

PSA Delivery Agreement 27: Lead the global effort to avoid dangerous climate change

October 2007

© Crown copyright 2007

Published with the permission of HM Treasury on behalf of the Controller of Her Majesty's Stationery Office.

The text in this document (excluding the Royal Coat of Arms and departmental logos) may be reproduced free of charge in any format or medium providing that it is reproduced accurately and not used in a misleading context. The material must be acknowledged as Crown copyright and the title of the document specified.

Any enquiries relating to the copyright in this document should be sent to:

HMSO
Licensing Division
St Clements House
2-16 Colegate
Norwich
NR3 1BQ

Fax: 01603 723000

E-mail: hmsolicensing@cabinet-office.x.gsi.gov.uk

HM Treasury contacts

This document can be found on the Treasury website at:

hm-treasury.gov.uk

For general enquiries about HM Treasury and its work, contact:

Correspondence and Enquiry Unit
HM Treasury
1 Horse Guards Road
London
SW1A 2HQ

Tel: 020 7270 4558

Fax: 020 7270 4861

E-mail: public.enquiries@hm-treasury.gov.uk

Printed by The Stationery Office 10/07 380530

Printed on at least 75% recycled paper.

When you have finished with it please recycle it again.

PU383 - Revised November 2007

CONTENTS

		Page
Chapter 1	Vision	3
Chapter 2	Measurement	5
Chapter 3	Delivery Strategy	7
Annex A	Measurement Annex	21

VISION

1.1 Climate change is the greatest challenge facing the world today. It is a global issue that demands a global response. The UK's vision is to lead the global effort to avoid dangerous climate change by bringing about a step change in global investment in low carbon technologies, building on actions in the UK and EU, and helping to build the necessary social, economic and political conditions internationally in order to:¹

- secure effective and robust global commitments for the period post-2012, through engagement with our international partners, consistent with a trajectory to stabilise atmospheric greenhouse gas concentrations, that will shift economies to a low carbon basis, including through an efficient and effective carbon market; and ²
- adopt and promote policies which reduce greenhouse gas emissions to ensure that the new UK carbon dioxide (CO₂) account, as defined in the draft Climate Change Bill,³ for the year 2050 is at least 60 per cent lower than the 1990 baseline, moving to the levels required to achieve the carbon budget as set for 2008-12, 2013-17 and 2018-22, demonstrating to other parties the practical, economic, environmental and social benefits that tackling climate change in a cost-effective way can deliver.

1.2 As a complement to our mitigation efforts, the UK will develop a robust approach to domestic adaptation to climate change, shared across government, and encourage adaptation to climate change internationally.

1.3 The key conclusions of the Stern Review⁴ must be adopted internationally to achieve these PSA objectives. Enabling a transition to a sustainable low carbon economy, including through an effective carbon market, requires a step change in global investment in low carbon technologies. Negotiations on an international agreement for the post-2012 period must be launched at the UN Climate Change Conference in Bali at the end of 2007, with a view to agreeing a new framework, which recognises the energy security and sustainable economic growth and development rights and expectations of all parties, as well as avoiding dangerous climate change, by 2009.

1.4 The transition to a sustainable low carbon global economy must be carried out through every major sector of economic activity. The Government will continue to focus on creating the necessary political conditions for this to happen. The Government will target key constituencies to build the right political conditions in priority countries and sectors – finding the levers to influence significant decision makers. UK engagement will continue to concentrate on those countries that account for a significant proportion of absolute global emissions and/or have a significant role as a multiplier or obstacle for UK climate and energy objectives.

¹ This PSA is supported by other PSAs and departmental strategic objectives (DSOs), in particular the BERR objective of 'ensuring the secure supply and efficient use of clean, safe, competitively priced energy.' Details of these will be published on the Defra website: www.defra.gov.uk.

² The basket of greenhouse gases covered by the Kyoto Protocol are: carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆).

³ More information on the draft Climate Change Bill and its key provisions can be found at: www.defra.gov.uk/environment/climatechange/uk/legislation/index.htm

⁴ *Stern Review on the Economics of Climate Change*, HM Treasury, 2006.

1.5 Domestically, the Government will take forward the strategy to reduce emissions set out in the UK Climate Change Programme⁵ and the Energy White Paper in order to put the UK on track to meet the emissions reduction targets and carbon budgets which will be enshrined in law through the Climate Change Bill⁶. The Government will put a price on carbon, to drive the development and deployment of cost-effective low carbon and energy efficient technologies and mobilise behaviour change whilst demonstrating that it is possible to reduce CO₂ and other greenhouse gas emissions without adversely affecting economic growth or security of energy supplies. Engaging stakeholders and the public generally will continue to be a priority given their key role in supporting the delivery of emissions reductions. This will include raising awareness of how individual actions can impact on UK greenhouse gas emissions and removing the barriers to taking action.

1.6 Despite action to mitigate the effects of climate change, some impacts are inevitable. There is a need to ensure that the risks of climate change are taken into account in the decision-making process. To support this, the Government is developing a framework to outline national priorities and provide a mechanism for coordinated action. The Government also recognises the need for and supports a robust and accessible evidence base to support adaptation to climate change impacts, including an established monitoring network for detecting changes in biodiversity, and an improved and wider understanding of the impacts that climate change could have on stability and security in other parts of the world.

⁵ *Climate Change: the UK Programme 2006*, Defra, March 2006.

⁶ *Meeting the Energy Challenge: a White Paper on Energy*, DTI, May 2007.

2

MEASUREMENT

2.1 Progress towards delivering this PSA will be measured using six key indicators:

Indicator 1: Global CO2 emissions to 2050

- This will show the level and projected trends of global CO2 emissions (both with current and proposed global measures), demonstrating global progress on avoiding dangerous climate change.

Indicator 2: Proportion of areas with sustainable abstraction¹ of water

- This indicator provides a measure of government progress on adaptation to climate change by looking at progress in one area of policy - the increase in the proportion of areas which have sustainable abstraction of water. This is relevant to climate change adaptation because the achievement and maintenance of sustainable abstraction requires that policy is adaptable to changing climatic conditions. This measure captures efforts to reduce demand/use water efficiently, and long-term planning to ensure resilience of water supply. It reflects the totality of abstraction impacts from local to national level.

Indicator 3: Size of the global carbon market

- This will show progress towards a viable international carbon trading system which is a vital component of a global low carbon economy.² In the long-run, this indicator is intended to provide an understanding of the breadth, depth, and length of the global carbon market, and to incorporate information about schemes linked to the EU Emissions Trading Scheme (ETS) (the current main market segment) which will be crucial in the future.

Indicator 4: Total UK greenhouse gas and CO2 emissions

- This will show the UK's gross and net (taking into account the impact of emissions reduction credits purchased from overseas) contribution to global greenhouse gas and CO2 emissions. There are long-term national targets attached to this indicator for 2020 and 2050.

Indicator 5: Greenhouse gas and CO2 intensity of the UK economy

- This will show whether the UK is successfully moving towards a low carbon economy.³ An intensity indicator captures the relationship between emissions and economic growth. A decrease over time would indicate that economic growth is being successfully decoupled from emissions.

Indicator 6: Proportion of emissions reductions from new policies below the Shadow Price of Carbon⁴

¹ Removal from surface or ground water.

² Using "volumes of trade" as a proxy indicator will allow us to show the scope of emissions.

³ Additionally, the Government also produces annual emissions figures for all six greenhouse gas emissions with a breakdown by source. More information about how the Government measures and reports the UK's CO2 and greenhouse gas emissions can be found at: www.defra.gov.uk/environment/statistics/globalatmos/gagccukmeas.htm.

⁴ SPC captures the damage costs of climate change caused by each additional tonne of greenhouse gas emitted.

- This indicator is intended to show whether the UK is introducing cost-effective policies to reduce emissions, and will monitor the proportion of greenhouse gas reductions expected from new policy measures, of which a main objective is the mitigation of greenhouse gas emissions, which are at a cost below the Shadow Price of Carbon.

3

DELIVERY STRATEGY

3.1 The Government will use a range of levers and incentives to deliver this PSA. These will be consistent with the principles of better regulation and in particular the seven tests for climate change regulation as set out in the Better Regulation Commission's report *Regulating to mitigate climate change - a response to the Stern Review*.¹ The Government has committed to applying them to future policy development and when reviewing existing policy.²

3.2 The Government's strategy focuses, at both international and domestic level, on the two facets of the response to climate change: mitigation by reducing global greenhouse gas emissions; and adaptation to unavoidable climate change.

INTERNATIONAL

Outcomes 3.3 Key outcomes on mitigation for the PSA period include:

- the development of an internationally-shared vision to reach the ultimate objective of the UN Framework Convention on Climate Change – to stabilise atmospheric concentrations of greenhouse gases at a level which avoids dangerous climate change;
- international agreement on a robust and fair framework of emissions reduction commitments for the post-2012 period, consistent with a trajectory to stabilise atmospheric concentrations at a level which avoids dangerous climate change;
- agreement on deeper absolute emission reduction commitments by developed countries;
- facilitating further fair and effective contributions by other countries, including incentives linked to new and flexible types of commitments, to reduce the greenhouse gas emission intensity of economic development;
- a transformation in global public and private investment patterns consistent with low carbon growth and climate resilient development, including a fully operational Clean Energy Investment Framework and Environmental Transformation Fund;
- strengthening and extending global carbon markets;
- adoption of trade and investment mechanisms to maximise the leverage between public and private funds to accelerate the transition to a global low carbon economy;
- the development, deployment and transfer of the necessary technology to reduce emissions;
- international action to minimise emissions from land-use and deforestation;

¹ The Government's response to the Better Regulation Commission's Report: Regulating to mitigate climate change a response to the Stern Review, Defra, May 2007.

² A full copy of the Government's response to the BRC report can be found at: www.brc.gov.uk/upload/assets/www.brc.gov.uk/gov_response_ccregulation.pdf

- addressing emissions from international aviation and maritime transportation; and
- the EU put on a fast track to a competitive, energy secure, low carbon economy.

3.4 Key outcomes on adaptation include:

- all nations enabled to deal with the current and future impacts of climate change, with adaptation planning and funds integrated into their national planning process;
- key nations taking economic and foreign policy decisions which address the negative impact of climate change on domestic and international security and prosperity; and
- donors and multilateral development institutions, including the World Bank, mainstreaming and supporting adaptation across their assistance to developing countries.

Roles and Responsibilities

3.5 The **Department for Environment, Food & Rural Affairs (Defra)** is lead department for this PSA. Defra will lead and coordinate the UK's international climate negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, and policy on global carbon markets; including the administration and future development of the European Union Emissions Trading Scheme (EU ETS); liaison with countries developing their own trading schemes, and issues arising from the potential to link trading schemes and the administration and future development of the Kyoto Flexible Mechanisms (including the Clean Development Mechanism and Joint Implementation).

Energy 3.6 Together with the Department for Business, Enterprise and Regulatory Reform (BERR), the Department for Innovation, Universities and Skills (DIUS) and the Department for International Development (DFID), Defra will play a key role in international collaboration on the development and deployment of clean technologies, including work on energy efficiency, sustainable biofuels and carbon capture and storage. Defra is leading work on the 'Gleneagles Dialogue on Climate Change, Clean Energy and Sustainable Development' and international negotiations on technology transfer under the UNFCCC, as well as leading for the UK on voluntary partnerships and initiatives such as the Renewable Energy & Energy Efficiency Partnership (REEEP)³ and the Methane to Markets Partnership (M2M).⁴

3.7 The **Foreign & Commonwealth Office (FCO)** will continue to play a key role in building the necessary social, economic and political conditions and mobilising key constituencies to influence the major emitters. The FCO will continue to act as the international delivery arm for the cross-Whitehall effort on climate change, as well as providing the well-informed international context to assist the formulation of policy in London, and providing intelligence and lobbying to develop negotiating strategies within the EU and United Nations (UN).

³ www.reeep.org

⁴ www.methanetomarkets.org

3.8 The **Department for International Development (DFID)** will play a key role in energy, investment and adaptation and contribute to many other policy areas. DFID's contribution to the international mitigation effort includes enabling low-carbon development in developing countries, and assisting the multilateral development banks (MDBs) to adopt and implement Clean Energy Investment Frameworks. DFID will contribute to the UK's developing policy positions on carbon market expansion and harmonisation in support of increasing developing countries' role in directing mitigation flows and technology transfer. DFID will also contribute to developing the UK policy position on avoided deforestation, consistent with development and ecosystems benefits.

Adaptation 3.9 Climate change will be felt disproportionately by poor people in developing countries. Defra and DFID will jointly govern the international element of the Environmental Transformation Fund, containing £800million of new money, much of which will go towards adaptation projects in developing countries. Defra and DFID are supporting efforts to improve the provision of climate information and DFID will contribute to the international effort to build resilience and adaptive capacity in developing countries as part of national planning processes. It will also develop guidance with the MDBs by 2008 to screen all development investments for climate risks. DFID will also contribute to international efforts to help developing countries adapt through effective incorporation of disaster risk reduction approaches into policy and planning.

3.10 **BERR** will play a key role in mitigating climate change, promoting open markets, carbon trading and low-carbon energy technologies in the EU and on the wider international stage through bilateral contacts, and helping to press for effective international carbon markets and European leadership.

Cost Effectiveness 3.11 **HM Treasury (HMT)** will engage with international finance ministers on the need for cost-effective climate change mitigation and adaptation, including through opportunities such as the G7⁵ and G20⁶ meetings and Economic and Financial Affairs Council (Ecofin),⁷ building on the Stern Review's conclusions that climate change is not just an environmental issue but also an economic one. HMT will build close relationships with key partners to develop a multilateral, efficient and cost-effective solution to the problem by promoting international understanding of the economic impact and significance of climate change, and building recognition that the use of market-based policy instruments is the appropriate way to respond to climate change while minimising the economic costs.

DOMESTIC

3.12 The overall framework for the Government's domestic action is set out in the draft Climate Change Bill for which Parliamentary approval will be sought. By setting 2020 (26-32 per cent) and 2050 (60 per cent) CO₂ reduction targets in primary legislation and requiring the Government to set three five-year budgets ahead of time, based on the advice of the independent Committee on Climate Change, the Bill will provide the long-term credibility required to stimulate investment in a low-carbon economy. It creates the flexibility to allow emissions to be reduced in the most cost-

⁵ <http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:20040614~menuPK:41699~pagePK:43912~piPK:44037~theSitePK:29708,00.html> and www.hm-treasury.gov.uk/otherhmtsites/g7/g7_home.cfm

⁶ www.g20.org

⁷ http://consilium.europa.eu/cms3_fo/showPage.asp?id=250&lang=en

effective sectors and introduces a transparent framework for constraining carbon beyond the sectors already capped through the EU ETS.

Stern 3.13 The Stern Review recommended that policy to reduce emissions should be based on three essential elements: establishment of a carbon price through tax, trading or regulation; technology policy, from research and development to demonstration and early stage deployment; and the removal of barriers to behavioural change, which is particularly important in encouraging the take-up of opportunities for energy efficiency.

Outcomes 3.14 Key outcomes on mitigation for the CSR07 period include:

1. **Carbon pricing.** Agreement to an improved EU ETS scheme for the post-2012 period that includes aviation (Defra/Department for Transport (DfT) lead).
2. **Technology policy:**
 - successful competition for carbon capture and storage demonstration (Department for Business, Enterprise and Regulatory Reform (BERR) lead);
 - reform of the Renewables Obligation (BERR lead);
 - planning and consenting reform for energy infrastructure (BERR lead);
 - decision on new nuclear build (BERR lead);
 - public/private collaboration and international collaboration to support low carbon technology research, development, demonstration and deployment (DIUS/BERR lead);
 - work on product standards at domestic, EU and international levels, for example consumer electronics and motor vehicles (various departments lead);
 - launch of the Low Carbon Transport Innovation Strategy (DfT lead);
 - launch of the domestic element of the Environmental Transformation Fund (Defra/BERR lead); and
 - UK to be a leader in sustainable procurement to achieve a low-carbon, more resource-efficient public sector.
3. **Removal of barriers to behavioural change:**
 - introduction of better metering and billing (BERR lead);
 - introduction of the Carbon Reduction Commitment (CRC) (Defra lead);⁸
 - agreement to a successor supplier obligation to the Energy Efficiency Commitment (EEC) and Certified Emissions Reduction Target (CERT) (Defra lead);
 - reduced carbon footprint of new (Department for Communities & Local Government (CLG) lead) and existing buildings (Defra and CLG lead); and

⁸ The Carbon Reduction Commitment is a new scheme, announced in the 2007 Energy White Paper, to reduce carbon emissions in large non-energy intensive organisations. Further details can be found at: www.defra.gov.uk/environment/climatechange/uk/business/crc/index.htm

- introduction of the Renewable Transport Fuels Obligation (RTFO) (DfT lead).

3.15 The Stern Review also noted the crucial importance of adaptation policy for dealing with the unavoidable impacts of climate change. Key adaptation outcomes for the PSA period include:

- agreeing an adaptation policy framework (Defra lead);
- local areas adapting to the impacts of climate change (Defra lead, with CLG support); and
- provision of a robust evidence base to support decision-makers (Defra lead).

Roles and Responsibilities

3.16 Defra has overall responsibility for the UK's progress towards its emission reduction targets and for ensuring that a robust programme of policies and measures is put in place to deliver it.⁹ It will lead on the Climate Change Bill, on key mitigation measures, such as the EU ETS, and on domestic adaptation.

Energy 3.17 The Government has four energy goals. The first of these is to put the UK on a path to cut its CO₂ emissions by some 60 per cent by about 2050, with real progress by 2020.¹⁰ It will deliver these goals through competitive UK energy markets operating in a framework set by government and with targeted market mechanisms to address specific market failures, and by pressing for greater liberalisation and transparency in overseas markets. In relation to energy policy, Defra has responsibility for the demand side and BERR for the supply-side, working closely together on both. Thus, in addition to the EU ETS, Defra also has policy lead for energy efficiency and a number of innovative measures designed to reduce energy demand and thus CO₂ emissions, including the EEC and the recently announced Carbon Reduction Commitment.

3.18 The Government has introduced a range of regulatory, fiscal, and cap and trade instruments to drive energy efficiency and incentivise low-carbon technology, as well as providing financial support to research and development. The Government will continue to engage users in the development of the strategies and policies which will support delivery of this PSA. For example:

- engagement with business as energy suppliers and consumers, and as producers, at a variety of levels, covering the operation of the energy and carbon markets, product standards, infrastructure planning, generation and distribution, and end use; and
- on energy efficiency, seeking to improve the functioning of existing measures to reduce emissions from business and the allocation of targets, as well as proposed new ones.

⁹ These are set out in the 2006 UK Climate Change Programme (see www.defra.gov.uk/environment/climatechange/uk/ukccp/index.htm) and the 2007 Energy White Paper (www.dti.gov.uk/energy/whitepaper/page39534.html). A summary of these measures, along with the expected carbon savings, will be published alongside the PSA on the Defra website.

¹⁰ The other three goals for UK energy policy are: to maintain reliable energy supplies, to promote competitive markets in the UK and beyond, and to ensure that every home is adequately and affordably heated. BERR also manages the Government's energy liabilities.

Sustainable Production and Consumption

3.19 Defra and BERR jointly lead on sustainable consumption and production (SCP); promoting more sustainable products, business processes and consumer lifestyles that reduce environmental impacts, including climate change impacts, while contributing to a more productive and innovative economy. Broadly, Defra leads work on sustainable products, support for business resource efficiency, sustainable public procurement, citizen engagement and embedding SCP considerations into other Departments' agendas. BERR plays a key role in areas such as innovation, technology, skills and productivity.

3.20 Defra will continue to work to reduce emissions of the other greenhouse gases, notably through the Integrated Pollution, Prevention and Control Directive, and of methane and nitrous oxide from agriculture. Defra's new Waste Strategy reinforces the role of waste policies in reducing greenhouse gas emissions, providing stronger incentives on businesses, local authorities and individuals to reduce waste and improve resource efficiency, and targeting key waste materials where diversion from landfill can realise significant climate change benefits.

Adaptation

3.21 Defra's approach to domestic adaptation to climate change complements its approach to reducing greenhouse gases. To successfully adapt to climate change, Defra will lead on the development of a cross-government adaptation framework, setting out priority areas for ensuring the UK is adapting well across a range of key areas where climate change will have potentially serious impacts including flood risk and coastal erosion, water supply and quality, and biodiversity and agriculture. Defra will work across all its policy areas to ensure they are building in climate risk, for example in developing a new Government Water Strategy which will set out a framework for the management of water in order to protect both water supply and the environment in a changing climate, furthering work on biodiversity and providing more guidance on how the agricultural sector should adapt to climate change.

3.22 BERR will continue to play a key role in mitigating climate change, in particular through its lead on energy policy, regional economic performance and its wider role as the voice for business in government.¹¹ BERR has particular responsibility for energy supply, including generation, production, and distribution.

3.23 BERR's strategic contribution to reducing greenhouse gas emissions is to:

- maintain a regulatory framework which uses market-based mechanisms such as the Renewables Obligation to encourage the supply of low carbon energy and the development of low carbon technologies;
- with DIUS, provide research, development, demonstration and deployment support for low-carbon technologies that can compete in these incentivised markets; and
- facilitate new low carbon investment (e.g. nuclear, wind, Carbon Capture & Storage) by operating the licensing and consenting regime and by planning reforms.

Planning

3.24 CLG will continue to use the spatial planning system to set a framework for development at regional and local levels, influencing the need to travel by shaping the layout of communities and managing the location and design of new buildings. CLG will ensure that planning policies developed directly address climate change mitigation

¹¹ BERR has a DSO to ensure the reliable supply and efficient use of clean, safe and competitively-priced energy and leads on the PSA 7.

and adaptation and, through the planning policy statement on climate change, put it at the heart of what is expected from good planning.

3.25 CLG will use the building regulations, particularly Part L, to regulate the level of carbon/energy efficiency in new buildings and set a timetable towards zero carbon new housing development by 2016. CLG will also work to implement the Energy Performance in Buildings Directive through the introduction of Energy Performance Certificates, which provide information to households on the energy performance of their home.¹²

3.26 CLG will continue to ensure that spatial planning, building regulations and local government contribute to the Government's adaptation goals through participating in the Adaptation Policy Framework and reviewing policy on an ongoing basis to ensure it takes account of climate risk.

Transport **3.27** The DfT will ensure that transport policies balance the increasing demand for travel against protecting the environment and improving quality of life.¹³ DfT will work to improve the environmental performance of transport, addressing the provision of 'smarter choices', including promotion of travel planning, sustainable travel towns, cycling and walking. Consistent with the recommendations of the Stern Review, DfT will develop policies that achieve carbon savings from measures that are cost-effective in the short term and establish the frameworks, market signals and information to secure a more fundamental shift towards environmentally friendly transport in the future. In particular, progressing the inclusion of aviation in the EU ETS, introducing successor arrangements to the Voluntary Agreements with car manufacturers on new car CO₂, and introducing the Renewable Transport Fuels Obligation requiring 5 per cent of all UK fuel sold on UK forecourts to come from a renewable source by 2010. DfT will also draft a transport-specific adaptation strategy and work through the Adaptation Policy Framework to ensure critical transport infrastructure is able to cope with a changing climate.

The role of HMT **3.28** HMT will play an important role in climate change mitigation, protecting and improving the environment by using evidence-based policy making that will deliver efficient and sustainable outcomes. This requires consideration of environmental, technological, economic, fiscal, social and international factors when designing economic instruments to ensure that emissions reductions and environmental goals are consistent with maintaining economic growth and achieving social objectives.

OTHER CONTRIBUTING DEPARTMENTS AND PLAYERS

3.29 The public sector is a substantial economic actor in its own right accounting for approximately 8 per cent of the UK's carbon emissions. The Government recognises that it needs to lead by example in the way it manages sustainably its land and buildings, particularly through key individual departments who manage around 90 per cent of the government estate.¹⁴

3.30 Each government department has committed to a range of sustainable operations targets launched in June 2006,¹⁵ and additional procurement commitments

¹² www.communities.gov.uk/news/corporate/433166

¹³ DfT has a DSO to improve the environmental performance of transport.

¹⁴ The key departments are: Ministry of Defence, Home Office, Ministry of Justice, Her Majesty's Revenue & Customs and the Department for Work and Pensions.

¹⁵ www.sustainable-development.gov.uk/government/estates/targets.htm

announced in March 2007.¹⁶ While Permanent Secretaries remain accountable for the performance of their own departments and determining the specific actions and investment decisions required for their own departmental estates, the Secretary of State for Environment, Food & Rural Affairs is the lead Minister reporting to the Prime Minister on progress to deliver these commitments. Progress is monitored by the Sustainable Procurement and Operations Board chaired by the 2nd Parliamentary Under Secretary at the Ministry of Defence (MoD), reporting on procurement issues to the Office of Government Commerce (OGC) Procurement Council and to the Cabinet Secretary.¹⁷

Health 3.31 The Department of Health (DH) recognises that climate change will impact on the health of UK citizens. In May 2007, its 2001 report on Health Effects of Climate Change in the UK was updated and published for comment.¹⁸ It will be relaunched later this year. In 2004, DH first launched its National Heatwave Plan, which was also updated in 2007,¹⁹ in which a 'Heat-Health watch' system operates in England from 1 June to 15 September each year with four levels of response and appropriate advice. Key areas are: adapting the health and social care infrastructure (hospitals, nursing homes) to be more resilient to the effects of heat and floods; development of local 'Heatwave' and 'Flood' plans for coping with disasters; and increasing awareness of how people can adapt to changes in climate.²⁰

Education 3.32 The DCSF will contribute to this PSA. The Government has announced additional funding of £110 million to be invested during 2008-11 to trial measures to reduce carbon emissions from school buildings to allow all new schools in England to be carbon neutral. DCSF will disseminate guidance on energy efficiency and renewable energy with case study material to support local authorities and their designers to deliver this objective. DCSF has also commissioned the Sustainable Development Commission to develop a carbon reduction strategy for schools and have a role in the refurbishment and rebuilding of all secondary schools and 50 per cent of primary schools over the next 15 years through strategic investment in school buildings, including 'Building schools for the Future'.

Other Government departments 3.33 The Ministry of Defence (MoD) will contribute to this PSA by working to evaluate the potential impact of climate change on international peace and stability and understand and prepare for the implications of a changed future climate on its estate, people, equipment capabilities and policies. The MoD will also work to quantify and reduce the greenhouse gas emissions from its estate and activities, working with organisations such as the Carbon Trust and defence suppliers to identify cost-effective opportunities to reduce emissions over the long term. MoD and Armed Forces will provide specialist support when requested, drawing on defence capabilities, in response to environmental or climate change-related events, e.g., flood relief.

3.34 The Cabinet Office will contribute to this PSA by ensuring that potential impacts of climate change are incorporated where appropriate into risk assessment and

¹⁶ www.defra.gov.uk/news/latest/2007/defra-0305.htm

¹⁷ www.ogc.gov.uk/

¹⁸ *Health effects of climate change in the UK*, DH, 2001.

¹⁹ www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_074539

²⁰ The Choosing Health White Paper requires the NHS to act at regional and local level to mitigate and adapt to the projected impacts of climate change through its buildings and facilities. For more details see: www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4094550

resilience planning processes over a five-year timescale including, if possible, an indication of how these may change in the future.

3.35 The Office of Climate Change will continue to work across government as a shared resource for analysis and development of climate change policy and strategy, providing departments with advice on policy options.

Devolved administrations

3.36 Whilst the UK Government retains overall responsibility for the UK's progress towards the Kyoto Protocol target and for ensuring a programme is put in place to deliver it, many of the means by which emissions can be reduced have been devolved to the National Assembly for Wales, Scottish Parliament, and the Department for Environment in Northern Ireland.²¹

Regional and Local Government

3.37 At the regional level, Government Offices (GOs), Regional Development Agencies (RDAs) and Regional Assemblies will ensure that climate change and sustainable development are considered and integrated into regional policies, strategies and programmes.²² The outcome of the Review of Sub National Economic Development and Regeneration, which proposes a single integrated strategy and changes to regional governance, will impact during the course of the CSR period and will need to be taken into account in the delivery of climate change and energy outcomes at regional and local level.

Local Authorities

3.38 Local Authorities will continue to play a vital role in reducing greenhouse gas emissions and ensuring that communities adapt to the impacts of climate change. As transport authorities, planning authorities, development control, buildings control, waste authorities and service delivery, Local Authorities can improve the environment through the way that they manage regeneration and influence local strategic partners, and can influence (and respond to) the attitudes and behaviour of the community they serve, not least through leading by example. Reducing the carbon emissions in local government's own operations and estate, and the supporting supply chain, can directly yield reductions in emissions and costs as well as demonstrating community leadership in these areas.

3.39 This PSA has been developed by central government in consultation with key stakeholders, sponsored bodies and delivery agents.²³ The Government will continue to increase user engagement in reducing greenhouse gas emissions and adapting to unavoidable climate change and seek mechanisms to help drive delivery in this area.²⁴

Delivery bodies

3.40 Defra works in partnership with its delivery bodies, in particular, the Environment Agency and Natural England, to ensure that policies are implemented

²¹ Details of the action by the devolved administrations that contribute to this PSA will be published on the Defra website.

²² PSA 7 seeks to make sustainable improvements in the economic performance of all the English regions and, over the long term, reduce the persistent gap in growth rates between the regions. In collaboration with other departments and agencies, in particular the RDAs, Defra will contribute to this by regionalising the drive to a low carbon and waste economy.

²³ The consultation schedule for the development of this PSA will be published on the Defra website.

²⁴ More information on the various programmes delivered by these bodies to enable the UK to meet its domestic and international climate change objectives will be published on the Defra website.

effectively. Both of these organisations are represented within Defra's adaptation governance, ensuring policy is responsive to the situation on the ground.

3.41 The Environment Agency will continue to regulate to reduce emissions through the EU ETS and Integrated Pollution Prevention and Control (IPPC).²⁵ The Agency will play a key role in delivering adaptation on the ground through their functions on flood risk management, water supply, coastal management and freshwater ecology.

3.42 Natural England will work on national partnerships to promote and develop the understanding of the natural environment, collaborating with the farming industry to identify how to enhance the role of land managers as carbon managers. They will also play a key role in ensuring our biodiversity and ecosystem services are managed in such a way as to respond to the threats of climate change and minimise the impacts.²⁶

3.43 The Energy Saving Trust provides impartial information and advice and has a network of advice centres in the UK specifically designed to help people take action to address climate change by reducing their energy use.²⁷

3.44 UK Climate Impacts Programme (UKCIP) works with stakeholders in the private and public sectors to provide the tools and support necessary to assess the risks of climate change and consider adaptation. UKCIP will ensure the continued provision of information and support through its ongoing work and the new climate prediction scenarios due for publication in 2008.²⁸

CITIZEN ENGAGEMENT

3.45 Defra will continue to support additional mechanisms and structures which facilitate the **engagement of individuals and communities at the local level to change their behaviours**.²⁹

3.46 There are five areas where citizens can reduce their carbon footprint either directly or indirectly:

- energy in the home (insulation, energy efficiency products, better energy management);
- waste in the home (increase recycling, waste less food);
- using water more responsibly;
- personal travel (smarter driving, more sustainable travel choices); and
- products and food (including more local and seasonal food, eco-friendly products).

3.47 The Government will continue to roll out its £10 million Act on CO₂ campaign, working closely with delivery bodies, non government organisations and membership organisations to persuade the public to act on CO₂ by increasing awareness and understanding of the relationship between climate change and CO₂, and supporting

²⁵ www.environment-agency.gov.uk/yourenv/639312/

²⁶ www.naturalengland.org.uk/research/climate-energy/default.htm

²⁷ www.energysavingtrust.org.uk

²⁸ www.ukcip.org.uk

²⁹ Further details of these will be published on the Defra website.

the individual's ability to help address the problem.³⁰ Although 86 per cent of people agree that everyone should take more responsibility for the environment, there is still a large gap between people's values and their behaviour.³¹ The Government will carry out polling to evaluate the effectiveness of the Act on CO2 campaign.

3.48 The Government will continue to look for opportunities to engage a broad range of members of the public using mechanisms such as advances in information technology, customer surveys and opinion polls. For example:

- opinion polls such as Defra's Public Attitude Survey, which engages with a representative cross section of the public to reveal their views on, and attitudes to, a wide range of environmental issues, Defra's annual Public Opinion Poll; and DfT's omnibus survey on transport and its impacts on climate change;
- six-monthly polling of attitudes towards climate change, as part of the Climate Change Communications Initiative, has been running since March 2005. With a sample size of around 3,000 it is possible to break results down by region, gender, age, socio-economic status and a number of other categories;
- DfT's monitoring research looking at the effectiveness of the Act on CO2 Communications Campaign³² and further programmes of qualitative research on public engagement with climate change and barriers to behaviour change;
- citizens' summits and regional workshops to increase public awareness and engagement with policy on climate change, exploring the balance of responsibility in encouraging individual behaviour change (business - Government - the individual) and giving the opportunity for members of the public to take part in consultations on issues where their voices are not often heard (e.g. draft Climate Change Bill); and
- providing a high-level forum for dialogue between government and rural stakeholders, and authoritative advice and leadership on climate change and rural land management through the Rural Climate Change Forum.³³

3.49 The Government also engages with the public through the Environment and Green Living franchise on the DirectGov website, which is a key information source for citizens providing information on issues as diverse as water and energy use, food and drink, and soils and fertiliser use in the garden.³⁴

Civil Society Groups

3.50 Civil Society Groups, including environment, development, science, trade unions and third sector groups represent large numbers of people and can act as trusted intermediaries and channels for disseminating climate change messages. They have a major role to play in raising awareness of climate change and in giving practical advice and help on ways to reduce emissions. Defra will continue to engage, support and encourage these groups, including through workshops on the role of communities,

³⁰ www.direct.gov.uk/en/Environmentandgreenerliving/actonco2/DG_067197

³¹ BBC Big Britain Survey, 2006

³² <http://www.dft.gov.uk/ActOnCO2/>

³³ For more details of the work of the forum see: www.defra.gov.uk/environment/climatechange/uk/agriculture/rccf/index.htm

³⁴ www.direct.gov.uk/en/environmentandgreenerliving/index.htm

testing from the bottom-up Government's current policy proposals on the role of the third sector in helping deliver climate change objectives.

Business engagement

3.51 Business engagement is particularly important, as the mobilisation of private sector finance is crucial to bring about a step change in global investment, in order to enable a transition to a low-carbon economy. This is also an area of considerable commercial opportunity for the UK. Business commitment to tackling climate change is growing in the UK, and many leading businesses now report publicly on their greenhouse gas emissions; some have set themselves voluntary reduction targets and others are negotiating targets to reduce the energy consumption of the goods they provide. But concerns about the impact on economic growth and competitiveness remain in some sectors. Government departments, led by Defra and BERR, will continue to engage, encourage and support business in taking further action.

3.52 As part of the Business Support Simplification Programme, government is streamlining its services to businesses to make it easier to access support on resource efficiency (including energy efficiency) and waste issues. Specific groups have been set up and opportunities given to both trade organisations and individual companies to discuss such measures as Climate Change Agreements, the EU ETS and the Carbon Reduction Commitment.

3.53 The **Carbon Trust** is working with UK business and the public sector to cut carbon emissions and accelerate the development of new low carbon technologies.³⁵

3.54 The Commission on Environmental Markets and Economic Performance (CEMEP) is looking at how the UK can best exploit the economic and environmental opportunities presented by environmental goods and services.³⁶ The Commission will make recommendations later this year on actions by Government and business to stimulate the growth of productivity and employment in sectors that can make a significant contribution to environmental outcomes.

ACCOUNTABILITY AND GOVERNANCE

3.55 The Secretary of State for Environment, Food and Rural Affairs will be the lead minister for this PSA with delivery shared across government. The Climate Change and Energy Strategy Board manages climate change and energy policy, jointly led by Defra and BERR. Membership includes senior representatives of other departments such as CLG, DfT, FCO and DFID, as well as No.10, HMT and the Cabinet Office. The Senior Responsible Officer for this PSA will be the Director General of Defra's Climate Change Group. Below this, energy and climate change workstreams are managed by the international and domestic programme boards respectively. This cross-government reporting and governance structure will be used to manage the climate change PSA, providing oversight and assurance at the project and programme level and managing the risks involved in achieving the domestic and international objectives. In addition the relevant Cabinet Committee/s will drive performance by regularly monitoring progress, holding departments and programmes to account and resolving inter-departmental disputes where they arise.

3.56 The Climate Change and Energy Strategy Board will also review overall progress on reducing emissions from the public sector on an annual basis and the Sustainable Development Commission will continue to scrutinise progress on an annual basis.

³⁵ www.carbontrust.co.uk/about/about

³⁶ www.defra.gov.uk/environment/business/commission/index.htm

Climate Change Bill 3.57 The draft Climate Change Bill proposes that the Government publish a report explaining its policies and proposals for keeping within the carbon budgets it sets. The independent Committee on Climate Change will report annually to Parliament on the UK's progress towards its budgets and targets. The Government will be required to respond to that report and will again need to ensure that the policies and measures in place will deliver the expected reductions in emissions.

A

MEASUREMENT ANNEX

Indicator I	Global CO2 emissions to 2050
Data provider	International Energy Agency.
Data set used	International Energy Agency (IEA) “CO2 emissions from fuel combustion”. IEA World Energy Outlook (Baseline Scenario and Alternative Policy Scenario) and IEA Energy Technology Perspectives.
Baseline	Global CO2 emissions in 1990 were 21.4 billion tonnes of CO2 (including international aviation and shipping). Current 2050 projection for CO2 emissions is 58 billion tonnes CO2.
Frequency of reporting	Annual.
95 per cent confidence interval at last outturn	N/A.
Data Quality Officer	Head of Climate, Energy and Ozone: Science and Analysis Division, Defra.
Minimum movement required for performance appraisal	10 per cent reduction in projected emissions below business as usual by 2050.

DEFINITION OF KEY TERMS

- *Baseline scenario:*
The IEA produce a baseline global CO2 emissions scenario in their annual World Energy Outlook. This scenario includes the impact of the Kyoto Protocol but does not assume countries meet their Kyoto targets if they are not on track to do so. Future agreements are not included in this scenario.
- *Alternative Policy Scenario:*
The IEA alternative policy scenario analyses how the global energy market would develop if nations were to adopt and develop all the policies they are currently considering to save energy and reduce carbon dioxide emissions. This scenario estimates the impact of the EU ETS but does not currently include impacts of a global carbon market. If such a market becomes more developed, the IEA policy scenario will be updated accordingly.

A.1 This indicator is a proxy. CO2 emissions from fuel combustion are used as a proxy for total global CO2 emissions.

Indicator 2	Proportion of areas with sustainable abstraction of water
Data provider	Environment Agency (EA).
Data set used	Environment Agency Catchment Abstraction Management Strategies (CAMS). Individual CAMS are being produced in a rolling programme that started in 2002 and are reviewed on a 6-yearly cycle. In any given year around 16-20 per cent of CAMS will be updated.
Baseline	New indicator – baseline will be set in March 2008 when it is expected that all of the 129 CAMS will be in place.
Frequency of reporting	Annual.
95 per cent confidence interval at last outturn	N/A.
Data Quality Officer	Head of Water Resources Regulation, Environment Agency.
Baseline	This is a new measure and as such has no current baseline. The indicator will therefore monitor the proportion of catchments in which there is sustainable abstraction.
Minimum movement required for performance appraisal	This will be defined in the light of the CAMS baseline data that will be available in March 2008.

DEFINITION OF KEY TERMS

- Sustainable abstraction:*
Sustainable abstraction (removal from surface or ground water) is abstraction of water (whether for public water supply, agriculture, industry, electricity supply etc) that meets the needs of the economy and society with acceptable impacts on the environment. Unsustainable abstraction doesn't have acceptable impacts.
- Over-abstracted:*
More water is being taken out from rivers/ groundwater than is sustainable. This significantly affects flow regimes, in turn affecting the biodiversity and ecology that can be supported (i.e. some environmental impacts already observed).
- Over-licensed:*
The volume of abstraction currently authorised, should all authorised abstraction take place, would lead to significant effects on flow regimes, in turn affecting the biodiversity and ecology that can be supported (typically only 45-50% of licensed volumes are actually abstracted).
- Catchment Abstraction Management Strategies (CAMS):*
Environment Agency strategies developed in consultation with local people,

designed to help the EA's licensing of abstractions. The CAMS are intended to: inform the public on water resources and licensing practice; provide a consistent approach to local water resources management; help to balance the needs of water users and the environment; and involve the public in managing the water resources in their area.

A.2 While this indicator is not a proxy for abstraction, it is intended as a wider proxy for adaptation to climate change.

A.3 Sustainable abstraction is measured as the proportion of the total number of Environment Agency Catchment Abstraction Management Strategies (CAMS) that are not either 'over-abstracted' or 'over-licensed'.

Indicator 3	Size of the global carbon market
Data provider	Point Carbon.
Data set used	<ol style="list-style-type: none"> 1. EU ETS: volumes traded and transferred. 2. Clean Development Mechanism (CDM) and Joint implementation (JI): volumes issued. 3. Units transferred and traded in other compliance (binding) markets. 4. Coverage of Markets in Tonnes of Emissions. 5. Emission Reductions Mandated in Tonnes of emissions.
Baseline	820.8 million tonnes of CO ₂ e (2006 level).
Frequency of reporting	Annual.
95 per cent confidence interval at last outturn	N/A.
Data Quality Officer	Head of Climate Change Economics Division, Defra.
Minimum movement required for performance appraisal	7-10 per cent growth per annum.

DEFINITION OF KEY TERMS

- *Global carbon market:*
EU ETS is the dominant market segment. The other main market is the Kyoto Protocol's flexible mechanisms (CDM and JI). Other, smaller trading markets are the Chicago Climate Exchange (CCX) and the New South Wales emissions trading scheme in Australia (AUS NSW).
- *Volumes traded:*
Expressed in tonnes carbon dioxide equivalents (CO₂e)
- *EU ETS:*
European Union Emissions Trading Scheme. As per the recommendation of the Environmental Audit Committee, this indicator will show both emissions trends within the UK (as per submitted to the UNFCCC) and emissions trends when the impact of trading has been taken into account. For clarity and transparency we would like to continue to treat this indicator in this way.
- *CO₂e:*
Carbon dioxide equivalent emission. Expresses the release of a given mass of greenhouse gas, in terms of the equivalent mass of carbon dioxide which, if emitted, would have the same impact on the global climate over a 100 year timescale. The constant of proportionality linking specific emissions of a given gas, and equivalent emissions of carbon dioxide, is that gas's 'Global Warming Potential'.

A.4 This measure is a proxy. Volumes of trade in a carbon market, although limited in their interpretation by the fact that they contain elements of speculation, are a good proxy for a well functioning market. They can also indicate the size of market over time. By implication, a well functioning and growing market will be driven by sound environmental outcomes. Other potential indicators such as price – which is determined by scarcity in the market – can either be interpreted too narrowly or very broadly so are not used.

Indicator 4	Total UK greenhouse gas and carbon dioxide (CO ₂) emissions
National Target	Reduce UK net CO ₂ emissions by 26-32 per cent by 2020 and 60 per cent by 2050. The Government will monitor progress towards these targets against the 2008-2012 carbon budget which the Climate Change Bill will require it to set.
Data provider	AEA Energy and Environment / Defra statistics and indicators / Environment Agency.
Data set used	UK Greenhouse Gas Inventory and EU ETS verified emissions.
Baseline	UK carbon dioxide emissions in 1990 – 589.3 million tonnes CO ₂ , Kyoto baseline for greenhouse gases (1990 for carbon dioxide, methane, and nitrous oxide, 1995 for f-gases) – 775.2 million tonnes CO ₂ e. Reported reduction in CO ₂ emissions 1990-2004: -6 per cent.
Frequency of reporting	Annual.
95 per cent confidence interval at last outturn	Reduction in CO ₂ emissions 1990-2004: -3 per cent to -8 per cent.
Data Quality Officer	Head of Environmental Statistics and Indicators Division, Defra.
Minimum movement required	2 per cent decrease over a 3-year period.

DEFINITION OF KEY TERMS

- UK Greenhouse Gas Inventory:**
 Complete set of UK greenhouse gas emissions compiled using methodologies provided by the Intergovernmental Panel on Climate Change (IPCC). Data set produced, and quality checked, by AEA Energy and Environment under contract to Defra.

Indicator 5	Greenhouse Gas and CO2 intensity of the UK economy
Data provider	AEA Energy and Environment, economic data supplied by Defra Environmental Statistics and Indicators.
Data set used	UK GHG Inventory, UK economic data and EU ETS verified emissions.
Frequency of reporting	Annual.
95 per cent confidence interval at last outturn	N/A.
Data Quality Officer	Head of Environmental Statistics and Indicators Division, Defra
Baseline	Index, 1990=100.
Minimum movement required for performance appraisal	2 per cent decrease over 3 year period in line with indicator 4.

DEFINITION OF KEY TERMS

- *Greenhouse Gas and CO2 intensity:*
 The amount of greenhouse gases or CO2 produced per unit of GDP.

Indicator 6	Proportion of emissions reductions from new policies below the Shadow Price of Carbon
Data provider	Defra, on the basis of impact assessments completed by departments (who will provide analysis for the indicator on their respective policies). Relevant Impact Assessments to be selected by the Domestic Climate Change and Energy Programme Board.
Data set used	As above.
Baseline	Aspects of the calculation methodology will be developed through the Inter-Departmental Analysts' Group and put in place by April 2008. This process will also seek to establish a baseline for the indicator.
Frequency of reporting	Annual.
95 per cent confidence interval at last outturn	N/A.
Data Quality Officer	Head of Climate Change Economics Division, Defra.
Minimum movement required for performance appraisal	Shadow price of carbon provides a benchmark against which to monitor performance and changes.

DEFINITION OF KEY TERMS

- Shadow Price of Carbon:*

The SPC captures the damage costs of climate change caused by each additional tonne of greenhouse gas emitted, expressed as carbon dioxide equivalent (CO₂e) for ease of comparison. It is used to value the increase or decrease in emissions of greenhouse gas emissions resulting from a proposed policy.

A.5 The indicator will express the proportion of tonnes saved, the cost of which falls below the Shadow Price of Carbon. This cost will be calculated as average incremental cost (net of other costs and benefits) per tonne of CO₂ equivalent saved by policies (weighted by the lifetime number of tonnes saved). It will cover the stock of policies with final Impact Assessments published from April 2008.