



The Scottish Parliament
Pàrlamaid na h-Alba

TRANSPORT, INFRASTRUCTURE AND CLIMATE CHANGE COMMITTEE

AGENDA

3rd Meeting, 2009 (Session 3)

Tuesday 20 January 2009

The Committee will meet at 2.00 pm in Committee Room 6.

1. **Decision on taking business in private:** The Committee will decide whether to take item 5 in private.
2. **Climate Change (Scotland) Bill:** The Committee will take evidence on the Bill at Stage 1 from—

Philip Wright, Deputy Director Climate Change, Fiona Page, Head of Scottish Climate Change Bill Team, Andrew Henderson, Policy Officer Scottish Climate Change Bill Team, and Cameron Maxwell, Climate Change Policy Team, Scottish Government.

3. **Climate Change (Scotland) Bill - witness expenses:** The Committee will be invited to delegate to the Convener responsibility for arranging for the SPCB to pay, under Rule 12.4.2, any expenses of witnesses on the Bill.
4. **Inquiry into the potential benefits of high-speed rail services:** The Committee will consider making a bid for time for a Chamber debate on its inquiry report.
5. **National Planning Framework 2 Inquiry:** The Committee will consider a draft report to the Local Government and Communities Committee.

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The papers for this meeting are as follows—

Agenda item 2

Briefing paper

TIC/S3/09/3/1 (P)

Information provided by the Bill team

[TIC/S3/09/3/2](#)

Agenda item 3

Note by the clerk

[TIC/S3/09/3/3](#)

Agenda item 5

Draft report (to follow)

TIC/S3/09/3/4 (P)



Climate Change (Scotland) Bill 2008

Factual Briefing Document

December 2008



Climate Change (Scotland) Bill Emissions reduction targets (Sections 1 – 44)

Overall aim of the Bill

- ◆ To reduce Kyoto Protocol greenhouse gas emissions by 80% by 2050.
- ◆ The emissions reductions targets in the Bill relate to Kyoto Protocol greenhouse gases, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride, the latter three being described as the F-Gases.

Public Consultation

- ◆ Between 29 January and 23 April 2008 the Scottish Government ran a public consultation on its proposals for a Scottish Climate Change Bill. The consultation primarily addressed the subjects covered in Parts 1 to 4 of the Bill.
- ◆ A total of 21,046 responses were received. The majority of respondents welcomed the consultation, the commitment and intention to introduce legislation or establish a framework, and/or the leadership shown by Scotland. Further information about the consultation, including a detailed report of the analysis of the responses, is available on the Scottish Government website from the following address: <http://www.scotland.gov.uk/Topics/Environment/Climate-Change/16327/Climate-Change-Bill/SCCBConsultation>

Stage 2

- ◆ The Scottish Government does not anticipate making significant amendments at Stage 2 to the provisions contained in Parts 1 to 4 of the Climate Change (Scotland) Bill.

Part 1 – Emissions Reduction Targets

- ◆ The Bill places a duty on the Scottish Ministers to reduce the net Scottish emissions account by 50% by 2030 and 80% by 2050.
- ◆ The net Scottish emissions account comprises all Scottish greenhouse gas emissions and removals (i.e. carbon sinks such as forestry etc.) plus or minus any carbon units used or traded.
- ◆ The Bill requires Ministers to set annual emissions reduction targets.
 - Annual targets will be set in batches, the first for 13 years then for five years thereafter: 2010-22, 2023-27, and 2028-32 and so on until 2048-50, which will only cover three years.
 - With the exception of the first batch, annual targets must be set at least 12 years in advance.
 - Ministers must seek advice from the relevant body (the Committee on Climate Change or Scottish equivalent) before setting any annual targets.
- ◆ The Bill permits Scottish Ministers to designate a share of the emissions from international aviation and international shipping as being attributable to Scotland. Scottish Ministers have committed to including Scotland's share of international aviation and international shipping emissions and an order will be laid in the Scottish Parliament in time for these emissions to be included in the first batch of annual targets.

Part 2 – Advisory Functions

- ◆ The Scottish Ministers have committed to using the Committee on Climate Change, established under the UK Climate Change Act 2008, to provide expert advice and independent scrutiny regarding Scotland's climate change targets.
- ◆ This situation will be reviewed and if it is concluded that a dedicated Scottish body would provide advice and scrutiny more suited to Scotland's particular circumstances, the provisions enable equivalent powers to be conferred upon an existing Scottish public body or for a Scottish Committee on Climate Change to be established.

Part 3 – Reporting Duties

- ◆ The intention is that the Scottish Ministers must report regularly to the Scottish Parliament on Scotland's emissions, and on the progress being made towards the emissions reduction targets set in the Bill. The majority of reporting duties are contained in Part 3 of the Bill but two requirements are contained in Parts 1 and 5 respectively. These additional reporting duties are described here for ease of reference. The reporting requirements are as follows:
 - **Annual reporting duty** (Sections 28 and 29): the Scottish Ministers will be placed under a duty annually to lay a report before the Parliament setting out specific information about the net Scottish emissions account for the year in question. It is these figures which will determine whether or not the relevant annual target has been met. If the annual emissions target has been exceeded, the report should also explain why.
 - **Report on proposals and policies for meeting annual targets** (Section 30): as soon as reasonably practicable after setting any set of annual emissions targets, the Scottish Ministers will be required to lay a report before the Scottish Parliament setting out proposals and policies for meeting the current and future annual emissions targets, up to and including the annual targets just set. In practice, this report will require to be made at least once every five years.
 - **Report on proposals and policies to compensate for excess emissions** (Section 31): where Scottish emissions exceed an emissions target, Scottish Ministers should also lay a report on the proposals and policies by which they will compensate for the excess emissions.
 - **Requirement to seek scrutiny of relevant body** (Section 8): each year, following the annual statement on emissions, Scottish Ministers will be required to seek the views of the relevant body (the UK CCC) on progress towards achievement of the annual targets that have been set, the mid-point 2030 target and the 2050 target. Ministers will be required to lay a response in the Scottish Parliament to the points made in the report by the advisory body.
- ◆ **Final statements for 2030 and 2050** (Sections 32 and 33): Scottish Ministers will also lay a final statement setting out whether the 2030 and 2050 emissions reduction targets have been met and, if not, why not. These reports will be distinct for the annual reports in respect of 2030 and 2050 which will focus on the action in these two calendar years as opposed to the long term targets.
- ◆ **Reports on proposals and policies for adaptation to climate change** (Section 45): Scottish Ministers must lay a programme before the Scottish Parliament setting out their objectives in relation to adaptation to climate change, proposals and policies for meeting these objectives and the timescales within which they will be introduced. These programmes should respond to the risks

posed by climate change identified in each UK-wide risk assessment prepared in accordance with the section 56 the UK Climate Change Act. In practice, the UK risk assessment will be published every five years and the Scottish Ministers' response made as soon as practicable thereafter.

◆ **Provision of further information to the Scottish Parliament**

Section 34 of the Bill requires that, where the Scottish Ministers lay certain reports before the Scottish Parliament they must as soon as reasonably practicable thereafter, and in so far as reasonably practicable (i.e. the Parliament agrees to it), make a statement to the Parliament relating to the report. These are:

- Report on annual target;
 - Report on proposals and policies for meeting annual targets;
 - Report on proposals and policies to compensate for excess emissions;
 - Report on interim 2030 target; and
 - Report on 2050 target.
- ◆ Section 34 additionally requires that where the Scottish Ministers lay a report on the annual target, as soon as reasonably practicable thereafter, and in so far as reasonably practicable, they must meet with the Conveners of the Committees of the Scottish Parliament.

Part 4 – Duties of Public Bodies Relating to Climate Change

- ◆ Scottish Ministers are committed to working in partnership with the public sector in reducing the target greenhouse gas emissions which affect climate change. The provisions in Part 4 of the Bill are only intended for use if emissions reductions become harder and more expensive to deliver and it is concluded that the Scottish Ministers have to use statutory measures to ensure consistent and fair contributions to delivery across the public sector.
- ◆ Therefore the Bill contains an enabling power (Section 36) which allows Scottish Ministers to create secondary legislation to impose public sector duties, to take action on climate change. Scottish Ministers are required to carry out appropriate consultation before creating such climate change duties
- ◆ If duties are imposed, Scottish Ministers recognise the need to work with public bodies to help deliver these duties. Section 37 provides powers to issue statutory guidance in relation to these climate change duties.
- ◆ If such duties are imposed, it will be important to monitor compliance. Section 38 of the Bill gives Ministers the power to require reporting on progress and Section 39 allows Scottish Ministers to appoint a monitoring body to monitor the carrying out of any climate change duties placed on public sector bodies under the Bill.

Climate Change (Scotland) Bill Variation of permitted times for making muirburn (Section 46)

Summary of Bill provisions

- ◆ This provision provides an enabling power for the Scottish Ministers to lay Orders to vary the permitted dates for undertaking muirburn where they consider it necessary or expedient to do so in relation to climate change.
- ◆ In Scotland, there are discernible changes in the climate and in seasonal weather patterns. These climatic changes have impacted on the ability to undertake muirburn and have reduced the frequency of suitable burning days. As a result, the ability to use muirburn has been negatively affected.
- ◆ Muirburn is an important land management technique which assists new growth on rough grassland and moorland managed for livestock, game and wildlife; and assists in the management of older vegetation which can act as a source of fuel for wildfires. The Bill provision aims to provide flexibility to enable it to continue to be used.
- ◆ Implementation of any variation in the permitted dates will require Ministers to lay an Order in Parliament which will entail a Regulatory Impact Assessment. There is no expectation that the current muirburn season would need to be changed immediately.

Public Consultation

- ◆ A consultation on the proposal that Ministers should have a power to vary the permitted dates for muirburn was launched on 25 August and ended on 17 November <http://www.scotland.gov.uk/Publications/2008/08/Muirburn>
- ◆ Analysis of the consultation is currently underway and the consultation responses will be available to view on the Scottish Government web page by the end of December 2008.
- ◆ The consultation analysis report will be issued in January 2009.

Climate Change (Scotland) Bill Power to modify functions of Forestry Commissioners (Section 47)
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Summary of Bill provisions

- ◆ These provisions will enable Forestry Commission Scotland to play a greater role in tackling climate change.
- ◆ They will allow Scottish Ministers (by order) to modify the functions of the Forestry Commissioners in or as regards Scotland.
- ◆ Such an order may also allow the Forestry Commissioners to delegate their functions to other bodies.

Public Consultation

- ◆ A consultation (“Climate Change and the National Forest Estate”) was launched on 4 November 2008 and the consultation will close on 27 January 2009. This document can be found at:
[http://www.forestry.gov.uk/pdf/forestryscottishclimatechangebill.pdf/\\$FILE/forestry-scottishclimatechangebill.pdf](http://www.forestry.gov.uk/pdf/forestryscottishclimatechangebill.pdf/$FILE/forestry-scottishclimatechangebill.pdf)
- ◆ This consultation seeks views on permitting:
 - Forestry Commission Scotland to enter into joint ventures for the purposes of participating in renewable energy programmes;
 - Scottish Ministers to lease land for forestry purposes and the Forestry Commission Scotland to grant cutting rights over this forest;
 - Scottish Ministers the option of transferring ownership of leased land to a not-for profit trust and funds to be used to promote woodland creation to help mitigate greenhouse gas emissions.
- ◆ Ministers are seeking a report on the results from the consultation exercise, and an associated options review, by the end of February. The results of this will be reported to the Parliament as soon as possible.

Stage 2

- ◆ The need to amend the provisions at Stage 2 will depend on decisions taken following the outcome of the consultation exercise.

Climate Change (Scotland) Bill Promotion of energy efficiency (Sections 48 - 49)

Summary of Bill provisions

- ◆ These provisions are aiming to improve the energy efficiency of domestic, business and public sectors in Scotland.
- ◆ These provisions will require Scottish Ministers
 - to develop and publish an Energy Efficiency Action plan within one year of the provision being enacted;
 - to report on the implementation of the action annually, laying this in parliament; and
 - to review this plan at least every three years.
- ◆ Although primary legislation is not required to prepare the plan, setting this in statute demonstrates the commitment of Scottish Ministers to improving energy efficiency across Scotland.
- ◆ The action plan will set out all the action being taken across Government to improve energy efficiency in Scotland.

Public Consultation

- ◆ The previous administration consulted on a draft Energy Efficiency and Microgeneration Strategy for Scotland between 13 March and 11 June 2007. Links to this and the associated documents are listed below:
 - Energy Efficiency and Microgeneration: Achieving a Low Carbon Future: A Strategy for Scotland – draft consultation (13 March 2007)
<http://www.scotland.gov.uk/Publications/2007/03/09144516/0>
 - Energy Efficiency and Microgeneration Strategy for Scotland: SEA Environmental Report (30 March 2007)
<http://www.scotland.gov.uk/Publications/2007/03/28154502/0>
 - Energy Efficiency and Microgeneration - Achieving a low carbon future - A Strategy for Scotland: Consultation Responses (9 August 2007)
<http://www.scotland.gov.uk/Publications/2007/08/09110426/0>
- ◆ On 4 June 2008 the Scottish Government published a consultation analysis report summarising the issues raised by respondents.
- ◆ As the consultation had been initiated under the previous administration, the Scottish Government published a separate response to the issues raised during the consultation along side the analysis report. Links to these documents are:

- Energy Efficiency and Microgeneration: Achieving a Low Carbon Future: A Strategy for Scotland: Consultation Analysis Report (4 June 2008)
<http://www.scotland.gov.uk/Publications/2008/05/30140817/0>
- Energy Efficiency and Microgeneration: Achieving a Low Carbon Future: A Strategy for Scotland: The Scottish Government Response (4 June 2008)
<http://www.scotland.gov.uk/Publications/2008/06/03113737/0>

Stage 2

- ◆ Officials are currently in discussion with the Steering Group for Sarah Boyack's Members' Bill on Energy Efficiency and Microgeneration and separately the Green Party over possible measures which could be included in either the Climate Change Bill or the Energy Efficiency Action Plan.
- ◆ There is the possibility that these discussions may result in the need for Amendments at Stage 2.

Climate Change (Scotland) Bill Energy performance of non-domestic buildings (Section 50)

Summary of Bill provisions

- ◆ The aim of these provisions is to improve the energy performance of existing non-domestic buildings which will raise the contribution that the existing non-domestic stock can make to mitigating climate change.
- ◆ Buildings account for over 40% of emissions and there is scope to further reduce these levels.

Why are they necessary?

- ◆ The provisions are required to make regulations providing for the assessment of the energy performance of non-domestic buildings and the emissions of greenhouse gases produced or associated with such buildings.
- ◆ The regulations for the assessment of existing non-domestic buildings could include:
 - type of non-domestic buildings covered;
 - persons who are required to obtain assessments;
 - time periods for carrying out assessments;
 - procedures and methodologies that must apply;
 - persons who can carry out such assessments;
 - certificates issued following assessment;
 - enforcement authorities; and
 - keeping of records and enforcement and offences.

Public Consultation

- ◆ A public consultation “Action on Climate Change: Proposals for improving the energy performance of existing non-domestic buildings” was launched on 2 September 2008 and closed on 24 November 2008.
- ◆ The consultation document can be accessed at <http://www.scotland.gov.uk/Publications/2008/08/15155233/1>
- ◆ A total of 70 responses have been received and analysis of the responses is on-going and will be completed by the end of January 2009.
- ◆ Topics covered in the consultation include:
 - Extending the scope of energy performance certificates into Assessment of Carbon and Energy Performance (ACEP) to take account of operational ratings as well as asset ratings and also embodied energy/carbon when a robust methodology is available to address the issue of historic and traditional buildings. This includes varying the lifespan of such assessments/certificates;
 - Requiring owners or their delegated persons to obtain ACEPs (even though they are not selling or renting out their buildings);
 - Requiring owners of non-domestic buildings to formulate action plans for building work arising from the advice on their ACEPs and encouraging them to implement their action plans;
 - Developing appropriate standards for such building work e.g. energy efficient lighting, roof space insulation or sub-metering; and
 - Empowering local authorities, or similar public bodies, to check ACEPs.

Scottish Climate Change Bill

Promotion of Renewable Heat (Section 51)

Summary of Bill provisions

- ◆ This provision will enable Scottish Ministers to take steps to promote the use of heat produced from renewable sources.
- ◆ This is needed to build a commercially viable renewable heat industry in Scotland in support of the Scottish Government 2020 renewable energy target (11% of heat demand to come from renewable sources). This will help to reduce carbon emissions.
- ◆ It is recognised that Scottish Ministers already have powers to promote renewable heat – heat is not mentioned in the Scotland Act, therefore is devolved by omission. However setting this in statute (e.g. by putting an obligation on Scottish Ministers to develop and publish a Renewable Heat Action Plan) shows the importance and commitment by Scottish Ministers to increase the uptake of heat from renewable sources.

Public Consultation

- ◆ In 2006, the previous administration asked a sub group of the Forum for Renewable Energy Development in Scotland (FREDS) to identify and develop recommendations for the key components of a Scottish Renewable Heat Strategy. The group published a report in February 2008. The link to the report can be found at:
 - Scotland's Renewable Heat Strategy: Recommendations to Scottish Ministers Renewable Heat Group (RHG) Report 2008
<http://www.scotland.gov.uk/Publications/2008/03/11102501/0>
- ◆ On the 6 October 2008 the Scottish Government published a framework document seeking comments on the development and deployment of renewable energy in Scotland. The consultation closed on 1 December 2008.
- ◆ The document contained a section on renewable heat (section 6) which included a proposed Action Plan for Renewable Heat in response to the report from FREDS. The link to the report can be found at:
 - Making Scotland a Leader in Green Energy – draft framework for the development and deployment of renewables in Scotland
<http://www.scotland.gov.uk/Publications/2008/11/05115324/0>
- ◆ The responses to the consultation are currently being considered. However there appears to be broad support for the need to promote renewable heat and for the target of 11%. In addition other views expressed commented on the need to raise awareness by showcasing good practice, targeting off-gas grid areas and the need to produce a renewable heat route map. All comments received will help inform the completion of the Action Plan

Stage 2

- ◆ The responses to the consultation are currently being considered. It is possible that Scottish Ministers may seek to include an amendment at Stage 2 to require the production of a Renewable Heat Action Plan for Scotland. The Action plan could include a wide range of actions such as:
 - Route map
 - Information provision
 - Links with waste heat
 - Fuel poverty
 - Planning
 - Skills and Training

Additional information

- ◆ Steps are being taken to introduce a UK wide financial mechanism to help support the take-up of renewable heat. The UK Energy Act includes enabling powers to design such a mechanism.
- ◆ Renewable heat is a mixture of devolved and reserved provisions (while Scottish Ministers have powers to promote renewable heat, any regulatory incentive administered by Ofgem will cut across reserved functions).
- ◆ Scottish Ministers have agreed with UK Government that Westminster can legislate on their behalf in terms of a renewable heat incentive (RHI) but that Scottish Ministers will be fully consulted. There is broad support from stakeholders of this approach.
- ◆ Any future Renewable Heat Action Plan will focus on actions that are within Scottish Ministers devolved powers and will enhance any RHI introduced at a future date.

Scottish Climate Change Bill Waste reduction and recycling (Sections 52 - 61)
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Summary of Bill provisions

- ◆ Scottish Ministers may, through regulations, introduce new obligations for providing:
 - Waste prevention and management plans
 - Information on waste
 - Facilities for deposit of recyclable waste
 - Procurement of recyclate
 - Targets for reduction of packaging
 - Deposit and return schemes
 - Charges for supply of carrier bags

- ◆ These powers are being taken to reduce the impact of waste management and, misuse of resources have on climate change.

- ◆ It is intended that regulations (by affirmative procedure) would be used to set out detailed requirements, for example:
 - Contents of a waste plan;
 - Who should give what information on waste;
 - Who should provide facilities to recycle, what should those facilities be and for what types of wastes;
 - What types of recyclate should be procured and the quantities;
 - What targets would apply to packaging placed on the market, the types of packaging and on whom the targets would apply;
 - How a deposit and return scheme would function, in relation to which materials supplied by whom; and
 - Charges for carrier bags - what charges, for which bags and the application of the charge revenue.

Public Consultation

- ◆ A consultation on “Potential Legislative Measures to Implement Zero Waste” <http://www.scotland.gov.uk/Publications/2008/07/24155248/0> was launched on 28 July 2008 and closed on 6 October 2008. Publication of the responses and assessment, by Caledonian Environment Centre is expected shortly.
- ◆ The consultation responses indicated general support for the principal of taking measures in the Bill to implement zero waste.
- ◆ The level of support varied according to specific provision (and, indeed, between taking powers and actually exercising them). The least support was for charges for carrier bags.

Stage 2

- ◆ Amendments at Stage 2 are only likely if there is a need to refine provisions in the Bill in the light of discussions at Stage 1.

TECHNICAL NOTE: Climate Change (Scotland) Bill: Greenhouse gas (GHG) Emissions, Annual Reductions and Targets**Purpose**

The purpose of this Technical Note is to describe in more detail the trajectory prescribed in the Climate Change (Scotland) Bill for reducing Scottish emissions of Kyoto Protocol greenhouse gases, in particular the annual percentage rate of reduction necessary to achieve the targets. The approach described includes estimated emissions from international aviation and shipping.

The target greenhouse gases for the Bill are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride, the latter three being described as the F-Gases.

GHG Data

Figures for Scottish greenhouse gas emissions at source are currently published approximately twenty months after the end of the calendar year to which they refer - 5 months after publication of the final UK inventory. The latest published figures, the 2006 GHG emissions, were published in September 2008¹. Disaggregated figures for international aviation and shipping emissions, for each of the four countries of the UK, have recently become available and the Scottish figures are included in this analysis².

Baselines

1990 is the base year for emissions of carbon dioxide, methane and nitrous oxide, and 1995 is the base year for emissions of fluorinated compounds (F-Gases) in accordance with Article 3.8 of the Kyoto Protocol. For ease of reference, the figures shown as 1990 in this document combine 1990 figures for carbon dioxide, methane and nitrous oxide with the 1995 figures for the F-Gases.

The first year for which an annual target will be set under the Bill, once enacted, is 2010.

Emissions Reductions

The emissions reduction framework in the Climate Change (Scotland) Bill is based on the following pillars:

¹ Jackson, J. et al, *Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990 – 2006*, Report to the Department for Environment, Food and Rural Affairs, The Scottish Government, The Welsh Assembly Government and The Northern Ireland Department of Environment, AEA, September 2008, available from: http://www.naei.org.uk/report_link.php?report_id=527

²Thomas, J. and Thistlethwaite, G., *International Aviation and Shipping Emissions, 1990-2006*, Report to the Department for Environment, Food and Rural Affairs, The Scottish Government, The Welsh Assembly Government and The Northern Ireland Department of Environment, AEA,, available from: http://www.naei.org.uk/report_link.php?report_id=534

- The annual target for the year 2010 must be an amount which is less than the estimated net Scottish emissions account for 2009.
- The emissions reduction targets for each year in the period 2011-2019 must be an amount which is less than the target amount for the previous year.
- In the period 2020-2050 the annual percentage rate of reduction in greenhouse gas emissions will be driven by targets which must be at least 3% lower than the target for the previous year.
- Greenhouse gas emissions in 2030 must be at least 50% below emissions reported for 1990.
- Greenhouse gas emissions in 2050 must be 80% below emissions reported for 1990.

For information, on the basis of the 2006 GHG inventory (including international aviation and shipping emissions) Scottish emissions were 70.1 megatonnes of carbon dioxide equivalent (Mt CO₂e) of GHG emissions relevant to the 1990 baseline (1995 for F-gases).

Emissions in 2009

It is necessary to make certain assumptions about the starting point for the new statutory emissions reductions trajectories because the statutory regime is being put in place before the actual emission levels for 2009 will be known.

The first assumption is that greenhouse gas emissions in 2009 will follow a similar trend to 1990-2006, taking account of the EU Emissions Trading Scheme for emissions in 2005 and 2006. On this basis the average annual rate of reduction in GHG emissions between 1990 and 2006 was 1.23%. While we have information on UK allocations under the EU Emissions Trading Scheme for the period 2008-2012, there is as yet no agreed methodology on how to apportion a share of the allocations for Scotland's carbon budget.

Reductions to 2019

Assuming the 2009 emissions have fallen at an average rate of reduction of 1.23% since 1990, emissions in 2009 would equate to some 55.4 Mt CO₂e. If the average annual rate of reduction in the period 2009-2019 ranges between 1.23% - 2.75% (as described in the example scenarios below), on the basis of these assumptions, emissions in 2019 would be estimated between 48.96 - 41.93 Mt CO₂e. This represents a reduction of 30-40% below the 1990 value.

Before setting the levels for annual targets, Scottish Ministers will be informed by the advice of the UK Committee on Climate Change. This advice is expected to detail the optimal, most cost effective emissions reductions options to pursue and may define a different trajectory to the range outlined in the paragraph above.

For illustrative purposes a number of emissions reductions scenarios are described below and detailed in Table 1. The reduction rates relate to the period 2010-2019.

Scenario 1 – 1.23% average annual reduction in greenhouse gas emissions

Annual rate of reduction is in line with the average rate in the period 1990-2006.

Scenario 2 – 1.49% average annual reduction in greenhouse gas emissions

Emissions reduction required to achieve a 34% reduction in emissions in 2020 against 1990 baseline – this target relates to the emissions reductions required by the interim carbon budget set out by the Committee on Climate Change in its inaugural report Building a low carbon economy, published on 1 December 2008.

Scenario 3 – 1.50% average annual reduction in greenhouse gas emissions**Scenario 4 – 2.00% average annual reduction in greenhouse gas emissions****Scenario 5 – 2.50% average annual reduction in greenhouse gas emissions****Scenario 6 – 2.75% average annual reduction in greenhouse gas emissions**

Emissions reduction required to achieve a 42% reduction in emissions in 2020 against 1990 baseline – this target relates to the emissions reductions required by the intended carbon budget set out by the Committee on Climate Change in its inaugural report Building a low carbon economy, published on 1 December 2008.

Reductions from 2020 to 2030

From the estimated emissions level of 48.96 Mt CO₂e in 2019, which would be the position if emissions continue to reduce at 1.23% per year, in line with the average rate in the period 1990-2006, emissions would need to have an average annual rate of reduction from 2020 of 3.95% in order to achieve an 80% reduction by 2050. On such a trajectory, emissions in 2030 would be approximately 55% less than in 1990.

The Bill requires that emissions in 2030 be reduced by at least 50% compared to the amount in 1990. To achieve a reduction of exactly 50% in 2030 from a position of 48.96 Mt CO₂e emissions in 2019, the annual rate of reduction of emissions in the period 2020 to 2030 would have to average 2.99%. The Bill sets a minimum annual reduction of 3% from 2020.

Reductions from 2030 to 2050

Having achieved the 2030 target of 50% reduction in emissions, relevant to the 1990 level of emissions, the average annual rate of reduction required to achieve the 2050 target (an 80% reduction from 1990 emissions) would be 4.5%.

Chart 1 shows the pattern of reductions required to achieve the targets assuming that emissions in 2009 in line with the rate of reduction from 1990-2006 and that annual percentage reductions are constant in each period and as described above. Table 1 provides estimates of the key figures for the 6 scenarios.

Chart 1

Greenhouse gas emissions - 1990 to 2050 - includes international aviation & shipping & takes account of trading in the EU Emission Trading Scheme in 2005 and 2006

Mt CO₂ equivalent

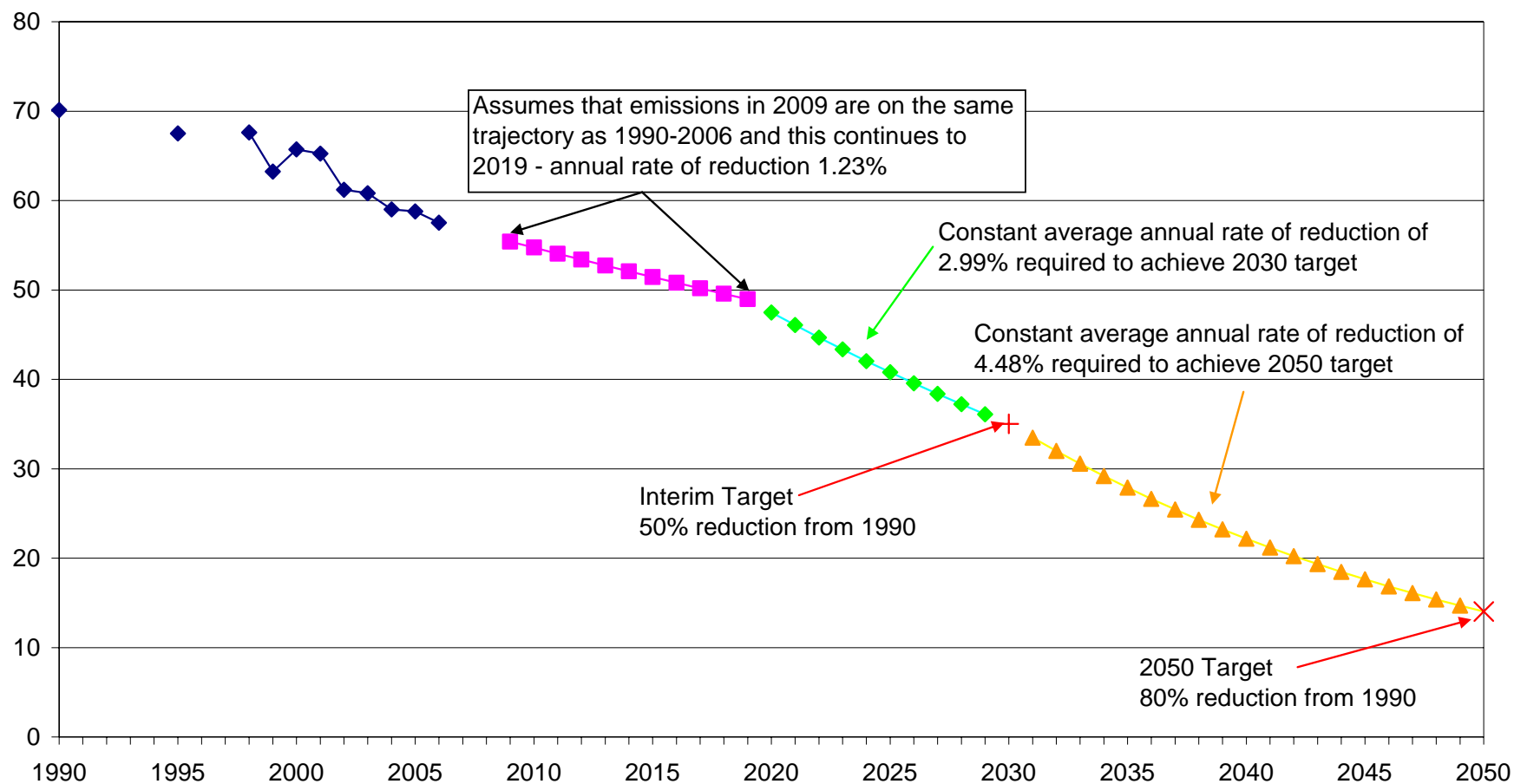


Table 1 Emissions reductions necessary to achieve 50% reduction target in 2030, and 80% reduction target in 2050; taking account of trading in the EU Emission Trading Scheme in 2005 and 2006

Scenarios considered:

emissions in 2009 are in line with the rate of reduction between 1990 and 2006 (1.23%);
between 2009 and 2019 rate of reduction ranges between 1.23% and 2.75%

	Scenarios					
	1 ⁽¹⁾	2 ⁽²⁾	3	4	5	6 ⁽²⁾
Assume average annual % reduction 2010-2019	1.23%	1.49%	1.50%	2.00%	2.50%	2.75%
Baseline emissions (Mt CO ₂ e)	70.12	70.12	70.12	70.12	70.12	70.12
Emissions in 2005 (Mt CO ₂ e)	58.80	58.80	58.80	58.80	58.80	58.80
Emissions in 2006 (Mt CO ₂ e)	57.51	57.51	57.51	57.51	57.51	57.51
Assume 2009 in line with trend in period 1990-2006 (Mt CO ₂ e)	55.42	55.42	55.42	55.42	55.42	55.42
Emissions in 2019 (Mt CO ₂ e)	48.96	47.71	47.64	45.28	43.02	41.93
Annual rate of reduction in period 2020-2030 required to meet minimum 50% reduction target by 2030 (minimum of 3%)⁽³⁾	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Emissions in 2020 (Mt CO ₂ e)	47.49	46.28	46.21	43.92	41.73	40.67
Percentage change 1990-2020	-	-	-	-	-	-42.0%
Resulting emissions in 2030 (Mt CO ₂ e) ⁽³⁾	35.02	34.13	34.08	32.39	30.77	29.99
Percentage change 1990-2030	-	-	-	-	-	-57.2%
Annual rate of reduction in period 2031-2050 required to meet 80% reduction target by 2050 (minimum of 3%)⁽³⁾	4.47%	4.35%	4.34%	4.10%	3.85%	3.73%
2050 target is 80% reduction from 1990 baseline (Mt CO ₂ e)	14.02	14.02	14.02	14.02	14.02	14.02

Sources: 2006 GHG Inventory for England, Scotland, Wales and Northern Ireland,
International Aviation and Shipping Emissions, 1990-2006
EU Emission Trading Scheme allocations and emissions for Scotland

(1) This scenario shows that if emissions in 2009 have fallen in line with the average annual rate of reduction in the period 1990-2006 (1.23%) and this annual rate of reduction continues in the period 2010-2019, followed by a 3% annual rate of reduction in the period 2020-2030 - this would result in the 2030 target of 50% of 1990 emissions (i.e. 35.06 Mt CO₂e) being achieved and would necessitate an annual rate of reduction of 4.47% in the period 2031-2050 in order to achieve the 2050 target.

(2) These scenarios give the annual rate of reduction required in order to achieve emission reductions of 34% and 42% in 2020 against a 1990 baseline. The figures of 34% and 42% relate respectively to the emissions reductions required by the Interim and Intended carbon budgets set out by the Committee on Climate Change in its inaugural report *Building a low-carbon economy - the UK's contribution to tackling climate change*, December 2008, available from: <http://www.theccc.org.uk/reports>

(3) From 2020, the Bill requires minimum annual reductions of 3% compared with the target for the previous year. In these scenarios, such reductions lead to emissions in 2030 below 50% of 1990 baseline emissions (35.06 Mt CO₂e), and the subsequent annual rate of reduction in the period 2031-2050 required to achieve the 2050 will differ from the 4.48% annual rate of reduction if 2030 emissions were exactly 50% of 1990 emissions.

TRANSPORT, INFRASTRUCTURE AND CLIMATE CHANGE COMMITTEE

20 JANUARY 2009

CLIMATE CHANGE (SCOTLAND) BILL

WITNESS EXPENSES

Background

1. Under Rule 12.4.3 of the standing orders, the Committee may arrange for payment of expenses incurred by any witness invited to give evidence at a Committee meeting. Reimbursement is entirely at the discretion of the Committee.

2. The witness expenses scheme was established by the Parliament on 6 July 2000 (motion S1M-1086) and sets out the categories of claim that may be considered.

Action

3. The Committee is invited to delegate to the Convener responsibility for arranging for the SPCB to pay, under Rule 12.4.3, any witness expenses which arise during the Committee's Consideration of the Climate Change (Scotland) Bill. However, in the event of the Convener rejecting a claim, it will be referred back to the Committee for consideration.

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