

National project
on transport policies
to address
climate change

Phase One

Executive Summary

Keith Buchan
Director, MTRU

Project funded by
MTRU
Transport 2000

June 2007

Summary

Introduction and context

The overall aim of this project is to contribute to, and help to progress, the development of a low carbon pathway for transport policy in the future. It is in two parts, the first describing the context in terms of climate change and its impact on transport, the second providing a draft set of detailed policies which would radically reduce the carbon footprint of Britain's transport system. It is the findings of this first phase of the project, entitled "Perspectives", which are summarised here.

Recent reports such as the Stern Review set out the broad sweep of policy direction, as does the draft Climate Change Bill. However, what is needed to move forward is a more comprehensive, integrated and detailed set of proposals. The overall aim is to describe "how do we get where we want to be" in a realistic and practical manner.

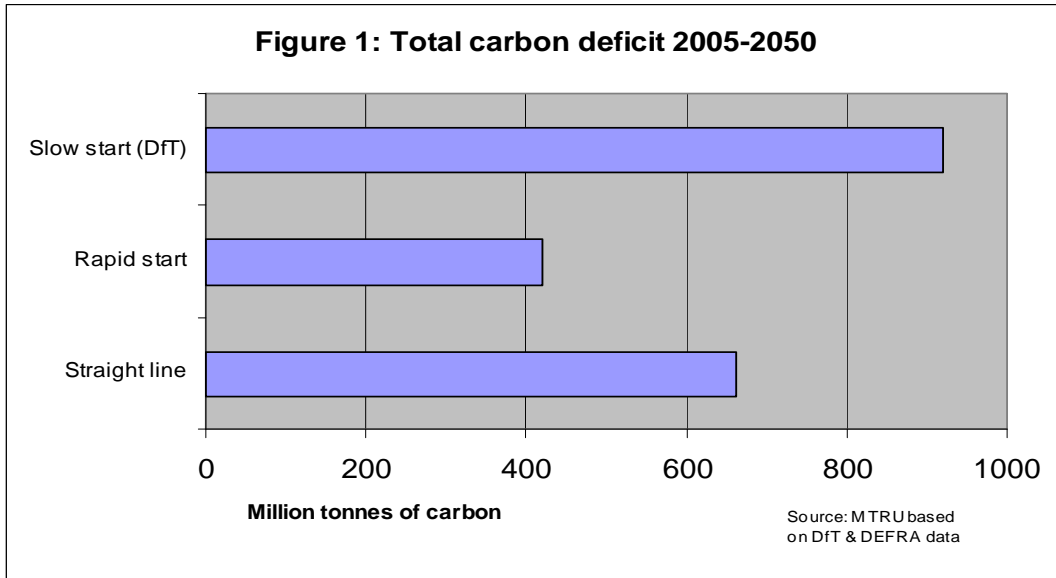
In order to develop detailed transport policies, it is essential to derive a set of guiding principles and answer some of the key questions in relation to climate change.

For this reason, Phase 1 contains a brief review of the climate change context within which transport needs to work, addressing issues such as:

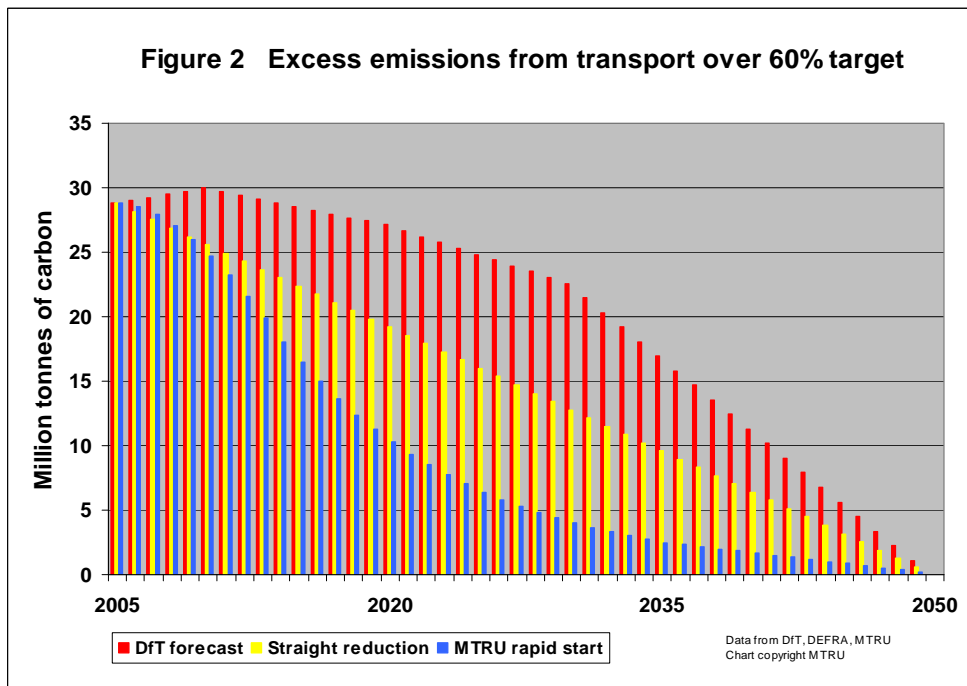
- Do we need to make significant early progress or can we start slowly?
- If other sectors make reductions above their targets, should transport be allowed to exceed the national targets?
- How much can be achieved by technology and how much by changing behaviour?
- What mix will be required of regulation, voluntary agreement and taxation?
- What is the role of biofuels and will there be competition between land for food and land for fuelling transport?
- How useful is maintaining and planting forests, and how damaging is forest clearance?
- Is it possible to calculate the damage costs of greenhouse gas and translate it into a tax?
- Can pollution trading schemes and markets be created which will ease the transition to lower levels of GHG?
- How can damage many years in the future be given a value today?
- What are the real future costs of changing behaviour now?
- How can the measures to avoid climate change be applied fairly?
- How can the people affected by policies to avoid climate change be engaged?

The first phase of the project begins to address these questions and goes on to create the objectives and principles which are used to generate policies.

An example of this is the way the rate of reduction of greenhouse gases has a dramatic effect on the total emissions over the next forty to fifty years. The fresh analysis contained in this report, exemplified in Figure 1 below, shows the total amount of emissions over a given period for different rates of reduction. It is this which determines the level of climate change, not a target, however tough, which is decades away.



This has major implications for transport because changing travel behaviour can start to make a difference to greenhouse gas emissions quite quickly - in a short timescale of 5 to 10 years. The report sets out clearly what rate of progress is needed and how far this from current expectations. This is shown in Figure 2 below.



What is more, if the financial framework is implemented fairly, the net cost of taking action in transport is among the lowest available. This is very different from current views that actions on transport are among the most expensive. This is mainly due to the prediction that more efficient vehicles reducing the cost of road use and thus generating traffic. It does not apply to behavioural change. If the “rebound” effect of extra traffic is avoided, reducing transport emissions becomes one of the most cost effective means of meeting Government targets. Any carbon reduction policy which reduces traffic is also likely to have significant congestion and air quality benefits.

Tackling climate change through transport is also one the most equitable – expenditure on transport rises with income, while heating and lighting is a larger proportion of lower income household expenditure. The report shows that the need for a rapid start and low cost makes action on travel behaviour a key priority for policy development.

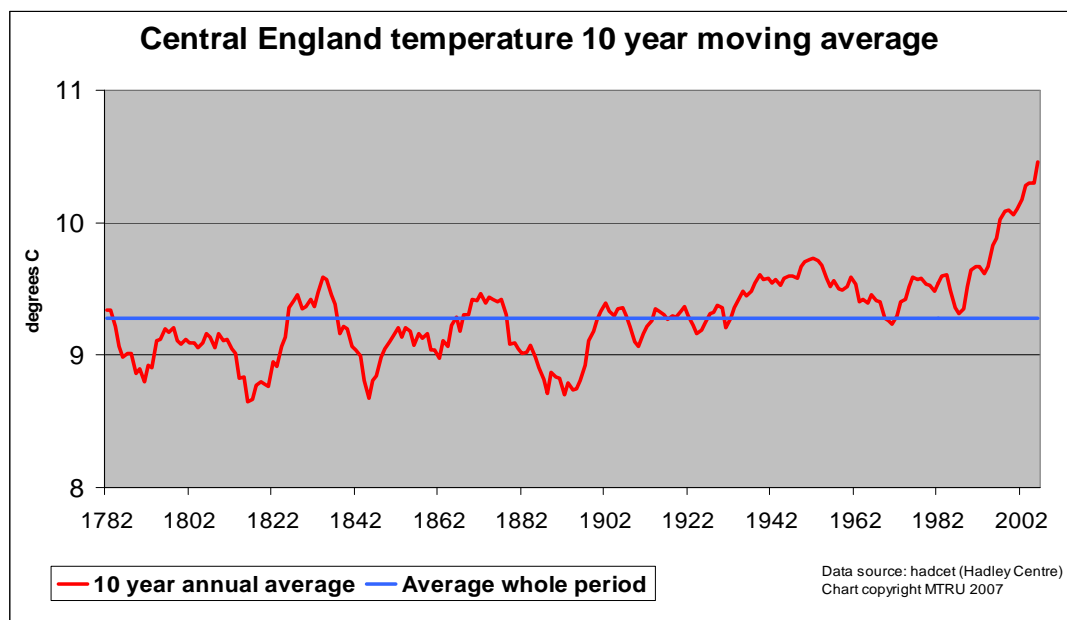
Present policy is in fact moving in the opposite direction. By 2020, DEFRA estimates that transport emissions will be 17% higher than the base year (1990), even excluding international aviation. The rest of the UK’s emissions will be 27% lower. This means that the Climate Change Bill targets could be met, if transport meets its fair share, rather than being allowed to significantly increase its emissions. If transport were to continue to increase its emissions, other sectors would have to reduce their 2020 figure by a further 15%. Achieving this in sectors such as business, agriculture and energy supply, which are already aiming to reduce their emissions by over a quarter, is simply not credible.

Policy framework

- Transport policies to combat climate change should be based on three principles:
 - The main objectives must be individually identified and clearly stated. (*Rational*).
 - It must be clear to those who are affected how the mechanism relates to the objective. (*Transparent*).
 - For those people who reduce their travel by one mode, or incur additional cost, there is an alternative available. (*Equitable*).
- New charges to encourage change in transport use for the purpose of reducing greenhouse gases should not be used for raising general revenue. Income should be returned, for example through lump sum payments (equitable but less productive in GDP terms) or reduced national insurance (less socially progressive but probably GDP positive).
- Policies must be comprehensive and integrated across all modes and take land use planning into account. Issues such as the availability of alternative choices and rebound effects (such as more efficient vehicles encouraging more car use) must be included.

Key findings

- Using actual measurements from the UK, as plotted in the chart below, the recent rise in temperature can be seen in a UK version of the well known “hockey stick” diagram.



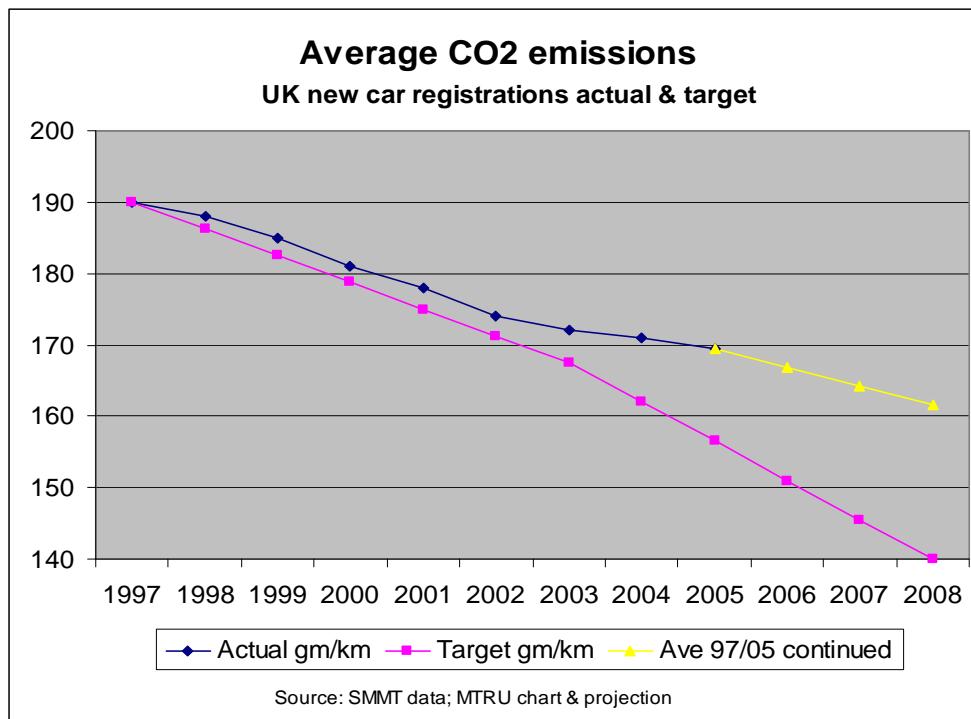
- Greenhouse gas (GHG) reduction targets for single years in the distant future can be very misleading. The key test is the total amount of GHG emitted between now and the target dates. A slow start can mean twice as much emissions over a “safe” level between now and 2050.
- Changing travel behaviour will deliver significant GHG reductions within a shorter timescale compared to improving vehicle efficiency.
- Opportunities to influence transport choice are diverse, plentiful and well known, and are among the lowest net cost for carbon reduction of any sector.
- Carbon charges on private transport are socially more equitable than other sectors, for example home heating, because the proportion of income devoted to travel is higher among the more affluent.
- Improving vehicle efficiency must be combined with policies for demand management to avoid generating traffic.
- The creation of pseudo markets in carbon emissions may or may not succeed in future but is as yet unproven and limited in application.
- The estimation of a social cost for carbon has created considerable debate but has to be adjusted outside normal conventions in order to address the issue of responsibility to future generations. The value is always dependent upon the assumptions made.
- Carbon pricing is better approached by considering the level of reduction required and using price as one of the means to achieve the desired end. This need not prevent, and is likely to support, the development of more sophisticated market mechanisms.

- An objectives based approach gives economic policy a tighter focus and is more transparent to those affected.
- The implications of a move towards biofuels have not been well understood, in some cases it would be preferable to plant trees and carry on using fossil fuel. The competition for land for biofuel or for food and the impact on world food prices must be taken into account, as must the burning of forest in order to plant biofuel crops.

Policy example

In order to illustrate the approach for Phase 2, which will involve an integrated set of policies for the transport sector as a whole, the example of improving vehicle efficiency has been examined in Phase 1.

The original Government intention was that average fuel efficiency, and thus carbon emissions, for new cars sold would fall by 26% between 1995 and 2008. This was to be achieved through a voluntary agreement with manufacturers. It is now clear that the target will not be met by some considerable margin.



This report's proposal seeks to achieve a similar result to the original target through a different approach which changes vehicle taxation and includes the recycling of revenue back to UK residents.

With regard to more efficient vehicles, an impact is sought first at the point of purchase. To avoid generating more traffic, fuel duty is raised slowly over time. VED would be used as a reinforcing measure only and is not proposed at the high levels suggested by some other commentators. This appears to be both more efficient and more equitable.

In this context the MTRU proposals have the following elements:

- 1 Specific objective to reduce GHG emissions by improving total vehicle efficiency, with a neutral impact on use.
- 2 Sales tax is compatible with the levels of efficiency which are technically feasible and the cost savings achieved by manufacturers **not** adopting fuel efficient technology.
- 3 Tax is avoidable by purchasing energy efficient vehicles.
- 4 Compatibility with EU and national voluntary or mandatory targets to improve average fuel efficiency.

A long term, integrated approach is proposed as follows:

Efficiency targets for new cars sold which are broadly in line with the previous voluntary agreements with manufacturers and the new EU targets. The reference target for grams of carbon per kilometre (gm/km) will be reduced gradually every year at least until 2020.

Sales tax applied on a sliding scale according to carbon emissions above the reference target for all new cars. Initial suggestion is for £50 per gm/km over the reference level.

Fuel duty applied so that the average fuel cost per kilometre for private cars should stay the same if the more efficient vehicles are bought. This starts at 1-2p per litre per year rising to 4p per litre per year in 2020. It is separate from any fuel duty increase to reduce use as an alternative to congestion charging.

VED would also be on a sliding scale linked to emissions but slightly less than today for cars with average efficiency. The suggested rate is £2 per gm/km over target level, minimum charge £20, not applied retrospectively.

Income recycled, for example through a lump sum at the end of the tax year.

Next Steps

Phase 2 of the report will build on the findings summarised here to produce a set of policies covering all UK modes including freight, domestic air and rail. It will also suggest interim policies for international air and shipping to and from the UK pending any European or global agreements.