing regimes, reliability, body type, transmission type, driver comfort, load space and any weight restrictions.

## Vehicle safety

In 2004, the total number of deaths in road accidents was 3,221, a reduction of around eight per cent from 3,508 in 2003. However, the number of fatalities has remained fairly constant over the last 10 years. Of these 3,221, it is estimated that around 30 per cent involve people driving at work.

Established in 1997, the European New Car Assessment Programme (Euro NCAP) provides the public with independent, realistic and accurate information about the safety performance of individual car models. Euro NCAP uses test procedures based on European Union safety standards for front and side impacts to provide a realistic assessment of the crash protection of individual cars. Safety performance is awarded on a five star scale, with those vehicles offering the best protection being given more stars.

Tests are also undertaken to assess the risk to pedestrians if struck by the front of the car. Such pedestrian safety results are of particular importance for vehicles operating in residential or shopping areas.

More information can be found at [euroncap.com](http://euroncap.com).

However, at this time there are no official Euro NCAP safety performance figures for vans. When making safety decisions for such vehicles, please refer to the manufacturer's brochure.

## Whole life costs

Whole life costs are those expenses incurred by the vehicle operator during the time the vehicle is in their fleet. Some of these expenses are quite obvious, for example, depreciation, servicing and maintenance costs, fuel costs and VED.

However, there are often other factors to be considered that can be forgotten. Typically, these might include lease costs, insurance or employer National Insurance Contributions (NIC).

Whole life costs are expressed in pence per mile (PPM) based on replacement cycles of either three years/60,000 miles or four years/80,000 miles. Whole life costs provide a basis for making direct cost comparisons between different types of vehicle that might have very different initial purchase costs.

Using whole life costs can assist you to better understand the true cost of operating cars and vans and can lead to a more cost effective decision being made.

When comparing whole life costs always use costs from a single source.

More information on whole life costs can be found at Fleet News Net ([fleetnewsnet.co.uk](http://fleetnewsnet.co.uk)) or CarCost ([carcost.co.uk](http://carcost.co.uk)).



## Fuel economy

After you have selected the most appropriate vehicle for your needs, the next stage is to choose the most fuel-efficient vehicle within that group. In many cases the fuel consumption of similar size vehicles can vary by as much as 45 per cent.

The VCA is responsible for the creation and management of the New Car Fuel Consumption and CO<sub>2</sub> database. This is used by individuals and organisations to:

- To inform buyers of new cars how they can reduce the impact of their vehicle on the environment
- Identify the vehicle excise duty and/or the relevant company car tax percentage bracket, based on CO<sub>2</sub> levels
- Search for cars that offer lower fuel consumption or use alternative fuel types

At this time there are no official VCA figures for CO<sub>2</sub> emissions from vans. This means that selecting a van on its emissions performance alone is difficult.

Further information on the VCA can be found at: [vcacarfueldata.org.uk](http://vcacarfueldata.org.uk).

## Vehicle Excise Duty (VED)

For cars, the VED system is based on CO<sub>2</sub> emissions and sends a clear signal to vehicle manufacturers and purchasers about the environmental impact of the cars they make and use. Details of the current VED rates (as of April 2006) are given on the opposite page.

Ensuring that your car fleet is as fuel efficient (and therefore as CO<sub>2</sub> efficient) as practicable will not only result in reduced fuel bills, but will have the added benefit of reducing your tax burden.

### Vans (not exceeding 3,500kg)

Unlike cars, for vans the VED is based on when they were registered and whether they conform to the Euro 4 emission standard.

Similarly to the car VED system, the system for vans provides a tax incentive to purchase and operate Euro 4 vans.

Further details of the VED systems can be found at: [dvla.gov.uk](http://dvla.gov.uk)

## VED rates for cars

Bands	CO <sub>2</sub> emission figure (g/km)	Diesel		Petrol		Alternative fuel	
		12 months	6 months	12 months	6 months	12 months	6 months
A	Up to 100	-	-	-	-	-	-
B	101 - 120	£50.00	-	£40.00	-	£30.00	-
C	121 - 150	£110.00	£60.50	£100.00	£55.00	£90.00	£49.50
D	151 - 165	£135.00	£74.25	£125.00	£68.75	£115.00	£63.25
E	166 - 185	£160.00	£88.00	£150.00	£82.50	£140.00	£77.00
F	Over 185	£195.00	£107.25	£190.00	£104.50	£180.00	£99.00
Vehicles registered on or after 23 March 2006							
G	Over 225	£215.00	£118.25	£210.00	£115.50	£200.00	£110.00

## VED rates for vans

	12 months	6 months
Vehicles registered on or after 1 March 2001	£170.00	£93.50
Euro 4 vehicles registered between 1 March 2003 and 31 December 2006	£110.00	£60.50

## Benefit in Kind (BIK) tax

### Company cars

In April 2002, there was a fundamental change in the way that company cars are taxed to help to protect the environment. The BIK charge for company cars registered from 1 January 1998 is calculated using the vehicle's list price as a starting point, with maximum and minimum taxable percentages ranging from 15 per cent to 35 per cent of list price for normal vehicles. However, the discounting structure relates to the car's CO<sub>2</sub> emissions.

Currently those cars with an official CO<sub>2</sub> emission level of less than 140 gCO<sub>2</sub>/km are taxed on 15 per cent of the vehicle list price. For every five grams per kilometre of CO<sub>2</sub> over and above this a further one per cent of vehicle list price is added to the basic 15 per cent start point. This carries on to a maximum rate of 35 per cent of the list price. Diesel powered cars use the same scale, but are subject to a supplement of three per cent, although the maximum tax rate is still capped at 35 per cent.

This new scheme has had a significant effect on the fleet market with fleet managers and users actively selecting lower CO<sub>2</sub> emitting vehicles, resulting in a significant increase in diesel cars within the UK market.

It is important to realise that although the largest tax burden falls on the employee under company car BIK tax, the company/employer will also be subject to increased costs if employees drive vehicles with high CO<sub>2</sub> emissions. This is due to the Class 1A NIC that the company must pay in respect of the employee's private benefit.

Similar to the VED rates, ensuring that your company car fleet is as fuel efficient (and therefore as CO<sub>2</sub> efficient) as practicable will result your staff paying less BIK tax. It will also have the added benefit of reducing your NIC tax burden. Therefore, a green fleet is not only environmentally friendly it is tax friendly too.

Further details of the new company car tax system can be found at: [hmrc.gov.uk/cars/company\\_cars.htm](http://hmrc.gov.uk/cars/company_cars.htm).

### Company vans

As of 6 April 2005, the majority of company van drivers no longer have to pay tax on their company vehicle. They are only required to so if they use the van for private journeys other than those between home and work, unless this other private use is insignificant. Examples include taking rubbish to the tip once or twice a year or regularly making a detour to stop at a newsagent on the way to work.

If there is tax to pay because of private use, employees are now charged £500 (falling to £350 if the van is more than four years old). From April 2007, the standard charge for unrestricted use will rise from £500 to £3,000, with a further £500 charge if the employer provides free fuel for private use.

Further details of van related BIK tax are available at: [hmrc.gov.uk/vans](http://hmrc.gov.uk/vans).



## 8. Maximise your potential

Gaining an understanding of your organisation's need to travel will identify many areas of inefficiency. It is no coincidence that those fleets that are widely seen as already being 'green' generally have lower operating costs than their peers. Their attention to detail allows them to study and act on all the factors that generate costs. Building in a green element usually comes as part of the overall business approach to better environmental performance overall, such as accreditation to the ISO 14,000 standards.

Undertaking such a review will help you understand how to reduce overhead costs, and improve efficiency as well as reduce the environmental impact of your fleet. This review will include, but not be restricted to, the following elements:

- Travel planning
- Fuel and mileage management
- Driver training
- Environmental management systems

### Travel planning

A travel plan is a management tool that allows you to manage the transport needs of your business and is tailored to its specific circumstances and site(s).

A travel plan should take into account a wide variety of factors including the size and location of your organisation, the number of staff you employ and the number of visitors and deliveries you receive.

A travel plan can bring a wide variety of benefits to your organisation – not only to you as an employer, but also to your staff, local community and the environment. For instance:

- Your organisation could benefit from cost savings, reduced congestion, lower demand for car parking and improved access for employees, visitors and deliveries
- Staff could benefit from improved health, cost, travel time savings and reduced stress
- The local community could benefit from reduced congestion, quicker journey times and less overspill parking in residential areas
- The environment could benefit from improved air quality, less noise and the reduced impact of other national and global environmental problems such as climate change

Further information on travel planning can be found at the Department for Transport's (DfT) website at [dft.gov.uk](http://dft.gov.uk) (follow the link to sustainable travel).

### Fuel and mileage management

With typical fuel costs accounting for around 25–30 per cent of the total operating costs of a fleet, managing fuel makes sound commercial sense. However, fuel costs are not a fixed overhead and will vary according to factors such as vehicle type, driving style and mileage. An effective fuel management process can save around 10 per cent of fuel costs.

To have any hope of controlling fuel costs, the three determinants of fuel efficiency must be captured on a regular basis – distance covered, volume of fuel used, and the cost of that fuel. With this data it is possible to compare the performance of your fleet with that of others.

Similarly, it is important to understand the mileage patterns that are undertaken by your vehicle fleet. Is the journey or the provision of a vehicle necessary in the first place? At best you may be able to downsize the fleet by identifying more cost effective and efficient methods of carrying out your core business activity. Examples include making the most of internet opportunities, tele- or video-conferencing, e-commerce or re-appraising marketing strategies.

You may, however, also be able to reduce car use through car sharing, increased use of public transport, better corporate diary planning for customer visits/meetings etc. Undertaking monthly mileage audits will help you highlight any redundant mileage

For further information on fuel and mileage management contact the Energy Saving Trust at [est.org.uk](http://est.org.uk). Alternatively, there are a number of fleet management companies who can advise on fuel management and help you to develop a fuel and mileage management programme through the use of fuel cards.



## Fleet management tips

The following tips should help you manage your fleet in a more fuel efficient manner:

- Promote the use of fuel efficient cars via the vehicle choice list and actively promote cars with high mpg values
- Via the vehicle allocation policy, promote cars with low CO<sub>2</sub> emission levels, which will reduce employee BIK tax costs
- Record and analyse business mileage patterns to allow you to manage the fleet better, and identify areas of inefficiency
- Record and analyse vehicle fuel consumption profiles to identify areas of high and low fuel efficiency for targeted action
- Evaluate the use of alternatively fuelled cars to see where they may be beneficial in your fleet
- Provide driver league tables to show how they are performing against others
- Ensure vehicles are properly maintained - poorly maintained vehicles are not only potentially dangerous, but have higher fuel consumption and toxic emission levels
- Provide journey planning advice through access to websites that give street maps and route planners, or through a transport administrator who coordinates travel for employees
- Provide guidance on transport alternatives - make it easy for employees to evaluate and access alternatives to car travel by encouraging public transport and providing journey planning assistance, such as TfL's Journey Planner
- Ensure travel remuneration policies are environmentally sensitive - do not have business mileage reimbursement rates that encourage drivers to cover excessive miles in their company or private car
- Consider improving core business activity efficiency - it may be more cost effective to consider telesales or e-commerce instead of 'on the road' sales teams

## Driver training

When optimising a fleet's efficiency it is essential to ensure that you do not underestimate the role that the driver has in ensuring that the vehicles are operated to their full potential. No matter how safe and fuel efficient the vehicles you operate are, they will all perform poorly with an inefficient driver behind the wheel.

For further information on driver training contact your local driver training organisation, or see [orsa.org.uk](http://orsa.org.uk) for more information.

For those fleets that operate vans, the DfT has recently launched a Safe and Fuel Efficient Driver programme. For further information see [safed.org.uk](http://safed.org.uk) and follow the link to vans.

### Driving tips

The following tips can be publicised to your vehicle drivers to enable them to continue to drive in a fuel efficiency manner:

- Try to avoid using your car for short journeys – use public transport, cycle or walk
- Plan ahead – choose uncongested routes, combine trips and car share
- Cold starts – drive off as soon as possible after starting and do so gently
- Drive smoothly and efficiently - harsh acceleration and heavy braking have a very significant effect on fuel consumption
- Slow down – driving at 80mph uses up 30 per cent more fuel than at 65mph
- Use higher gears, as soon as traffic conditions allow
- Switch off the engine whenever it is safe to do so (eg while in traffic jams) – sitting stationary is zero miles per gallon
- Lose weight – don't carry unnecessary loads and remove roof racks when not in use
- Regular servicing helps keep the engine at its best efficiency
- Make sure tyres are inflated to the correct pressure for the vehicle
- Do not compromise safety but be aware that the use of onboard electrical devices increases fuel consumption

## Environmental management systems (EMS)

Organisations of all sizes are increasingly focusing on the potential environmental impacts of their activities, products or services as concern grows for maintaining and improving the quality of the local and global environment.

Meeting customer expectations in relation to the environment requires organisational commitment to a continual improvement in environmental performance. This can be achieved through accreditation to ISO14,001 or the implementation of an EMS.

Although implementation of an EMS is not without cost, in the long term it should save your business money, improve its environmental performance and give you a competitive advantage. The EMS will also help your organisation demonstrate environmental responsibility to your stakeholders.

- Check your fuel consumption – it will help you get the most from the car. Changes in overall fuel consumption may indicate a fault
- Use air-conditioning sparingly – running it continuously will increase fuel consumption significantly
- Do not underestimate the effectiveness of journey planning. Getting lost not only increases mileage and therefore fuel costs, but also increases driver stress levels

To increase the effectiveness of driver training and other awareness raising activities, you should investigate the use of driver league tables, or some other form of performance awards. This can add an element of competition and fun to the often serious topic of driver management.

# Appendix 1: References

## Key sources of information used in preparing the guide

The Fleet Operator's Guide to Cleaner Fuelled Vehicles: an essential guide on switching to a clean and efficient fleet (Energy Saving Trust, 2003)

The Route to Cleaner Buses: a guide to operating cleaner, low carbon buses (Energy Saving Trust, 2003)

Driving towards a better environment – choosing and using cleaner vehicles (Department for Transport, 2002)

Road fuel gases and their contribution to clean low-carbon transport – consultation document (Department for Transport, 2002)

Tomorrow's Low Carbon Cars (Institute for Public Policy Research, 2003)

Fleet Management Guide (Energy Saving Trust, 2003)

## Government Information

Department for Transport (DfT)  
Great Minster House, 76 Marsham Street,  
London SW1P 4DR  
Tel: 020 7944 8300  
Web: [dft.gov.uk](http://dft.gov.uk)

Energy Saving Trust (EST)  
21 Dartmouth Street, London SW1H 9BP  
Tel: 0845 602 1425  
Web: [est.org.uk/fleet](http://est.org.uk/fleet)

Vehicle Certification Agency (VCA)  
No 1 The Eastgate Office Centre, Eastgate  
Road, Bristol BS5 6XX  
Tel: 0117 951 5151  
Web: [vca.gov.uk](http://vca.gov.uk)

## Fleet Management

Association of Car Fleet Operators (ACFO)  
Rivendell House, Winton Road, Petersfield  
GU32 3LL  
Tel: 01730 260162  
Web: [acfo.org](http://acfo.org)

Institute of Car Fleet Management (ICFM)  
Administration Centre, P.O. Box 314,  
Chichester PO20 9WZ  
Tel: 01462 744914  
Web: [icfmonline.co.uk](http://icfmonline.co.uk)

Environmental Transport Association (ETA)  
68 High Street, Weybridge KT13 8RS  
Tel: 0845 389 1010  
Web: [eta.co.uk](http://eta.co.uk)

## Driver Training and Safety

Department for Transport  
Follow the link to 'road safety' on the  
DfT website

Fleet Safety Association  
c/o Roadsafe, Forbes House, Halkin Street,  
London SW1X 7DS  
Tel: 020 7344 9236  
Web: [fleetsafetyassociation.co.uk](http://fleetsafetyassociation.co.uk)

Occupational Road Safety Alliance (ORSA)  
Web: [orsa.org.uk](http://orsa.org.uk)

The Royal Society for the Prevention of  
Accidents (RoSPA)  
RoSPA House, Edgbaston Park, 353 Bristol  
Road, Edgbaston, Birmingham B5 7ST  
Tel: 0121 248 2000  
Web: [rospa.com](http://rospa.com)

BRAKE  
P.O. Box 548, Huddersfield HD1 2XZ  
Tel: 01484 559909  
Web: [brake.org.uk](http://brake.org.uk)

## Workplace Travel Plans

Transport for London (Travel Demand  
Management)  
3rd Floor, Wing over Station  
55 Broadway  
London SW1H 0BD  
Email: [worktp@tfl.gov.uk](mailto:worktp@tfl.gov.uk)

London Sub-Regional Travel Plan Coordinators:

South-East London Transport Strategy (Seltrans)  
Email: [travelplans@bromley.gov.uk](mailto:travelplans@bromley.gov.uk)

South-West London Transport  
Conference (Sweltrac)  
Email: [sweltrac@richmond.gov.uk](mailto:sweltrac@richmond.gov.uk)

Thames Gateway London Partnership (TGLP)  
Email: [travelplans@lbbd.gov.uk](mailto:travelplans@lbbd.gov.uk)

West London Travel Plans  
Email: [WestLondonTravelPlans@ealing.gov.uk](mailto:WestLondonTravelPlans@ealing.gov.uk)

North Central Travel Plan Network (NCTN)  
Email: [travel.plan@camden.gov.uk](mailto:travel.plan@camden.gov.uk)

North London Travel Plans  
Email: [nltf@walthamforest.gov.uk](mailto:nltf@walthamforest.gov.uk)

Department for Transport  
Follow the link to 'sustainable travel' on the  
DfT website

Association for Commuter Transport (ACT)  
Web: [act-uk.com](http://act-uk.com)

Transport 2000  
The Impact Centre, 12-18 Hoxton Street,  
London N1 6NG  
Tel: 020 7613 0743  
Web: [transport2000.org.uk](http://transport2000.org.uk)

## Public Transport Information

National Rail Enquiries Service  
Tel: 08457 48 49 50  
Web: [nationalrail.co.uk](http://nationalrail.co.uk)

TfL Travel Information Service  
Tel: 020 7222 1234  
Web: [tfl.gov.uk](http://tfl.gov.uk)

# Appendix 2: Duty cycle pro-forma

Understanding the operational needs of your fleet is the first step to take when performing an alternative fuels review. Collating information on the types of journey undertaken by your vehicles (eg inner city delivery), the number and type of vehicle undertaking those journeys (eg four cars, 10 vans) and the total annual mileage of those journeys (eg 10,000 miles) will enable you to

make a more informed decision as to the most appropriate vehicle and fuel necessary for that particular journey or task.

The following pro-forma could be used to help you summarise this information, which in turn will help you use the decision making flow chart detailed in Section 5.

Duty cycle	Vehicle type	Vehicle numbers	Annual mileage
Inner city delivery	Vans (<3.5 tonnes)		
Inner city delivery	Cars		
Inner city delivery	Vans (<3.5 tonnes)		
Inner city delivery	Cars		
Rural delivery	Vans (<3.5 tonnes)		
Rural delivery	Cars		

Duty cycle	Vehicle type	Vehicle numbers	Annual mileage
Inner city delivery	Vans (<3.5 tonnes)		
Inner city delivery	Cars		
Inner city delivery	Vans (<3.5 tonnes)		
Inner city delivery	Cars		
Rural delivery	Vans (<3.5 tonnes)		
Rural delivery	Cars		

Duty cycle	Vehicle type	Vehicle numbers	Annual mileage
Inner city delivery	Vans (<3.5 tonnes)		
Inner city delivery	Cars		
Inner city delivery	Vans (<3.5 tonnes)		
Inner city delivery	Cars		
Rural delivery	Vans (<3.5 tonnes)		
Rural delivery	Cars		