EXECUTIVE NOTE

DRAFT : THE CLIMATE CHANGE (ANNUAL TARGETS) (SCOTLAND) ORDER 2010

1. The above instrument will, if approved, be made by the Scottish Ministers in exercise of the powers conferred by section 4 of the Climate Change (Scotland) Act 2009 ("the Act"). The instrument is subject to the draft affirmative procedure.

Policy Objectives

2. The purpose of the instrument is to set the first batch of annual targets for the period 2010-2022, as required by section 4(2) of the Act.

3. An annual target for any year means the target for the maximum amount of the net Scottish emissions account set for that year. Article 2 of the instrument sets the annual targets for the years 2010-2022.

4. Section 4(2) of the Act required that annual targets were set for the years 2010-22 no later than 1 June 2010. Section 4(5) of the Act requires that, if this date is not met, the Scottish Ministers must set the annual targets as soon as reasonably practicable afterwards. Parliament voted to reject a previous version of the Annual Targets Order on 27 May 2010. The Scottish Ministers thereafter established a cross-party working group to consider the annual targets, with a view to meeting the requirements of section 4(5). As part of this process further analysis was received from the Committee on Climate Change on the appropriate level of annual targets(see Annex A)[1]. The Committee's analysis sets out a trajectory for annual targets which is consistent with meeting the interim target for 2020 already in the Act (42% lower than the 1990 baseline).

5. The Scottish Ministers broadly accept the Committee on Climate Change's analysis but have proposed targets for 2010-2012 which are lower (i.e. more stretching) than those contained in Table 2 of the Committee on Climate Change's analysis. The Scottish Ministers believe that these targets are justified by taking account of policies which have already been introduced but which have not fully been reflected in the Committee on Climate Change's projections.

6. In relation to 2013-22, the Committee on Climate Change has advised that targets follow a straight-line trajectory between 2012 and the target for 2020 of a 42% reduction against the 1990 baseline figure. For 2021 and 2022 the Committee on Climate Change has advised that targets are set to at 3% below the target for the preceding year, the minimum level required by the Climate Change (Scotland) Act. As the Scottish Ministers have proposed a lower target for 2012 than suggested by the Committee on Climate Change, the targets proposed for 2013-19 are correspondingly lower than set out in the third table of the Committee on Climate Change's analysis. The targets for 2020-22 are as set out in that table.

[1] The advice is also available at the following link:http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/climatechangeact/secondarylegislation

Consultation

7. There is no statutory obligation for public consultation on this Order. However, the Scottish Ministers are required by section 5 of the Act to request the advice of the Committee on Climate Change as to the levels at which to set the annual targets. As noted in paragraph 5, the Scottish Ministers have proposed targets which broadly follow the advice of the Committee on Climate Change.

8. Section 4(3) requires that the Scottish Ministers have regard to any advice from the Committee on Climate Change on the appropriate cumulative emissions budgets for 2010-2050. The Committee on Climate Change has said that further detailed analysis is required before providing advice on this issue. This analysis will be undertaken as part of its work to provide advice on the UK's fourth carbon budget, to be published in December 2010. This will allow advice on an appropriate cumulative emissions budget for Scotland to be provided to Scottish Ministers in early 2011.

9. Following Parliament's decision to reject a previous Order, the Scottish Ministers established a cross-party working group to consider the annual targets. The group's minutes and papers are available at http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/climatechangeact/secondarylegislation

Business and Regulatory Impact Assessment

10. A Business and Regulatory Impact Assessment is not required as the instrument will not, in itself, impose new regulatory burdens on businesses, charities or the voluntary sector. Rather, it is the proposals and policies to achieve the emissions reductions targets that will have a regulatory impact. These will be identified in the statutory Report on Proposals and Policies, to be laid in draft before the Scottish Parliament later this year. The individual measures, or related groups of measures, detailed in the Report on Proposals and Policies will be subject to Business and Regulatory Impact Assessment as appropriate.

11. A Regulatory Impact Assessment was carried out for the Climate Change (Scotland) Bill. The final Assessment was published in May 2009, and is available at the following address – http://www.scotland.gov.uk/Publications/2009/05/01155216/0.

Financial Effects

12. The actions necessary to achieve the targets are likely to have significant financial implications. The Act requires that a Report on Proposals and Policies for meeting annual targets is published as soon as reasonably practicable after setting annual targets. It is intended that a draft Report be published in September. The individual measures, or related groups of measures, detailed in the Report on Proposals and Policies will be subject to Business and Regulatory Impact Assessment as appropriate.

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xx September 2010

CCC Briefing – Potential impact of the recession on Scottish emissions (updated analysis)

Authors: Laura McNaught and Ute Collier
Date: 8 September 2010

This note presents an update to the Committee on Climate Change (CCC) paper of July 2010 in which we presented an illustrative analysis of Scottish greenhouse gas emissions projections if trends observed in the UK in 2008 and 2009 were applied to Scotland.

The earlier paper applied UK trend data for 2008 and 2009 in the absence of emissions data for Scotland beyond 2007. However, the 2008 greenhouse gas inventory for Scotland has just been published, showing that the actual level of greenhouse gas emissions in Scotland was 3.0% lower than in 2007; a larger fall than in the UK as a whole (-1.9% in 2008). We have now updated our July analysis, applying 2009 UK trend data to actual Scottish 2008 emissions data.

The emissions projections and suggested targets presented in this paper differ from our previous paper in several aspects:

- The publication of the 2008 Greenhouse Gas Inventory for Scotland includes a revision to the estimate of the baseline year (1990 for carbon dioxide, methane and nitrous oxide; 1995 for fluorinated compounds (F-Gases)) level of emissions for Scotland, from 70,013 $ktCO_2e$ (estimate as at Feb 2010) to 70,201 $ktCO_2e$ (estimate in 2008 GHG inventory). We use the revised estimate in our analysis, which slightly alters the 2020 target (42% cut equates to 40,717 $ktCO_2e$ rather than 40,607 $ktCO_2e$) and the trajectory towards it.

- We include 240$ktCO_2e$ of industry & commerce non-CO_2 p.a. previously excluded from our non-traded sector baseline. This makes our emissions data consistent with the data used by the Scottish Government.

- The July 2010 paper suggested that targets for 2013 – 2022 should be set at the level originally outlined in our February 2010 advice. However, in this update we provide an illustrative path to 2020 that takes account of the revised estimate to 2012.

- Use of a 'low' GDP growth scenario

Summary results

UK greenhouse emissions fell by 8.6% in 2009 – 12.5% in the traded sector (i.e. electricity generation and energy intensive industry) and 5.7% in the non-traded sector (e.g. heating and transport related emissions). These reductions occurred primarily as a result of the recession and are larger than previously forecast.

In the absence of equivalent 2009 emissions data for Scotland, applying UK rates of reductions for 2009 to 2008 Scottish emissions provides an indication of the impacts of the recession on Scottish emissions. We use this to calculate the potential levels of annual targets for 2010 onwards, including a revised path from 2013 – 2022 that takes account of the lower projected 2012 emissions.

Such analysis implies that targets for the maximum level of the net Scottish emissions account could be set for 2010 to 2012 at levels that reflect larger reductions on the 1990 baseline than originally suggested by the CCC advice in February 2010 (i.e. 23% compared to 20%). As in our February 2010 advice, the new analysis suggests that the targets for 2010-2012 should be constant[2], reflecting the fixed nature of the EU ETS cap until 2012, as well as trends such as rising land-use emissions. However, a large reduction of 9.8% would occur from 2012-13, followed by annual reductions of between 2.3% and 3% thereafter.

It is important to note that this illustrative analysis does not take into account the differences in circumstances between Scotland and the UK as a whole, for which the original CCC modelling for the annual targets was designed. It is possible that actual emissions in Scotland will have been impacted to a greater or lesser extent, which will not be known until the actual inventory data is available (2011 for the 2009 emissions).

1. Introduction

According to the CCC's 2010 progress report[3], the 8.6% drop in UK greenhouse gas emissions in 2009 was largely due to the recession. This larger than expected drop, together with some progress in the implementation of measures should result in emissions lower than legislated for the first carbon budget (2008-2012).

At the time of our 2010 progress report, for Scotland, the latest year for which actual emissions data was available was 2007. We therefore considered a range of more recently available macroeconomic and energy demand data and concluded on the basis of these trends that it was likely that emissions will have followed a similar trend as in the UK as a whole.

2008 data for Scotland has now become available. To assist the deliberations of the Short-Life Working Group on Annual Targets, this paper provides an illustrative analysis of the possible impact of the recession on Scottish emissions. Our analysis illustrates the impact on Scotland's greenhouse gas emissions if the emissions falls in the UK (largely, but not fully attributable to the recession) in 2009 are mirrored in the same proportion in Scotland, with the aim of suggesting an indicative magnitude of impact.

The available macroeconomic data (for the economy as a whole and across major sectors) show that output has followed broadly similar trends over the course of the recession in

[2] Targets for 2010-2012 round to 0% but entail small declines year on year.
[3] Committee on Climate Change – 'Meeting carbon budgets – ensuring a low carbon recovery' (June 2010) - http://www.theccc.org.uk/reports/progress-reports/2nd-progress-report

Scotland and the UK, although with slight differences in some sectors[4]. While clearly this does not translate directly to an assumption that final emissions will follow the same trend, it does suggest that a similar magnitude of impact may be observed. However, there still remains considerable uncertainty about the actual impact of the recession on emissions in each sector in Scotland and again we iterate that the results we present should be treated as illustrative.

It is also important to note that the largest emission reductions (12.5% at UK level) have occurred in the traded sector which accounts for 41% of Scottish emissions. These reductions will have no bearing on Scottish annual targets which will be based on net emissions, applying the fixed EU emissions trading system (EU ETS) cap to emissions in this sector.

This paper briefly:

- Recaps the advice provided to Scottish Ministers on annual targets in February 2010
- Outlines the main emissions trends in Scotland in 2008 and the UK for 2008 and 2009
- Outlines the methodology and presents the result of applying the 2009 UK trends to Scottish data
- Summarises emerging trends in 2010 that may have a bearing on emissions in the near term.

2. Recap of advice and summary of emissions projections to 2012

Taking into account the timing of target setting (half way through 2010), and the lead time for any further policies to have an impact on emissions, the Committee's advice to Scottish Ministers on annual targets recommended following official emissions projections for 2010 – 2012. This follows the approach taken in recommending levels of UK carbon budgets in October 2008.

However, a key difference in the analysis for the UK and Scotland was that UK projections were made pre-recession, whilst those for Scotland reflect GDP assumptions (based on Treasury budget 2009) that had been adjusted to allow for the recession. Since our advice in February 2010 there has been a further revision of GDP assumptions.

Table 1 compares:

- Budget 2009 forecasts (which also underlie the model forecasting Scottish emissions projections[5])
- The latest forecasts from the Office for Budgetary Responsibility (OBR).

[4] GDP as a whole fell by 4.6% and 4.7% in 2009 in Scotland and the UK respectively. The construction sector fell by slightly less in Scotland than in the UK in 2009 (by 9.7% and 11.1% respectively) while the service sector fell by the same proportion (falling 3.3% in Scotland and the UK). The production sector fell by slightly less in Scotland in 2009 compared to the UK (falling 8.9% and 10.2% respectively), although the chemical sector for example, fell by a far greater proportion (20%) in Scotland than the UK as a whole (5%).

[5] Note however that growth rates were derived for Scotland and for the individual sectors in the model used to forecast Scottish emissions, and only the economy wide UK GDP forecasts are presented here.

However, as around 40% of Scottish emissions are accounted for by the fixed EU ETS cap, the impact of such relatively small changes in GDP are likely to be limited. In addition, GDP forecasts are uncertain and cannot be a firm guide to future emissions which are also influenced by a range of other factors, such as the weather (see section 6).

The 'flat line' trajectory of CCC emissions projections for 2010 -2012 results from a fixed EU ETS cap[6] over those years, and counteracting trends in other sectors[7].

Table 1: Changes in GDP forecasts

	2008	2009	2010	2011
Treasury Budget 2009 forecast (central)	+0.75%	-3.5%	+1.25%	+3.5%
OBR forecast June 2010 (central)	N/A	-4.9%	+1.3%	+2.6%

3. Scottish and UK greenhouse gas emissions 2008 (and 2009 UK only)

The 2008 Greenhouse Gas Inventory for Scotland shows that overall, emissions fell 3.0% between 2007 and 2008, with varying trends across sectors. For example, residential emissions rose 4.5%, while road transport emissions fell 3.1%. Overall, emissions stood at 56,080 $ktCO_2e$ in 2008, down from 57,785 $ktCO_2e$ in 2007[8].

Greenhouse gas emissions in the UK as a whole fell by 1.9% in 2008 but still increased in some sectors. 2009 saw a much steeper fall in emissions overall (-8.6%) and falls across all sectors. The CCC's 2010 progress report to the UK Parliament concluded that the overall emissions reduction in 2009 can be largely attributed to the recession. At the sector level in 2009:

- Direct emissions in the residential sector fell 5% due to falling GDP, rising energy prices, and some implementation of energy efficiency measures.
- Direct emissions from non-residential buildings (public and commercial sectors) fell 5% and 10% respectively, again reflecting falling GDP and rising energy costs.
- Direct emissions from industry fell 18% reflecting a significant contraction in manufacturing output.
- Road transport emissions fell 3.9% as a result of falls in mileage and carbon intensity (more efficient vehicles in each category and a greater share of more efficient vehicles entering the stock).

[6] EU ETS emissions account for over 40% of Scotland's emissions over 2010-2012 – these emissions will effectively be held constant by the cap, with no possibility of falling further as emissions below the cap will be offset by credit sales.

[7] I.e. rising emissions from reduced land use removals, increasing aviation and shipping emissions; but falling residential emissions and broadly flat emissions from industry and commerce (non-traded).

[8] Note these are gross emissions figures as presented in the greenhouse gas inventory and do not account for carbon trading e.g. through the EU ETS.

The latest data for agriculture, waste, aviation and shipping emissions refers to 2008 and therefore the full impact of the recession on emissions from these sectors is unknown at this time. However the available data does show that UK aviation emissions fell 4% in 2008 as passenger demand fell 2%. Passenger demand fell a further 7% in 2009 as a result of the recession, suggesting that aviation emissions will show a substantial decline in that year when the data becomes available (in 2011).

4. Methodology

The analysis proceeds in the following steps

- We take 2008 GHG inventory data for Scotland as the starting point and apply the 2009 UK percentage change in emissions to each non-traded sub-sector (road transport, residential, industry process & industry and commerce[9]).

- For the years following 2009 we project emissions using STEPS[10] and the low economic scenario in the model (which reduces growth rate assumptions by 0.5 percentage points per annum compared to previous analysis). Latest UK GDP data (2010 Q2) shows strong quarterly growth of 1.2%, but reduced assumptions reflect
  - downwards revision to trend growth in the latest official forecasts for the UK economy for 2010 onwards (see Table 1 above)
  - Independent forecasts of the Scottish economy[11] which currently predict that Scotland will not return to trend growth quickly, or at least until 2012.

- We add the new non-traded sector estimates to the fixed traded sector emissions for the years 2010 – 2012.

- For 2013 onwards we present a straight-line trajectory to meet a 42% cut in 2020 on the revised 1990 baseline

In laying secondary legislation relating to the Climate Change (Scotland) Act (including the provisions on annual targets) before the Scottish Parliament on 21st April 2010, the Scottish Government's accompanying statement[12] outlined additional abatement opportunities in

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[9] It should be noted that the 'Industry & Commerce' sector covers both traded and non-traded sector emissions, and as defined here, emissions from a number of different sectors (i.e. public sector, business etc) which fell at varying rates over 2009. For this sector only therefore we apply to the estimated non-traded portion of the Industry & Commerce sector, an estimated reduction of 10%, which is a weighted average of the observed falls (provisional estimates) across the sectors that make up the 'Industry & Commerce' sector

[10] In providing advice to Scottish Ministers on annual targets in February 2010, the CCC commissioned Cambridge Econometrics to develop a projections tool for non-traded sector CO_2 emissions in Scotland – the Scenario Tool for Emissions Projections in Scotland (STEPS). The full report of Cambridge Econometrics' work is available at: www.theccc.org.uk/reports/supporting-research/

[11] Fraser of Allander Economic Commentary: http://www.strath.ac.uk/media/departments/economics/fairse/Latest-Fraser-of-Allander-Economic-Commentary.pdf and Ernst & Young Scottish ITEM Club: http://www.ey.com/Publication/vwLUAssets/Economic_outlook_Scotland_summer_2010/$FILE/EY_ITEM_Club_Scotland_Summer_2010.pdf

[12] Available from: http://scotland.gov.uk/Resource/Doc/175776/0097829.pdf

2011 and 2012. Any further abatement identified by the Scottish Government would apply in addition to the figures we present here.

5. Result of applying UK emissions trends to Scottish emissions projections

If Scottish emissions follow the same proportionate reductions as the corresponding UK sectors, emissions in 2010 to 2012 will be lower in absolute terms than previous estimates suggest. However, overall emissions are still broadly flat over the period 2010 – 2012. This is due to similar reasons as in the original projections, including the fixed EU ETS cap and offsetting trends across other sectors.

The actual emissions levels implied (Table 2) would allow targets to be set around 23% lower than 1990 emissions for each year (as opposed to the 20% originally proposed), while still meeting the rules of the Scottish Climate Change Act.

Table 2: Original proposed targets vs new emission estimates

	2008**	2009**	2010	2011	2012
Original emissions targets proposed by CCC($MtCO_2e$)*	56.8	56.1	56.1	56.1	56.1
Original reduction on 1990	19%	20%	20%	20%	20%
Revised estimated emissions targets ($MtCO_2e$) based on 2008 emissions for Scotland and UK trends for 2009 ($MtCO_2e$)	55.3	53.9	53.9	53.8	53.8
Revised estimated reduction against 1990	21%	23%	23%	23%	23%

* As published in our February 2010 advice plus the c240KtCO2e previously excluded in the non-traded sector and overall baseline (previously subsumed within the traded sector cap). This also corresponds with Scottish Government treatment of these emissions.
**2008 and 2009 are not target years but illustrate the difference in the projections as a result of utilising the 2008 actual data and applying the 2009 UK reductions to the original projections.
Note – figures adjusted for the level of the EU ETS cap as estimated for Scotland.

Our previous analysis suggested that the path from 2013 onwards should follow the trajectory outlined in our original February 2010 advice. However, publication of the 2008 inventory includes a revision of the 1990 baseline. The level of emissions required in 2020 to achieve a 42% cut is now different from that originally suggested – i.e. the revised baseyear implies an emissions level of 40,717 $ktCO_2e$ in 2020 rather than 40,607 $ktCO_2e$.

For the trajectory from 2013 – 2022 our analysis:

- Suggests a path of annual reductions to meet the 2020 target, (assuming that the EU target for emissions reductions is set to 30% and the traded sector cap tightens accordingly)
- Meets the obligations of the Act to have targets that represent annual reductions of 3% from 2020 onwards.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Targets based on new baseyear and revised pathway from new estimated level of 2012 emissions LOW	48.5	47.4	46.3	45.2	44.1	43.1	42.0	40.7	39.5	38.3
% change 1990	31%	32%	34%	36%	37%	39%	40%	42%	44%	45%
Annual percentage change	9.9%	2.3%	2.4%	2.4%	2.4%	2.5%	2.3%	3.0%	3.0%	3.0%

6. 2010 trends so far

It may be of interest to consider the most recent macroeconomic and energy trends data for 2010.

Following the first positive quarterly growth since the recession in 2009 Q4, official forecasts of UK GDP suggest continued growth throughout 2010[13], with recovery strengthening over 2011 and 2012. Latest GDP data for Scotland[14] (2010 Q1) show a muted exit from the recession in 2009 Q4 (positive growth 0.3% over the quarter), although GDP remained level in the following quarter (2010 Q1), highlighting the fragile nature of the return to growth and in contrast to the UK position where growth in 2010 Q1 continued, at a rate of 0.3%. The latest available independent forecasts for the Scottish economy[15] suggest positive growth will be maintained throughout 2010 and will increase throughout 2011 and 2012, albeit below the long run trend through these years.

Latest available energy trends data[16] is only available for the UK as a whole. This shows that final energy consumption rose by 4% between the first quarter of 2009 and the first quarter of 2010, with rises in all sectors except transport which fell mainly due to the adverse weather conditions. In particular, domestic sector gas consumption was 12.5% higher than a year earlier, probably primarily due to the particularly cold weather.

Looking forward, some emissions falls are likely to be locked in (e.g. from the shift towards more fuel efficient vehicles in road transport), however there may be a return to emissions growth in other sectors as industry and consumers revert to previous behaviours as economic growth resumes.

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[13] Office for Budget Responsibility (OBR) – pre-budget forecast, June 2010 http://budgetresponsibility.independent.gov.uk/d/pre_budget_forecast_140610.pdf

[14] Scottish Government – Quarterly GDP Index for Scotland – http://www.scotland.gov.uk/Topics/Statistics/Browse/Economy/GDP/Findings http://www.scotland.gov.uk/Topics/Statistics/Browse/Economy/GDP/Findings

[15] Ernst & Young Scottish ITEM Club - http://www.ey.com/UK/en/Issues/Business-environment/Financial-markets-and-economy/ITEM-Club-Scotland and Fraser of Allander Quarterly Economic Commentary - http://www.strath.ac.uk/frasercommentary/

[16] DECC 'Energy Trends for 2010 Q1' - http://www.decc.gov.uk/assets/decc/statistics/publications/trends/1_20100621151118_e_@@_trendsjun10.pdf