

CLIMATE CHANGE

The policy context

The UK's international target is to cut a basket of six greenhouse gas emissions by 12.5% below 1990 levels by 2008-2012 (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride). The UK also has a domestic goal to cut carbon dioxide emissions by 20% below 1990 levels by 2010. The UK climate change programme (co-ordinated by Defra) <http://www.defra.gov.uk/environment/climatechange/cm4913/index.htm> sets out details of policies and measures being put in place to meet these targets, and also considers how the UK might begin to adapt to the effects of climate change.

The Government is also keen to identify and promote policies and measures which cut emissions beyond 2010, in view of the fact that longer term cuts in emissions will be needed to meet future targets.

Common sources of the six greenhouse gases are as follows:


| Gas and %age of UK emissions in 2000 | Sources |
|---|--|
| Carbon dioxide (CO ₂) – 84% | Fuel combustion (especially of fossil fuels) and energy use in the transport, industrial, commercial and domestic sectors. |
| Methane (CH ₄) – 8% | Landfill waste sites, agriculture, coal mining and the natural gas distribution network. |
| Nitrous oxide (N ₂ O) – 6% | Agriculture, industrial processes, fuel combustion. |
| Hydrofluorocarbons (HFCs) – 1% | Foams, refrigeration, air conditioning, industrial processes. |
| Perfluorocarbons (PFCs) – < 1% | Industrial process (mainly aluminium manufacture, and electrical insulation). |
| Sulphur hexafluoride (SF ₆) - <1% | Industrial processes (mainly magnesium smelting and electrical insulation). |

Existing guidance

a) Impacts of policies and measures on greenhouse gas emissions

Methodology for assessment of the impacts of policies and measures on greenhouse gas emissions are very policy specific and as such no standard guidance exists on assessing these impacts. Some models are available which may be used to assess the effects, e.g. changes in or new transport policies can be run through National Road Traffic Forecasts. Officials may wish to contact

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initially for help and advice on assessing effects on emissions if these effects may be significant.

Ideally, impacts on emissions should be expressed either in terms of carbon savings, or in terms of additional emissions resulting from the policy or project, in either case measured in million tonnes of carbon equivalent (MtC). While it should be possible for policies and projects with (for instance) a strong energy efficiency focus to quantify savings in terms of cost per tonne of carbon saved, others may not be geared to this level of quantification.

In cases where quantification of the climate change effect is impractical, a reasoned statement of whether the policy or project is likely, based on what is known, to increase or decrease emissions, combined with a qualitative assessment of the significance of this change, will be sufficient. Environmental Policy Division (contact as above) can provide advice on how this might be done.

A DEFRA official working paper 'Estimating the Social Cost of Carbon Emissions' (ETSCCE) suggests illustrative values for the social damage cost of carbon that can be used to estimate the monetary value of these impacts once they have been quantified. A copy of this working paper is available at <http://www.hm-treasury.gov.uk>. Officials can also contact Sayeeda Tauhid at Sayeeda.Tauhid@defra.gsi.gov.uk Tel: 3533 6457 for a copy of the associated guidance note on how to use these values in policy appraisal.

Some policies may only need to be assessed for their impact on one greenhouse gas. A broader approach, however, will need to be taken in the assessment of policies which are likely to cut emissions of one greenhouse gas but increase another. In these cases the overall net effect on emissions will need to be assessed.

b) Assessing vulnerability to the impacts of climate change

In 1997, Defra established the UK Climate Impacts Programme (UKCIP) to help public and private organisations assess their vulnerability to climate change so that they can develop appropriate adaptation strategies. UKCIP (enquiries@ukcip.org.uk, 01865 432076) and Environmental Policy Division (contact as above) can provide officials with the latest information on climate change predictions and assessments. UKCIP has developed a toolkit to help decision-makers evaluate how climate change will affect their areas of responsibility and how they can prepare to adapt (available at http://www.ukcip.org.uk/research_guidance/research_guide.html).

New climate change scenarios for the UK were recently launched and provide a useful starting point for this process. The scenarios describe how aspects of the UK's climate may change in the future, as a result of emissions of greenhouse gases. UKCIP has also developed socio-economic scenarios that can be used to put climate impacts work into the context of future changes in society and economy. Forthcoming additions to the UKCIP toolkit include:

- (i) guidance on how identify and evaluate the risks and uncertainties posed by a changing climate,
- (ii) methodology for costing the impacts of climate change, and
- (iii) advice on how the different parts of the toolkit can be used together to evaluate decisions that are influenced by climate change.

In addition to the work of UKCIP, the Government has recently begun an interdepartmental process to consider the implications of climate change for its full range of policy and operational responsibilities. As part of this process, a number of Departments are carrying out climate change vulnerability assessments. We are also establishing a network of official-level contacts in each Department to take forward cross-cutting issues relating to climate change impacts and adaptation. Contact Environmental Policy Division (contact as above) to be put in touch with the official who will be able to provide more specific advice on the implications of climate change for your policy area.

Other matters to consider in appraisal

As well as the level of emissions, other impacts that are relevant to climate change should be considered. For example, assistance given to developing countries may have an impact on the global response. Education policies may help raise children's awareness of climate change. Also relevant are policies that may help UK to adapt to the impacts of climate change in UK (e.g. money being spent on improving water infrastructure). The policy may need to take into account questions of vulnerability to predicted effects of climate change, eg the increased risk of flooding. Details of where to locate detailed information and guidance on assessing flood risk is contained in the guidance on Water and Waste.