

Driving for the Future



Your Guide to More
Responsible Motoring



Sectoral Sustainability

In March 2000, SMMT together with 11 founding signatories launched the sustainability strategy 'Towards Sustainability' which outlines the automotive industry's commitment to balance economic progress with environmental care and social responsibility. Today the strategy is supported by 24 signatories.

As part of their effort to progress towards sustainable mobility, SMMT and signatories recognised the importance of their role in promoting 'responsible product use' and raising awareness on key environmental and security issues. To this end, we developed this guide which provides you with facts, tips and tools to assess and reduce the impact of your mobility needs.

Signatories to the UK Automotive Sector Strategy for Sustainable Development

Audi
Bentley Motor Cars Ltd
BMW Group Ltd
Dunlop Tyres Ltd
ERF Ltd
Ford Motor Company Ltd
GKN Driveline Ltd
Honda of the UK Manufacturing Ltd
Jaguar Cars Ltd
Land Rover Ltd
LDV Ltd
MG Rover Group Ltd
Nissan Motor Manufacturing (UK) Ltd and
Nissan Technology Centre Europe
Perkins Engines
Rolls Royce Motor Car Ltd
Toyota GB plc and Toyota Motor Manufacturing UK Ltd
SEAT
Skoda
Unipart Group of Companies
Vauxhall Motors Ltd
Volex Wiring Systems
Volvo Car UK Ltd
Volkswagen
Volkswagen Commercial Vehicles



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*Glossary: All acronyms used in the booklet are defined in the glossary (see p14).
Website addresses (eg www.smmmt.co.uk) where additional information can be found are listed at the end of most sections.*



Preface

The motor car is making a major contribution to improving the quality of life by giving us unprecedented opportunities in terms of mobility and freedom. However, with these opportunities come responsibilities – those of minimising the environmental and social impacts associated with the use of motor vehicles.

Industry has a responsibility to ensure that the environmental impacts of the motor car are minimised through continuing to develop cleaner and more efficient technologies, materials and manufacturing processes.

You, the individual motorist, also have the responsibility to use motor vehicles in a sensible and disciplined way, with a view to minimising the impact of your mobility needs.

There are a number of key areas where we can all have an influence and reduce our impact. These include congestion (eg journey planning, car sharing), emissions and energy efficiency (eg adequate use of technology, driving style) and waste (correct disposal of vehicle).

This guidance has been developed to assist you and provides practical advice on buying, using and disposing of vehicles. The tools and tips show how you can be cleaner, more fuel efficient and reduce your impact. And in most cases, you will also save money in the process.





When Buying a Vehicle

Fuel Economy and Emissions

The burning of fuels that currently power our vehicles produces toxic emissions affecting local air quality as well as carbon dioxide (CO₂) emissions contributing to climate change. The level of emissions depends on the engine technology and fuel used, as well as the vehicle's physical characteristics and user's driving style. The environmental performance can vary significantly from one vehicle to another. A few points to remember:

- **Fuel type** has a significant impact on a vehicle's economical and environmental performance.
- A vehicle's **CO₂ emissions are directly related to its fuel consumption** (ie the more fuel your vehicle consumes, the more CO₂ it will produce).
- An increasing number of vehicles already comply with the most stringent **emission standard (Euro IV)**.
- **Driving style** has a significant impact on fuel consumption. Sharp acceleration and excessive speed will significantly reduce the vehicle's fuel efficiency.

Your vehicle's exhaust emissions

In 1992, EU-wide exhaust emission standards were made more stringent and the Euro I standard was introduced. Today, all new vehicles in the UK meet Euro III which was introduced in 2001. However, some manufacturers achieve better performance than that legally prescribed and already meet the performance set by Euro IV which will only be fully in force by 2007. The VCA database on fuel consumption and emissions lists new cars according to Euro compliance.

www.vca.gov.uk

Your vehicle's CO₂ emissions

The key fact to remember is: **The less fuel your car consumes, the less CO₂ it produces**. Typically, a low fuel-consuming car (40-60mpg or 4.5-7 l/100km) will emit 110-170g CO₂/km, whereas high fuel-consuming cars (12-22mpg or 23-12 l/100km) will emit between 300-550g CO₂/km.

Emissions Labels: New cars put on the market must be labelled with their fuel consumption and CO₂ emissions. In a showroom, CO₂ emissions figures for all models on sale will also be available to you. The label enables you to assess the CO₂ emissions performance of a particular vehicle and compare it with other vehicles (either in absolute terms or against vehicles within the same category). It also enables you to calculate the VED costs and/or company car tax.

www.vca.gov.uk
www.smmmt.co.uk

The UK Fiscal Framework

Vehicle Excise Duty (VED): Since 2001, the VED (or road tax) has been revised so that drivers of fuel-efficient and low-carbon vehicles pay less. In other words, the VED rate applied to new passenger cars is based on the vehicle's CO₂ emissions figure and fuel type.

www.dvla.gov.uk
www.vcacarfueldata.org.uk

Company Car Tax: Since April 2002, the benefit-in-kind tax applied to company cars has been based on the CO₂ emissions of the car. Drivers can save up to 50 per cent by buying a car with low CO₂ emissions. Diesel cars perform better than petrol cars in terms of CO₂, CO and hydrocarbon emissions but have higher NO_x and particulate emissions. The Government has taken a position to increase the benefit in kind by 3% unless the diesel meets the upcoming Euro IV emission standard (check www.vca.gov.uk for more details).

What Fuels?

Today, the majority of vehicles in the UK run on conventional fuels (ie **petrol** and **diesel**), both of which present advantages and disadvantages. Generally, diesel vehicles tend to be more fuel efficient and emit less CO₂, CO and hydrocarbons than petrol vehicles but they produce more NO_x and particles.

However, the level of emissions can vary significantly from one vehicle to another, according to engine technology and vehicle design. Improvements in engine technology (eg direct injection) and fuel quality (eg ultra low sulphur) have enabled significant reductions in emissions during the last decade. An increasing number of new vehicles (petrol and diesel) already meet the Euro IV emissions standard and CO₂ emissions from diesel engines are now comparable to that of alternative fuels such as LPG.

In addition to conventional fuels and the technology that enables us to improve emissions, there are also **alternative fuels** that enable vehicle emissions to be reduced. But those fuels too present both advantages and disadvantages. The table on page 7 lists alternative fuels available today in the UK and lists some of the advantages and/or disadvantages when compared to conventional fuels (petrol and diesel).

www.cleaner-drive.co.uk
www.lpga.co.uk



Fuel	Description	Advantages/Disadvantages
Liquefied Petroleum Gas (LPG)	LPG is produced as a by-product of oil refining and is also found as an associated gas in natural gas fields. It is stored as liquid under pressure. Vehicles can be set up to operate on LPG only or as bi-fuels (see below). There are currently over 1,100 LPG refuelling stations in the UK.	<ul style="list-style-type: none"> • It can significantly reduce harmful emissions (particulates and NOx). • It produces lower emissions of CO₂ than petrol. • Due to low duty, it currently is significantly cheaper to run.
Compressed Natural Gas (CNG)	A mixture of 92% methane and other natural gases which is stored as compressed gas (200 bars). Vehicles can be set up to operate on CNG only or as bi-fuels (see below). There are currently only about 30 CNG refuelling stations in the UK.	<ul style="list-style-type: none"> • CNG produces lower CO₂ emissions and virtually no particles. • Due to the size and weight of the tank, CNG has traditionally been used to power large trucks and buses. However, significant improvements have been achieved and CNG passenger cars are now available in the UK.
Biodiesel	Vegetable oil modified to be compatible with diesel engines. Mixtures of not more than 5% biodiesel with conventional diesel are acceptable with most manufacturers, provided the fuel meets British/European specification.	<ul style="list-style-type: none"> • Reduces VOC emissions but increase emissions of NOx and particles. • Blending up to 5% achieves better emission results than higher percentage blend or 100% biodiesel (which can also block fuel lines or result in fuel hose and seal degradation).
Bi-fuel	Vehicles that can operate on either of two different fuel types, typically petrol or diesel and LPG or CNG (one engine).	<ul style="list-style-type: none"> • Offers the benefits of both fuels, as detailed above.
Electric vehicles (EV)	Electricity can be used as a main source of power. The conventional fuel system is replaced by batteries.	<ul style="list-style-type: none"> • Zero emissions at the point of use and extremely cheap to run. • Requires 'plug in' points which are not widely in public car parks. • The electricity used to charge the battery currently comes from power plants which are CO₂ intensive and impact local air quality.
Hybrid vehicles	Hybrids use a combination of conventional fuel (petrol/diesel) with electricity to power the engine. In most cases, electric power is used at low speed (particularly for urban stop-start driving) and conventional fuels are used at higher speed (eg motorway)	<ul style="list-style-type: none"> • The vehicle's power need is split so that it is more energy efficient with lower emissions. Hybrids can deliver substantial fuel economy benefits. • The batteries are usually recharged by the petrol/diesel engine, so specific recharging is not necessary (unlike electric vehicles).

Funding opportunities for alternative fuels

The Energy Saving Trust (EST) has set up two programmes that provide grants to assist with the additional costs of buying alternative fuelled vehicles:

- **Powershift:** Grants are available for the additional costs of purchasing or converting clean fuel vehicles up to five years old.
- **CleanUp:** Grants are available for emission reduction technologies for commercial diesel vehicles.

www.cleanup.org.uk
www.est-powershift.org.uk

Five steps to choose a vehicle that suits you

- 1. Size matters.** Think about the reasons why you need a car and the size of car you really need. In urban environments, for example, larger vehicles will be more difficult to park and often less economical than smaller alternatives.
- 2. Transmission – manual, automatic, four-wheel drive?** Carefully consider how and where you are going to use your vehicle (eg the benefits associated with four-wheel-drive vehicles need to be weighed against the possibility that they may be less economical/convenient in an urban environment, especially when compared with a small city car). Similarly automatic transmissions can use 10-15 per cent more fuel than manual transmissions (although continuously variable transmission, or CVT, does not present such penalty).
- 3. What fuel?** Fuel choice is important – you now have choice between petrol, diesel, LPG, CNG, electric, bi-fuel and hybrids (see previous section for details).
- 4. Look for environmental performance.** Each vehicle on sale now displays a label outlining the vehicle's emissions performance (fuel consumption, CO₂ emissions). This enables you to compare different vehicles, either in absolute terms or within a particular class.
- 5. Be safe.** Modern vehicles offer a large range of safety features (eg curtain air bags, side impact protection, ISOFix for child seats, etc), some of which are manufacturer-specific.

By choosing a modern, cleaner and more fuel efficient vehicle, you will reduce the impact of your mobility needs on air quality and climate change.



When Using a Vehicle

How to calculate your fuel consumption?

It is important that you monitor your vehicle's fuel consumption to ensure that it continues to operate at maximum efficiency. This will minimise emissions. The majority of modern vehicles are fitted with a trip computer that will automatically keep you informed of your vehicle's fuel consumption. Alternatively, here are five steps to calculate your car's fuel consumption (this is best done on a long run with the engine at normal operating temperature):

1. Fill the fuel tank until the pump cuts out, which happens when the tank is full (do not overfill).
2. Zero the trip meter or note the mileage.
3. Drive for, say, 100 miles (or any other distance but make a note of the actual miles driven).
4. Fill the fuel tank again and note the amount of fuel it takes (in litres or gallons).
5. Divide the number of miles driven (say, 100) by the amount of fuel used (litres or gallons) to find your fuel consumption.

How to reduce your fuel consumption and CO₂ emissions?

Whilst the performance of new vehicles has improved significantly over the last 10 years through design and engine technology, the way in which you use your vehicle remains a significant factor influencing its environmental and economic performance.

1. Driving style

- **Slow down.** Reduce your speed – it saves both lives and fuel. Think about this: if hit by a vehicle at 40mph, nine out of ten pedestrians are killed. At 30mph, five out of 10 pedestrians are killed. At 20mph, nine out of 10 survive. When your speed is doubled, your braking distance quadruples.
- **Be safe.** Most modern cars have numerous safety features – use them as appropriate. But remember that although such safety features will assist you, they will not stop accidents from happening. You must act responsibly in order to avoid accidents (eg belt-up, take breaks when tired). And remember – it is illegal to use handheld mobile phones whilst driving.
- **Drive smoothly.** By anticipating and thinking ahead you can avoid sudden braking and sharp acceleration. Gentle driving will enable you to reduce fuel consumption and emissions by more than 10 per cent in urban areas.

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- **Use the correct gear:** Changing the gears up early and driving in the highest practical gear is an efficient way of driving. It can reduce fuel consumption by up to 25 per cent.
- **Starting from cold:** Warming up the engine by allowing it to idle from cold is unnecessary (modern cars have cold start management systems that control the engine for cold start). Drive off immediately and use the highest possible gear to minimise cold start emissions.

2. Use of accessories

- **Accessories use energy** – When safe to do so, switch off accessories that are not necessary (eg rear screen de-mister, seat heaters). For example, it is estimated that the unnecessary use of air conditioning can increase your fuel consumption by up to 10 per cent.

3. Weight and wind factors

- **Lose weight!** Excess weight will increase your fuel consumption – unload any excess weight you don't need.
- **Cut down resistance:** By removing items such as roof racks, you will cut down wind resistance and decrease fuel consumption. For example, a ski rack can increase fuel consumption by seven to eight per cent or a fully loaded roof rack by 30 per cent. When travelling with a load on the roof, make sure it is well wrapped as it will cut down wind resistance.

4. Maintain your vehicle

- **Service your vehicle:** In order to minimise fuel consumption and emissions, a car needs to be serviced at regular intervals (or at the manufacturer's recommended intervals). This includes an engine tune-up for older cars. Neglecting scheduled servicing will probably cost you more in the long run.
- **Tyre pressure:** make sure tyres are inflated to the correct pressure (as specified in the owner's manual). Under-inflated tyres can increase fuel consumption by up to eight per cent and can be dangerous.



5. Driving – think about it

- **Switch off.** When stationary, switch your engine off whenever it is safe to do so. Your fuel economy in prolonged and unnecessary idle will be zero mpg.
- **Drive less.** Put off journeys that are not necessary and combine trips.
- **Avoid short journeys.** During short journeys, the engine does not reach optimal temperature. This results in higher fuel consumption and emissions. Instead, when possible, walk, cycle or use public transport.

Five steps for reducing the impact of your mobility needs

1. Plan your Journey

Planning your journey will reduce unnecessary mileage due to getting lost, stuck in traffic or roadworks. It may reduce a great deal of hassle too. It is especially advisable to plan your journeys to avoid travelling during peak periods. This may involve planning the route using the in-car navigation systems, planning ahead using internet-based services such as the AA Route Planner, or tuning your radio to RDS traffic information.

www.rac.co.uk www.theaa.com

2. Car Sharing

Think about it – you will realise that often you can share travel with friends, family or neighbours. By sharing, you will save petrol and minimise the impact of that particular journey need. Also, should you have two cars, ensure that you use the smaller or most fuel-efficient whenever possible.

3. Use of Public Transport

Whenever possible and convenient to do so, use public transport. This will contribute to reducing congestion and emissions. In certain case it will also save you some money by avoiding road tolls and congestion charges.



The principle behind the London Congestion Charge is that those using valuable and congested road space need to make a financial contribution. The London scheme requires drivers to pay £5 per day if they wish to continue driving in central London during the scheme's hours of operation (7am - 6.30pm Monday to Friday, excluding public holidays). Traffic signs indicate where the charging zone starts and ends.

www.cclondon.com

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4. Park and Ride

Many city centres today offer the option to use a 'Park and Ride' scheme which enables you to leave your vehicle outside the central zones (usually the most congested areas) and use priority public transport that brings you into the centre. These schemes save you from driving in congested urban areas and having to find a parking space.

5. Green transport plans

An increasing number of employers are introducing green transport plans to help reduce the number of commuter journeys that employees make by car. These include car sharing schemes, installing cycling facilities, subsidising train/bus travel and encouraging the best use of technology by working from home. Ask your employer if such a scheme is available.

www.local-transport.dft.gov.uk/travelplans





When Disposing of Your Vehicle

Dumping or Disposing?

Your car has reached the end of the road and you need to dispose of it - don't dump it, recycle it. Vehicle manufacturers are producing vehicles that are recoverable by design to at least 95 per cent by weight. So, dispose of your vehicles through appropriate channels to ensure that it is recovered, recycled or reused. You should also note that, as the last owner of the vehicle, you are responsible for disposing of your vehicle and may be fined if you fail to do so.

There are different options for disposing of a car (in order of preference):

- 1. Dismantlers:** There is a large network of official dismantlers in the UK which offer vehicle take back. In order to find your local dismantler, ask your local council or check local papers and directories for advertisements.
- 2. Local council:** Some councils throughout the UK offer vehicle take back. Phone your local council which will advise you on the procedure.
- 3. Manufacturers:** A number of car manufacturers are progressively developing networks for the disposal of vehicles. They may be able to assist you and take your old car through their own disposal channels.

Ownership Issues – until end of 2003

- When disposing of your vehicle, you must ensure that you obtain and/or forward adequate information.
- When bringing your car to a dismantler, you will be required to present the vehicle registration document (also known as V5).
- Once a dismantler has taken your car, they should provide you with a Notification of Destruction (also known as V860), which means that the vehicle will be removed from the DVLA register.
- Alternatively, send your vehicle registration documents (V5) to the DVLA, notifying that the vehicle has been disposed of.

www.dvla.gov.uk

Ownership Issues – from end of 2003 onwards

When the End-of-Life legislation is implemented in the UK, only Authorised Treatment Facilities (ATFs) will be allowed to take your car. All ATFs will have to issue you a Certificate of Destruction (CoD) which relieves you of VED obligations.

Glossary

Bi-fuel: Vehicles that operate on either of two different fuel types, typically petrol or diesel and LPG or CNG.

Bio-diesel: Vegetable oil that has been chemically modified to make it compatible with diesel engines.

Bio-ethanol: Renewable, domestically-produced resource made from biomass. Normal production vehicles are not compatible with high ethanol content.

CO: Carbon monoxide. Pollutant (invisible gas) produced by the burning of fuels.

CO₂: Carbon dioxide. Greenhouse gas produced by the burning of fuels and contributing to climate change.

CNG: Compressed natural gas

DVLA: Driver and Vehicle Licensing Agency.

End-of-Life Legislation: European Directive requiring the recycling and reuse of end-of-life vehicles. It establishes targets of 80% by 2006 and 85% by 2015 within overall recovery targets of 85 and 95 percent respectively.

Euro standard: Vehicle emission standards introduced by the European Commission in 1992. The standards are revised and become increasingly stringent. Euro III is the standard applied in 2003. Euro IV will be introduced from January 2005.

HC: Hydrocarbons. Pollutant (invisible gas) produced by the burning of fuels.

Hybrids: Vehicles using a combination of conventional fuels with electricity to power the engine.

Hydrogen Fuel Cell: system using hydrogen to produce on-board electric power, powering an electric motor.

LPG: Liquid petroleum gas.

NOx: Nitrogen oxides. Pollutant (invisible gas) produced by the burning of fuels.

Particles: Fine particles produced by the burning of fuels (sometimes appearing as smoke).

VCA: Vehicle Certification Agency.

VOC: Volatile Organic Carbon. Organic compound that participates to atmospheric photochemical reactions (eg smog)

VED: Vehicle excise duty or 'road tax' based on CO₂ emissions.



Comments

SMMT encourages the widest participation and is interested to hear from you on any aspect of this guidance. Should you wish to comment or need additional information, please contact us at sustainability@smmmt.co.uk. This guidance is also available as a free downloadable PDF from our website: www.smmmt.co.uk.

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The Society of Motor Manufacturers and Traders
Forbes House, Halkin Street, London SW1X 7DS
Tel: +44 (0)20 7235 7000 Fax: +44 (0)20 7235 3702
Web: www.smmt.co.uk
Email: sustainability@smmt.co.uk