



**Friends of
the Earth
Scotland**

Transport, Infrastructure and Climate Change Committee Call for Views on Climate Change (Scotland) Bill

Response from Friends of the Earth Scotland

27 February 2009

Introduction

Friends of the Earth Scotland (FoES) is an independent registered Scottish charity (SC003442). We empower people to take individual and collective action to deliver positive and fair solutions to pressing environmental problems. Friends of the Earth Scotland is an independent member of the Friends of the Earth International network.

We wholeheartedly welcome the introduction of the Climate Change (Scotland) Bill and much of the framework it contains. As a member of an international network, we are particularly proud that Scotland has brought forward legislation which has the potential, if strengthened in key areas, to be world leading. We are aware that countries both inside and outside the EU are taking a keen interest in legislation which reaches statute before the vital UN climate negotiations in Copenhagen in December 2009.

The importance of this Bill, both as one of the first pieces of legislation on climate change and in terms of its timing before Copenhagen, means it is vital to get it right. The Bill should ensure Scotland makes its full and fair contribution to preventing dangerous climate change. Friends of the Earth Scotland believes that, in order to do this, there are a number of key amendments that need to be made to the Bill.

We are also a member of Stop Climate Chaos Scotland and agree with the contents of its response, in particular that the Climate Change (Scotland) Bill must:

1. Set out a framework that will achieve *at least* an 80% reduction in greenhouse gas emissions by 2050.
2. Establish in statute annual emission reductions of *at least* 3% year-on-year from the start, not just from 2020, compatible with a fair and safe cumulative budget identified by the advisory body (see 4).
3. Include emissions from all sectors in the framework and targets set out in the Bill, including those from international aviation and shipping, from the very start.

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4. Establish a Scottish advisory body, a Scottish Climate Change Commission, in the primary legislation to support delivery of the Bill when it is enacted.
5. Ensure that at least 80% of the effort to cut emissions takes place in Scotland.
6. Establish duties on all public bodies to reduce greenhouse gas emissions in line with the national target.
7. Set in place robust, transparent reporting measures so the Scottish Parliament is well informed on progress in meeting targets and Government is held to account on mitigation and adaptation.
8. Ensure that strong enforcement measures are set in place in statute.
9. Ensure Scotland counts all its emissions and reports on those produced by products and services we consume as well as emissions produced domestically.
10. Be explicit that sustainable development is core to the purpose and delivery of the statute in relation to mitigation and adaptation.

The following is provided to the Committee as additional evidence, reflecting Friends of the Earth Scotland's particular concerns and expertise.

OVERALL TARGETS

1. The Bill creates a statutory framework for greenhouse gas emissions reductions in Scotland by setting a 50% reduction target for 2030 and an 80% reduction target for 2050. What are your views on the 2050 target and a 2030 interim target proposed in the Bill?

Friends of the Earth Scotland welcomes the long-term reduction target of at least 80% by 2050. We do not regard this as an end-point, but as a critical milestone in progress towards a zero-carbon Scotland. The science of climate change continues to develop in ways that – on balance – imply tougher targets. Friends of the Earth Scotland therefore believe the Bill should both enable the potential to achieve 80% earlier (for which the annual targets procedures currently provide capacity) and provide enabling powers to stipulate greater effort by 2050, should the science so indicate.

Moreover, we would stress that with regards to averting dangerous climate change it is not just the percentage reduction target that matters, but also the total cumulative level of emissions that are released. A cumulative budget is one that takes account of the total level of emissions that we can emit between now and 2050. The lifespan of greenhouse gases in the atmosphere means that such cumulative budgets are best defined over multi-decade periods. The Tyndall centre has estimated UK cumulative budgets for the period 2000-2050 based on an equitable convergence of global budgets between countries¹.

To illustrate the significance of cumulative budgets, using one of the Governments own emissions reductions trajectory scenarios (Technical Note, scenario 1²) and attributing a Scottish share of a UK budget by population, our calculations suggest the 2050, 2030, and ongoing annual targets could all be met whilst still over-shooting a fair cumulative budget³ by 37% or 542mtCO₂e.

Meeting a fair cumulative budget for Scotland will be critically dependent on early emissions reductions before 2020 (see below). Early action is essential not only to ensure Scotland is making a fair contribution to the international cuts needed to avoid a two degree warming of global average temperatures, but also to maximise the potential benefits of low-carbon technologies to the Scottish economy.

Other countries and the EU have set interim targets for 2020 (which is also half-way between 1990 and 2050). We do not see any justification why Scotland should set its interim target later.

The interim target, as it stands, does little to ensure anything like a cumulative budget would be met. For these reasons, we believe **the interim target should be brought forward to 2020** in order to push early and significant emissions reductions that ensure we keep within our cumulative

budget. A 50% 2020 target, while ambitious, is achievable in Scotland. The UK has an 'intended' 42% target for 2020 (to which Scotland must contribute) and Scotland's unique renewables potential suggests we can go above this. An interim target of 50% by 2020 would go a long way towards making Scotland's legislation genuinely world-leading.

We also believe that a fair cumulative budget, should be considered alongside the 2050, and interim, targets that the Bill provides for, as a vital consideration on the annual targets set by Ministers – in other words, that the Bill should establish a duty on Ministers to set annual targets that are compatible with a fair and safe cumulative budget. We recognize that there are uncertainties in the methodologies to link particular emissions levels and consequent atmospheric concentrations of greenhouse gases to particular climate outcomes (temperature rises); and in the ways in which emissions budgets might be fairly allocated between countries. We therefore reiterate that ***the Bill should require the relevant advisory body to provide its advice on what would constitute a fair and safe cumulative budget for Scotland, through to 2050, so as to enable Ministers to take this factor into account when setting targets.***

2. The Bill requires that the Scottish Government sets annual targets, in secondary legislation, for Scottish emissions from 2010 to 2050. It is proposed that these annual targets will be set in batches, the first being for the years 2010 to 2022 inclusive. What are your views on the setting of batches from 2010 to 2022?

The need for early and significant emissions has been demonstrated both scientifically and environmentally⁴, as well as economically by the Stern review.⁵ In light of this, and as Stop Climate Chaos Scotland has argued, annual targets need to be set to at least 3% from 2010. Without this safeguard, the Bill runs the risk of back-loading effort, postponing action, and failing to ensure emissions are kept at a safe cumulative total.

Friends of the Earth Scotland does however support the setting of annual targets in multi-annual periods, with appropriate legal constraints established by the Bill, as this provides the flexibility through which to revise targets upwards in light of the latest science. ***The setting of annual targets in multi-year periods should therefore remain, so long as it is implemented alongside a requirement that annual emissions reductions be at least 3% from 2010 and a duty to ensure that the annual targets are compatible with the delivery of a fair and safe cumulative budget.***

However we fear that the periods proposed in the draft Bill have two flaws. First, the Bill proposes that the first batch of targets is set in June 2010 – half way through the first target year. This seems to build in an excuse for missing the first annual target (or, if not missing, for setting a weak target). Second, the 12-year period set for the first batch is too long to enable Ministers to respond swiftly to the latest science – notably that of the next major IPCC assessment, the fifth assessment report, expected in 2014⁶.

Friends of the Earth Scotland would advocate that subsequent to an initial one-year target for 2010, set as soon as possible, annual targets should be set covering periods of 4-5 years. They would however have to be set with regard to a fair cumulative budget. Ministers would therefore be able to set annual targets of their choosing so long as:

- each was above the basic 3% baseline; and
- each had regard to the cumulative budget as recommended by the advisory body
- each had regard to an interim target of 50% by 2020

This would have the advantage of ensuring business and other important sectors are aware of the scale of emissions required (at least 3% per annum), while Government would have the tools to adjust targets upwards if needed. We believe this appropriately bridges the gap between flexibility and certainty.

3. The Bill provides that from the year 2020, the annual emissions targets must be set so that each is at least 3% lower than the target for the previous year. Prior to 2020, the Scottish Government has indicated that it intends to set annual targets which build towards delivering emissions reductions of at least 3% each year. What are your views on this approach or any possible alternative approaches?

FOES believe failing to ensure cuts of at least 3% between now and 2019 runs counter to the purpose of the Bill in setting an effective framework to cut greenhouse gas emissions at a national level. It therefore also runs counter to ensuring Scotland plays its part in contributing to a global effort to prevent dangerous climate change.

A Bill that does not ensure emissions reductions of at least 3% from the start would fatally damage the claim that Scotland was leading on climate change. With the world waiting on a deal in Copenhagen, both developed and developing countries are looking to Scotland to see what can – and will - be done. Annual emissions reductions of at least 3% throughout would demonstrate this leadership; a Bill that only provided 3% per annum from 2020, and delayed significant action in the meantime, would not.

Rather than delaying serious action and relying on administrations from 2020, **annual targets of at least 3% should be on the face of the Bill from 2010**. This would have the benefit of providing the framework for the ‘easy wins’ - policies that pay for themselves over a short space of time – such as action around energy efficiency, to be implemented straight away. These have the added benefit of multiplying up into large savings against the cumulative budget if carried out promptly. Research from the OECD suggests significant action is perfectly achievable with cuts in energy use in the region of 10-15% over 2-3 years – both in the fields of energy and transport - being achieved in countries and regions such as Sweden, New Zealand, Brazil and California.⁷

We do not accept the argument that it will take up to a decade to reach the necessary sustained rate of emissions reduction, and do not see adequate reason to claim that significant cuts cannot be made promptly. The previous Scottish Executive introduced plans to contribute to a goal of Scotland cutting emissions in the period up to 2010 by 1mt-C more than a ‘Scottish share’⁸, and businesses have continued to develop and improve emissions saving technologies and techniques in response to UK and Scottish policy measures. We are not starting from a blank sheet, but from a position in which accelerated and widespread deployment of existing solutions – especially relating to efficiency - can be achieved rapidly with the necessary political will and relatively small additional expenditure⁹. Moreover Scottish Ministers enjoy wide-ranging executive powers, and have the opportunity to establish others in the present Bill, to be able to accelerate rates of emissions reduction. For instance powers to introduce road-user charging are available to Scottish Ministers, and could be implemented well before 2020.

We would also here like to comment on the criteria that Ministers will be expected to take into account when setting targets under the Scottish Climate Change Act.

In particular we are concerned that, among the long list of factors ministers have to take into account 4(4), all measures are given equal weight. We believe that science should be the overriding factor and primary driver in the setting of annual targets. This was the rationale behind the Bill’s introduction and should therefore be the rationale behind the annual targets set. As a result we believe the long title of the bill should make direct reference to the intention of the Bill in avoiding dangerous climate change.

Additionally, we have concerns about the process in which annual targets are set. While Ministers have to take advice from the advisory body before setting annual targets, that the Bill appears to envisage Ministers initially proposing targets on which the relevant body then comments (see section 22). In order to ensure that targets are science based and avoid political framing, we believe that **the process should re-ordered with the relevant body first providing advice, including recommendations on the appropriate targets, and Ministers then determining the**

statutory targets in the light of that advice. This is in line with the UK process where the UK Climate Change Committee suggests targets, and Ministers then respond with their decision.

NET SCOTTISH EMISSIONS ACCOUNT

4. The Bill introduces the concept of a “net Scottish emissions account” as a point of reference against which the target for reducing greenhouse gases can be measured. It is defined as the net Scottish emissions plus or minus any carbon units credited to or debited from the account. Any units purchased may be used to offset Scottish emissions. Any carbon units generated in Scotland and sold to customers outside Scotland, count as emissions made in Scotland. What are your views on the proposals in the Bill relating to the net Scottish emissions account, and should there be a limit on the number of carbon units which Scotland can purchase?

As stated in the policy memorandum, the main purpose of a climate change Bill should be to reduce Scottish emissions by 80% by 2050 (or, as FOES might phrase it, playing Scotland’s part in tackling climate change by keeping within a fair cumulative total of emissions). We recognise and welcome the aspirations expressed by Ministers to avoid the use of traded credits to fulfil their obligations¹⁰. We also acknowledge that the definition and creation of the net Scottish emissions account is probably necessary to account properly for the traded sector (those operations in Scotland able to buy and sell EU ETS credits). However we believe the Bill must introduce measures to ensure that domestic action predominates over the use of credits, or else risk not fulfilling its overriding objectives.

Friends of the Earth Scotland believes that the best way to implement Ministers’ welcome aspirations in this respect is to **set a ‘domestic effort target’ as part of the mechanics of delivering the Bill’s objectives**. A legislative cap or limit on the number of credits that can be bought by Scottish entities might be open to legal challenge by bodies in the traded sector. An effort target would not.

The Bill should establish such a target (defined in terms of the proportion of the total annual reduction achieved which has resulted from domestic effort), and require Ministers to report on it in tandem with reports on annual targets, and to present compensatory measures if it is breached (as with annual targets).

The domestic effort target should be set at a level which reinforces and buttresses the effects of the EU Emissions Trading Scheme (ETS). FoES suggests it should **begin at the level of 80%, and be progressively increased to reach 100% by 2040**. This follows the reasoning set out by the UK Climate Change Committee that, as 2050 approaches, no countries will have credits for sale, and all effort will need to be domestic. The Committee’s recent report stated that: ‘The majority of the 80% cut will in the long term need to be achieved via domestic action’¹¹

The purposes of such an approach are two-fold. First to ensure that the economic benefits of action to cut emissions are realised within the Scottish economy, and second to minimize the extent to which credits generated outside Europe - and legally allowed into the ETS, despite their questionable quality – are used by Scotland. Researchers at Stanford University recently estimated that as many as two thirds of projects paid for through the Clean Development Mechanism (CDM) would have happened anyway.¹² Moreover, there is a significant body of research identifying negative social impacts arising from projects designed to generate credits.¹³

The UK Climate Change Committee recommended a limit of 10% on the number of overseas credits the UK Government can buy directly.¹⁴ This is welcome advice, yet it pertains only to those domestic sectors not operating under the European emissions trading scheme (EU ETS). Given that the EU Climate package, agreed in December 2008, allows up to 50% of the traded sector’s emissions reductions to be met through the CDM,¹⁵ and given that the EU package is not of a

sufficiently ambitious trajectory (either of that required or that of the Scottish and UK Bills); FOES are calling for the ratio of effort to be substantially domestic across the whole Scottish economy.

In practice, if it seems likely that the target will be missed because businesses choose to buy more ETS credits, there are two routes open to the Scottish Government to rectify the problem. First, already identified as necessary for other reasons by the UK CCC¹⁶, are measures to buttress the ETS and stimulate the traded sector to do more domestically (such as an emissions performance standard for new power stations)¹⁷. This will reduce the extent to which the ETS sector purchases credits through the auctioning process or from other registered bodies in the ETS. Second, is to take opportunities to increase effort elsewhere in Scotland, outside of the traded sector, such that the overall balance meets the target.

While we acknowledge that additional emissions savings within the traded sector could be bought up in the form of credits by other European countries, domestic action would have significant benefits for Scotland and further afield. In particular it would:

- allow Scotland's unique renewables potential to be fully harnessed
- place Scotland at the forefront of the move to a low-carbon economy
- demonstrate leadership at both a European level – by demonstrating that significant cuts need to be made in all sectors of the economy by 2020; and internationally - given climate science dictates the developed world has to reduce its own emissions as well as fund green development in the South.

We believe this is not only desirable, it is also entirely possible within the parameters of the Scottish Climate Change Bill. The Bill already provides for the measurement of net Scottish emissions (not including credits) and the inclusion of credits in the net emissions account. It is therefore easy to present these figures as a ratio, which represent the share of domestic effort. This will allow Ministers to report on - and implement policies that ensure - the majority of Scottish emissions reductions are actually made in Scotland.

5. The Bill defines “Scottish emissions”, in relation to a greenhouse gas, as being emissions of that gas which are attributable to Scotland. The policy memorandum states that “Scottish emissions” are defined as being those greenhouse gases which are emitted in Scotland or which represent the Scottish share of emissions of gases from international aviation and international shipping. What are your views on this definition of Scottish emissions?

Friends of the Earth Scotland are concerned about three issues in relation to the definition of ‘Scottish emissions’.

Firstly, we are concerned that, as drafted, international aviation and shipping emissions are not actually included within the targets set by the Bill. Instead, the Bill makes provision for Ministers to include emissions from international aviation and shipping ‘by order’. This harms credibility and could delay practical action. Given the scale and rapid growth rates of emissions from international aviation and the sheer scale of emissions from international shipping, it is vital that these emissions are included in the annual and long-term reduction targets on the face of the Bill.

Aviation is the fastest growing source of greenhouse gas emissions in the UK. Globally, one in five flights departs from or arrives at a UK airport.¹⁸ In 2005 aviation accounted for 6.3 per cent of total UK CO₂ emissions.¹⁹ In Scotland the figure is 2.4%, and rapidly growing (at an average of almost 8% per year for the decade to 2006 and over 10% a year from 2004 to 2006)²⁰. However, due to the extra warming effects of non-CO₂ emissions released at high altitude, aviation's real contribution to climate change is probably closer to 15-20 per cent.²¹ The Tyndall Centre for Climate Change has predicted that unless government policy changes, CO₂ emissions from UK aviation will more than double by 2030 and treble by 2050.²² By 2050, aviation could be responsible for over 30 million tonnes of CO₂ a year, meaning that to deliver an 80 per cent reduction every other sector would have to reduce emissions to zero.²³

According to a recent UN report, international shipping accounts for an estimated 4.5 per cent of global GHG emissions.²⁴ This is more than double the amount previously reported by the International Maritime Organisation.²⁵ Projected growth rates mean that unless measures to reduce emissions are introduced, world shipping could see a 72 per cent increase in fuel consumption and consequent emissions between 2000 and 2020.²⁶

It is entirely practical to include these emissions from the outset. There is no need to wait until international agreement on apportioning emissions is reached, as states are currently required to report international aviation and shipping emissions as a 'memo item' under the terms of the Kyoto Protocol, and do so using internationally agreed International Panel on Climate Change (IPCC) guidelines.²⁷ The UK GHG inventory now uses the most accurate IPCC methodology to calculate international aviation emissions; however international shipping emissions are based solely on fuel bunker sales,²⁸ and therefore underestimated in the inventory as relatively little fuel is sold in the UK. In the long term a more robust methodology based on consumption should be sought to ensure that Scotland does not simply export emissions.

The Bill should include emissions from international aviation and shipping based on data from the recently available regionally disaggregated International Aviation and Shipping Emissions 1990-2006 GHG Inventory, but include provisions to allow for revised methodology to be sought and used. Failure to include emissions from international aviation and shipping from the outset of the implementation of the Bill – as inclusion by order risks – undermines the credibility of the entire framework.

It has been suggested by some that IAS emissions should not be included. Two contradictory reasons have been suggested – first that Scotland lacks the devolved powers to affect such emissions; and second that including such emissions would disadvantage the Scottish economy (presumably because of the delivery of effective measures to reduce air travel and shipping).

Neither argument is valid. Scotland can influence emissions through – for example - planning powers relating to airports or ports, and the surface travel links to them, and through public education and other measures, ranging from the promotion and marketing strategy of Visit Scotland, to government policy on travel by civil servants. In this respect international aviation is little different to energy generation and use, where key powers are reserved, yet others devolved – and no one has seriously suggested that we could tackle climate change without including energy sector emissions!

The idea that measures to reduce IAS emissions would harm the Scottish economy is based on a misconception that Scotland gains more from incoming visitors, than outgoing Scots spend elsewhere. The available comparative evidence suggests that the net balance of economic activity is strongly negative²⁹. Even though the currently weak pound might temporarily reduce this effect, the conclusion to be drawn is that further indiscriminate increases in air connectivity to Scotland would further damage our economy; and that measures to discourage non-essential aviation would clearly benefit the economy.

Secondly, Friends of the Earth Scotland believes it is vital to ensure that in reducing emissions from domestic sources, Scotland does not simply export its emissions. Therefore, ***we would like to see included in an alternate definition of Scottish emissions, calculated on the basis of Scottish consumption (adding emissions associated with imports, and subtracting those associated with exports)***. This would help demonstrate international leadership in establishing valuable foundations for future international climate negotiations, particularly with China, a country which is legitimately concerned about being expected to take full responsibility for emissions associated with products exported for consumption elsewhere (accounting for fully one third of China's total emissions according to recent reports)³⁰.

We agree that the Bill's targets should be defined according to production emissions, but that in addition, Scotland should develop and report on full annual consumption side accounts for GHG emissions. While consumption and production figures are relatively close at present, it seems plausible that this could change, especially as North Sea oil and gas activities decline and import trends continue. The development of consumption side accounts would ensure that we were promptly alerted to any future increase in 'exports' of emissions; and would help clarify how changes such as the closure of Ravenscraig genuinely affect emissions.

This would provide a massive step towards proper accountability for GHG emissions. In economic policy, national income is calculated both by production and consumption, and the difference is a critical check on the balance of trade. This is not considered a duplication of effort but a valuable tool in economic understanding, policy making and accountability.

Thirdly and finally, as noted above, we are concerned that despite the definition of 'Scottish emissions' the use of the 'Net Scottish emissions account' to measure progress against targets means that inadequate domestic emissions reductions may be hidden by increased use of credits. As proposed above, a domestic effort target should be incorporated into the Bill to avoid this risk.

SCOTTISH COMMITTEE ON CLIMATE CHANGE

6. The Scottish Government has indicated that initially it intends to seek independent, expert advice on climate change from the UK Committee on Climate Change. The Scottish Government states in the policy memorandum that if it determines that the UK Committee on Climate Change does not meet all the advice needed for Scotland, the Bill contains provisions which will allow the Scottish Government to establish a Scottish Committee on Climate Change or to designate an existing body to exercise these advisory functions. What are your views on the Scottish Government's approach to obtaining independent, expert advice on climate change?

Friends of the Earth Scotland supports the collective view of SCCS that the Scottish Government should establish a new Scottish Commission on Climate Change to advise it on emissions targets and budgets from the start. Constitutionally, politically, socially, economically and environmentally, Scotland's specific circumstances make it imperative that the Scottish Government be able to seek advice from and be held to account by an independent, arms length body.

The provision of effective independent advice is essential to the functioning of the Bill. In this evidence, under question 3, we have already raised concerns about the way advice is sought.

The Bill should therefore establish a Scottish Climate Change body with duties to advise Ministers, Parliament and as appropriate, any monitoring body or bodies appointed under the Act, on:

- the current scientific understanding of appropriate targets, and the distribution of effort to deliver them (including between sectors), carbon budgeting, policy options, reporting standards,
- the scale of Scotland's fair cumulative budget, and compatible annual targets (see previous answers regarding a cumulative budget)
- any tightening of the proposed domestic effort target;
- whether public bodies were effectively fulfilling duties imposed on them within the Bill

REPORTING DUTIES

7. The Bill places duties on the Scottish Government requiring that it reports 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 Bill sets out details of these reporting requirements. What are your views on these proposed reporting arrangements?

Friends of the Earth Scotland believes that stringent annual reporting to Parliament is an essential component of a strong Bill, and welcomes the reporting duties the Bill places on the Scottish Government. However, we share the collective view of SCCS that these can be further strengthened – in particular by making certain reporting duties under Part 3, section 30, subject to affirmative procedure. We also believe the reporting duties should include detail on key measures such as energy demand reduction, and parallel consumption side reporting (see answer to question 5 above).

We are also concerned that the effectiveness of the reporting regime may be hampered by delays in obtaining up-to-date information. However, as GHG emissions grow in significance to the economy we can expect enhanced investment in measuring and accounting for them. The Bill should provide for powers to tighten the deadlines for reporting in line with improved procedures in data gathering and provision. The relevant advisory body should be mandated to advise when such changes would be required.

DUTIES OF PUBLIC BODIES RELATING TO CLIMATE CHANGE

8. The Bill contains powers to allow the Scottish Government, by regulations, to impose duties on public bodies in relation to climate change, to issue guidance to those bodies relating to their climate change duties and to require that they report upon the discharge of those duties. What are your views on this proposal?

Friends of the Earth Scotland believes it is crucial that ***the basic provisions set out in Part 4 of the Bill relating duties on public bodies should be implemented from the start***. The IPCC's 4th assessment report demonstrates the need for early action – with their estimate that *global* emissions will need to start declining by 2016.³¹ The Turner Committee report is based on the same aspiration yet expects developing country emissions to continue to increase for some years: the reductions in developed countries such as Scotland therefore must be rapid and significant. In this context the wait and see approach that relies on 'hope' to ensure public bodies start delivering emissions reduction targets in line with the Bill is simply not sustainable. The unnecessary delays implied by using secondary powers and further consultation could seriously hamper the delivery of the Bill's aims. We strongly support a general duty on public bodies to reduce their emissions annually in line with the national targets and report on the progress made.

The mechanisms foreseen by the Bill to ensure delivery of any public duties are weak. We believe that the advisory body should be given a remit to refer a public body to the monitoring body for investigation of its compliance; and that a public body failing to comply must – like ministers – provide a report of the new and additional measures it plans to achieve compliance.

Further, we believe the Bill should provide enabling powers to establish more specific duties on public bodies, and in particular, like other SCCS bodies, we support amendment of the Bill to ensure that specific powers to establish financial incentives for public bodies - through the setting and (re)allocation of carbon budgets with commensurate financial transfers between public sector budgets - are available as an option for Ministers.

This would ensure that Ministers could adopt effective measures to ensure delivery of public duties. In this context we would refer to our recent joint report with Oxfam on models for a ***public sector climate fund*** which explores how such an approach might be implemented³². This proposes that the Bill divides up responsibility for all Scottish emissions between Government portfolios, local authorities and public bodies, and that Ministers establish a fund to create a mechanism for incentives and sanctions to reduce emissions. Government departments, local authorities and public bodies would be allocated an annual emissions allowance for the sectors for

which they are responsible: bodies emitting more than their allocated share would make a payment into the fund proportional to the extent to which they had exceeded their allowance; however, bodies could also bid into the fund for support to cut their emissions.

While ideally public bodies would meet their targets every year, any revenue raised from financial sanctions would provide an additional resource pool for public bodies to bid into for assistance in making further emissions cuts. Though the fund would require pump-priming from Government initially, the circular flow of incentives and sanctions could make the fund self-sustaining over time.

A Climate Fund could also be used to compensate the international community for the damage done by any failure to meet targets, proportional to the extent to which any allowances were exceeded. Any compensation paid would be in addition to existing overseas aid budgets and reserved for mitigation and adaptation measures in developing countries. This would help mainstream principles of 'climate compensation' within public policy and, at a time of crucial global climate talks, demonstrate genuine international leadership and solidarity for those worst affected by climate change.³³

In addition to implementing a general climate change duty on public bodies, and providing enabling powers to introduce others, such as a public sector climate fund mechanism, a list of specific duties for public bodies should be drafted in the event that public bodies do not meet their general duty. This could encompass measures such as the adoption and meeting of energy demand management and efficiency targets, a tightening fleet average emissions limit for public bodies' vehicle fleets, a limit on use of domestic aviation by public sector staff and a requirement to use procurement powers in ways which support emissions reductions. While prescriptive, and we would favour a general duty under which public bodies can choose their own emissions reductions policies, a list of specific duties could be used as back-up in the event that public bodies fail to meet their general duty.

ADAPTION

9. The Bill places a duty on the Scottish Government to produce a report for Scotland, setting out its objectives in relation to adaptation to climate change, proposals and policies for meeting them and the timescales within which they will be introduced. What are your views on this proposal?

Friends of the Earth Scotland **supports the collective view of SCCS** that while Ministers should be required to produce a report on their Adaptation Programme for Scotland, the Programme as detailed in the Bill will not be adequate to deal with Scotland's adaptation needs.

We also **endorse Scottish Environment Link's proposals** on adaptation, that the Scottish Government should produce a Scottish Adaptation Programme every three years including an assessment of the impacts of climate change on Scotland; Scottish Government adaptation objectives; proposals, policies and timescales for meeting these objectives; and key indicators to measure progress by. Scottish Ministers should be required to report annually to Parliament on its programme for adaptation. The Bill should ensure that Scottish Ministers are obliged to seek independent assessment of their progress on implementation of their adaptation programme at least every two years; and to report annually to Parliament on progress.

MUIRBURN

10. Muirburn is the act of controlled burning of vegetation on open semi-natural habitats such as muir (Scottish word for moor) or moorland, and includes the burning of plants such as gorse, heather and grass. The Bill contains an enabling power to allow the Scottish Government to vary the permitted times during which muirburn may be made where they

consider it necessary or expedient to do so in relation to climate change. What are your views on this proposal?

FoES endorses the Scottish Environment Link view on muirbun.

FORESTRY

11. The Bill will allow modification by order of the functions of the Forestry Commissioners to enable the Forestry Commission in Scotland to play a greater role in tackling climate change. The immediate intent of the Scottish Government is to take forward proposals relating to renewable energy development on the National Forest Estate and the release of capital from the National Forest Estate for woodland creation. What are your views on this proposal?

FoES supports the proposals for renewables joint ventures. We believe this would help with developments relating to biomass, small hydro-power and other renewables and is not controversial.

However, we do not believe that the other main proposal - to lease off a chunk of the forest estate for commercial logging, and use the financial returns to extend the forest area - has been properly evaluated. It appears to assume that the private sector can make the forests more profitable than Forestry Commission Scotland (FCS), and carries risks to the sustainable management of the estate. This might be the reason profit rates could be raised by such a transfer. It has not been made clear whether lessees would be bound by UK Woodland Assurance Standards standards, and it is also possible that they might be able to claim Scottish Rural Development Programme grants that the Forestry Commission Scotland can't. This would not only reduce the money available for environmental land management elsewhere, it would also mean the state was paying indirectly for the higher profit rate. Overall this appears an unnecessarily complex approach.

Secondly, and critically, the carbon saving claims for Scottish forestry at large are still poorly substantiated. We would be concerned that this approach would raise emissions in the short term (from commercial harvesting, and new planning on organic soils), and not deliver as large a sink as anticipated. We welcome additional appropriate woodland planting for all sorts of reasons (enhanced biodiversity, hydrology, recreation etc) but are concerned about the validity and accuracy of counting it against national carbon targets regardless of current Kyoto rules. The Carbon Accountability Project (hosted by FoES, see www.carbonconfidence.org.uk) is examining the quality of carbon claims for land use change in Scotland amongst its early projects. While, on balance, new Scottish forests would probably be a carbon sink, how great, how sustainably, and over what timescale are still too uncertain to reliably count towards our targets.

However, although new forests planted by a not-for-profit trust might be good for biodiversity and landscape, the large areas of leased forests would probably see harvesting and replanting of exotic conifers on a large scale. Private companies will not want to lease the most marginal upland forests, and if they are not allowed to lease forests of major recreation and biodiversity value; the replanting they undertake will be mainly in the broad swathes of mid-altitude forestry away from towns and cities.

Thirdly, we would question whether these arrangements are the most effective way of moving towards the desired outcomes. Putting FCS under a clear climate change or broader sustainability duty, may be a better way of ensuring the forest estate is managed to maximize climate change benefits. This could require them to take a number of actions which might include: requiring FCS to restore peat bogs where that is better for carbon management than planting trees; manage forests to produce construction grade timber to replace carbon intensive steel and concrete in construction; and, where appropriate, buy new land for afforestation.

In light of this ***we support LINK's view that the forestry leasing proposals should be withdrawn from the Climate Change Bill and analysed in their own right as part of a land use action plan.*** This would allow proper debate around the role of forestry and other measures related to land use change that would properly, and accountably, help reduce Scotland's net emissions; and ensure that there was no risk that other welcome measures within the Climate Change Bill were sidelined while the forestry proposals are used as a political football.

ENERGY EFFICIENCY

12. The Bill requires the Scottish Government to produce an action plan setting out current and proposed measures to improve the energy efficiency of buildings in Scotland, as well as measures to encourage behavioural change. What are your views on this proposal?

FOES support the proposals to produce an energy efficiency action plan for Scotland. Frustratingly, a plan or strategy on this issue has been promised since 2004 and is yet to be delivered. Within the Bill there is little detail on what this plan may entail, although the policy memorandum contains more information. Given the massive potential for both carbon and monetary savings from energy efficiency, this action plan must be of the strongest and most comprehensive nature. In particular, ***the Bill must require Ministers to establish targets for energy conservation and energy efficiency in Scotland as a whole, and for those sectors with the highest gross energy consumption and greatest intensity of energy use.*** The targets and plans must include use of energy for transport and heat, and not just electricity. ***The plans must provide specific and separate measures for energy efficiency in both existing and new buildings.*** FoES believes that such plans should ideally be rooted in a statutory energy hierarchy which sets targets for demand management, energy efficiency, renewable and decentralized energy. Progress against such targets should be reported as part of the Bill's annual reporting provisions.

The Bill should also require Ministers to establish measures to require local authorities and other public bodies to establish enforceable energy demand reduction targets, and to adopt plans for their delivery.

While recognizing that the Bill broadens the scope of an efficiency action plan beyond that required by section 179 of the Housing (Scotland) Act, we are concerned that the Government intends to repeal section 179 of the Housing (Scotland) Act. This requires a strategy for improving the energy efficiency of living accommodation. The Scottish Government's proposals, in the present Bill, are weaker, given that section 48 of the Bill merely requires ministers to 'prepare and publish a plan for the promotion of energy efficiency in Scotland'. From our point of view, this wording is neither as ambitious nor as prescriptive as that in the Housing Act. Our preferred solution is for a wording which meets the higher ambitions of 'improve' applied across the breadth of sectors foreseen in the present Bill.

We are also concerned that microgeneration is not included in the provisions of this section (apparently because of legal advice³⁴) despite the Bill defining energy efficiency broadly to include 'the use of technologies reliant on renewable sources of energy' (Section 48 (8) (a)).

Microgeneration should be included, and specific provisions made to require that Ministers issue or revise planning guidance so as to facilitate the installation of microgeneration technologies, and in particular to require a minimum contribution to building energy demand from microgeneration in all new construction. This would help establish a firm market for Scottish manufacture and installation of microgeneration technologies.

This section of the Bill is also the appropriate place to resolve an outstanding shortcoming of Scottish law in respect of the promotion of energy efficiency and microgeneration. Where English and Welsh local authorities can offer a one-off discount or rebate from council tax to households

installing efficiency or microgeneration, there are no similar enabling provisions in Scotland. Given the SNP has postponed any attempt to reform the local taxation system it is no longer appropriate to wait for such a reform bill to introduce such powers. **The Bill should therefore contain enabling provisions to provide rebates from council tax to households installing efficiency or microgeneration.** Similar provision is merited for business rates for small businesses.

13. The Bill confers powers on the Scottish Ministers to make regulations providing for the assessment of (a) the energy performance of non-domestic buildings; and (b) emissions of greenhouse gases produced or associated with such buildings. The provisions are enabling in nature and the Policy Memorandum provides further information on the Scottish Government's thinking in this area. What are your views on this approach?

While FOES welcomes proposals to make regulations for the assessment of the energy performance of non-domestic buildings **we would like to see these enabling powers extended to domestic buildings; and powers provided to compel building owners to adopt all recommendations included in a performance certificate within a specified period, or at a minimum, before resale or leasing of the property.**

We advocate provision for an enhanced system of building labeling, linked to funding for upgrading to improve standards, which ensures that progressively it becomes impossible to sell or rent a substandard building, with the benchmark to be achieved progressively rising over time.³⁵

Within the proposals discussed in the policy memorandum, there is a wide range of scenarios proposed. Extended across all buildings, Friends of the Earth Scotland would support measures that extend the scope of Energy Performance Certificates (EPCs) to take account of operational ratings. We would also support measures that require owners to formulate cost-effective action plans relating to their enhanced EPCs and ensure compulsory uptake of recommendations over time. Without both these measures, applied across domestic and non-domestic buildings, the proposals suggested fall short of delivering rapid and substantial contributions to climate targets.

14. The Bill places a duty on the Scottish Government to take such steps as it consider appropriate to promote the use of heat from renewable sources. The Scottish Government has **indicated this provision will enable it to introduce measures it deems appropriate to incentivise the production of heat from renewable sources. What are your views on this proposal?**

We welcome the recognition that heat is a major issue in Scottish emissions. Around half of all primary energy use in Scotland is for heat. We support measures to reduce heat waste, such as combined heat and power and district heating, to improve the efficiency of heat use, and to produce heat from renewable and sustainable sources. We are concerned that – perhaps because of uncertainties in the UK regime for heat – the Bill only includes some very vague and general enabling powers. **We would support the inclusion of heat in the demand management, efficiency and microgeneration action plans, with explicit targets.**

However we are particularly concerned at the implications of the exclusion of all waste materials from the definition of fossil fuels (in Section 48), which deviates from previous practice in thereby designating non-renewable waste materials such as plastic as a 'renewable source' for energy (or heat) generation. **Friends of the Earth Scotland strongly opposes excluding all waste materials from the definition of fossil fuels,** as it would result in increased greenhouse gas emissions from the replacement of waste materials used for energy. In fact even biomass wastes such as paper, card and wood are typically better recycled – in climate terms - than used as energy sources. However we would accept the inclusion of uncontaminated, fully segregated biomass wastes as a renewable resource, and encourage their use for heat generation where recycling is impractical.

The use of waste as a “renewable” fuel directly conflicts with the attempts to reduce CO2 emissions. Incinerator technologies typically emit almost a third more CO2 than coal fired power stations per unit of electricity produced. However we support promotion of anaerobic digestion as the preferred approach to generate energy from biodegradable wastes, as being the least harmful thermal technology to human health and climate change emissions.

WASTE REDUCTION AND RECYCLING

15. The Bill sets out measures aimed at improving waste and recycling. The Bill gives powers to the Scottish Government to make regulations in the following areas: Waste prevention and management plans; Waste data; Deposit of recyclable waste; Procurement of recycle; Reduction of packaging; Deposit and return schemes; Charges for carrier bags.

What are your views on these proposals?

Waste prevention has a critical role in delivering a zero waste Scotland, yet to date has received very limited focus. We welcome many of the proposals within the Bill as they should help move action up the waste hierarchy. We have previously provided detailed views in our response to the zero-waste consultation paper³⁶, and merely summarise those views here.

Friends of the Earth Scotland therefore ***supports the development and implementation of requirements for site waste management plans and the establishment of mechanisms to support enforcement.*** Where plans are not implemented, within reason, SEPA or relevant local authorities should be permitted to undertake remedial action and charge for it at a penalty rate. The regulations should empower the setting of reporting provisions and standards. The establishment of such a plan should be a requirement at the planning stage for new developments. Specific requirements should perhaps be designed for those sectors that generate waste in the largest volumes (mineral and mining; agricultural and construction).

With regards to waste data, if business is to manage waste it must measure it. In addition, improved data on waste arisings can better inform policy and infrastructure decisions which will improve recycling and waste prevention in the business and commercial sectors. ***A statutory duty on businesses to report on their waste arisings would support SEPA and Government in developing and implementing waste and resource policy aimed at achieving a zero waste Scotland.***

We would also ***support statutory targets on retailers for reducing packaging***, improved powers to enable the public to more readily challenge excess packaging and legislation to require that packaging materials are taken back by retailers for reuse/recycling. The regulations must be readily enforceable by SEPA. Civil penalties may be preferable, as long as such a regime is used to ensure that penalties reflect the retailer’s ability to pay, rather than to enable fixed penalties of limited deterrent effect.

Furthermore ***legislation should also specify the requirement to use recycled materials***, identify the extent of materials covered and enable a phased increase in the proportion of recycled material over time. In addition legislation should set out how these commitments are to be enforced. We are aware of voluntary approaches to stimulate specification of recycle in public procurement that WRAP have developed and support these being strengthened through legislation. Ensuring requirements for both public bodies and businesses to procure in this manner would help significantly increase the impact, and stimulate the supply chain. This would give considerable support for closing the zero waste “loop”, and ensuring demand for recycled material.

Regarding charges for carrier bags, countries that have implemented charges have delivered 70-90% reductions and voluntary measures no more than 25%. We remain convinced that ***the most effective way of cutting carrier bag usage would be through a plastic bag levy or ban, as***

has proved effective in Ireland. However, we would encourage powers to be drawn in broader terms to cover a full range of single-use, disposable products, of which plastic bags are perhaps the most obvious example.

There is also significant community support for reduction in use of single-use plastic bags. Friends of the Earth Scotland has seen this clearly demonstrated from our delivery of the CREW project, which included several plastic bag free community campaigns across the country.

GENERAL ISSUES

16. What are your views on the adequacy of the Scottish Government's consultation in advance of publishing the Bill?

Friends of the Earth Scotland are disappointed with the lack of effort the Scottish Government made to engage with communities and individuals around Scotland. This will probably hamper the Government in implementing the provisions of the Bill, and subsequent action plans which will require wider public engagement to deliver behaviour change, and to ensure support for the necessary major infrastructure developments in transport, and energy generation and transmission. In this respect we are gravely concerned that the similar lack of wide public engagement in the preparation of the National Planning Framework could hamper the delivery of projects important for climate protection in the future.

The delivery of the Bill's climate targets will depend on effective outreach and engagement backed by effective social marketing to ensure that there is broad support for restrictions on climate damaging 'anti-social' behaviour, in the same way as broad support for challenging health improvement restrictions (such as the ban on smoking in public places) was achieved.

It is telling that despite the limited outreach, over 20,000 people responded to the consultation, a response rate second only to that of the consultation on the Smoking Bill over which the Government made considerable effort to engage with the public.

In light of this high response rate – achieved largely on the back of work by NGOs including Friends of the Earth to inform and engage the public with the process – it is disappointing that the Government apparently chose to place a lower value on responses received from individuals using or adapting text provided by NGOs.

We also feel that the consultation document could have been clearer and consulted more on general principles, and on matters of public concern. We note in particular that there was no consultation question on the inclusion of international aviation and shipping emissions.

17. Do you have any views on the Strategic Environmental Assessment which was carried out by the Scottish Government out on the consultation proposals?

As is typical of SEA practice, it delivered limited quantified analysis of the benefits and impacts of the programme. While in this case it is difficult to envisage the Bill programme having a net negative environmental effect, FoES believes that SEA procedures should be tightened in this respect. Indeed it would be appropriate, in our view, for the Bill to amend the SEA Act to require quantification of any significant climate effects identified in SEA practice.

18. Does the Bill raise any equalities issues you would wish to highlight?

Climate change impacts upon the poorest hardest. Poverty increases people's exposure to the adverse effects of climate change, and poor communities are the most vulnerable, even though

they have minimal responsibility for creating the problem. Between 2000-2004 262 million people were affected by climate disasters annually. 98% of these were in the developing world.³⁷

Fundamentally the aims of the bill would reduce inequalities between Scotland and poorer developing countries, and benefits those disadvantaged groups already suffering from the impacts of climate change and sea-level rise. However the pursuit of climate targets could have unintended international consequences, such as those being seen at present with biofuels production increasing food scarcity and human rights abuses.

Within Scotland unintended consequences could foreseeably impact disproportionately on the elderly, or those with disabilities: if for example, measures to reduce domestic energy use led to increases in fuel costs faced by the fuel poor; or measures to reduce car use (such as road user or parking charges) failed to provide exemptions for those with disabilities. In addition, increases in flooding in Scotland could adversely affect our poorest communities, who are less able to pay for insurance and the costs associated with flood damage or displacement from their homes. The Bill may therefore need to make provision for appropriate compensation if such impacts arise, and should include a sustainability duty to ensure that the choice of measures to deliver the Bill's objectives minimises the risk of such consequences.

19. Do you have any comments on the impact of the Bill on sustainable development?

Global sustainable development must be an underpinning principle of the Bill. In light of this, FoES supports Stop Climate Chaos calls for sustainable development to be acknowledged in the long title of the Bill. It should be noted that this has a precedence given the Flood Risk (Scotland) Management Bill is set to be amended to include 'a more specific reference to sustainability in the Bill's long title'.³⁸

SCCS further believes that the Climate Change (Scotland) Bill should place a duty on the Scottish Government to ensure that any mitigation and adaptation efforts contribute to the furthering of sustainable development and ensure the avoidance of negative social and environmental impacts; either within Scotland or in the developing world. Such a duty would help ensure that the massive potential of the Bill to contribute to sustainable development could be realised.

20. Do you have any other comments on the Bill?

Friends of the Earth Scotland is keen to ensure that the provisions in the Bill are implemented effectively. We propose that, as in England and Wales, the courts be given a role. Ideally the courts should be given an effective preventative role – an opportunity to use their powers to quash Ministerial decisions on issues such as future targets or budgets, or projects or programmes that were likely to lead to breaches of the targets. In doing so, the courts would have to be able to consider the merits of the matter, and in particular the relevant advice of the relevant Advisory Body. It would also be critical that access to the court was timely and affordable. Unfortunately, these three criteria, despite being established by the Aarhus Convention, are not met in Scotland at present.

Even judicial review is less easily accessible than in England and Wales where the courts have accepted the principle of 'protective costs orders' where such actions are taken in the public interest by voluntary organisations. These provide a guarantee that the threat of a punitive costs award cannot deter a legitimate action to seek judicial review. In Scotland new provisions are needed to ensure that affordable and merits-based access to justice is available in cases relating to the Bill's objectives. This would ensure that public interest groups could seek a court ruling if Ministers were failing to comply with their duties under the Bill. Such provisions may not require primary legislation, but we would expect Ministers to commit to ensuring that the necessary provisions are brought forward.

As noted above, in our answer to question eight, FoES also supports provisions for effective financial incentives and disincentives.

Further, we believe that the discipline of Strategic Environmental Assessment for plans and programmes should be used to ensure effective scrutiny of the extent to which new plans and programmes are compatible with the Climate Bill's objectives. The Bill should require Ministers who are minded to approve a plan or programme for which the SEA has identified significant GHG emissions to seek advice from the relevant body on whether and how the plan or programme can be made compatible with relevant annual targets, and if such a plan or programme is then approved, the relevant Minister should be under a duty to explain to Parliament what measures will be taken to ensure compliance with annual targets.

Fossil fuel power stations and an emissions performance standard

The Turner Committee report recommended further consideration of an emissions performance standard (EPS) for fossil power generation, as a means to help stimulate carbon capture and storage. FoES acknowledges that direct legislative competence in this area is not devolved. However administrative devolved arrangements give Scottish Ministers the power to set guidance for consents on such power stations. We believe the Bill should include provisions mandating Ministers to use their powers to define guidance under section 36 of the Electricity Act 1989 to introduce an EPS by a certain deadline.

Ozone Depleting Substances

Recent research has revealed the significant amounts of potent greenhouse gases currently stored in insulation foam blown with hazardous ozone depleting substances - principally found in steel framed buildings. In the UK as a whole the stock is equivalent to some 3-4 million tons of CO₂ (and outweighs the volume of similar gases in refrigerators by 20:1). However, unlike waste refrigerators which are strictly controlled and the gases recovered, demolition wastes from these sources are not properly controlled. Consideration should be given to bringing these gases within the ambit of the climate change bill, to provide a solid base and incentive for proper controls.

Therefore Friends of the Earth Scotland's priorities for the Climate Change (Scotland) Bill and concluding comments on the Bill, are:

1. The SCCB is the most important piece of legislation to come before Holyrood so far, and is very welcome. As it sets a framework for four decades of action we believe it is essential to get it as good as possible now.
2. The **objective of the Bill** must be to play a fair role in preventing dangerous climate change (more than 2°C warming) by reducing Scotland's emissions in a sustainable manner.
3. The **2050 target** of at least 80% is in line with current scientific advice, but may well need to be further tightened or achieved earlier. The advisory body must be empowered to advise of when and whether long term targets should be tightened.
4. In setting **annual targets** Ministers should be subject to the 'minimum floor' of at least 3% per annum from the beginning (including the 2010-2019 period), and also required to be compatible with a **fair and safe cumulative budget** to be identified by the advisory body.
5. The **interim target** of at least 50% reductions should be met by 2020, not by 2030, to ensure early and rapid action in line with scientific advice, and deliver a fair and safe cumulative budget.
6. For reasons of equity and sustainable economic development, a target should be imposed that at least 80% of the effort to reduce emissions on an annual basis must occur within Scotland, with **international trading** minimised. **The net account** must therefore be

constrained to reflect this. It also needs parallel **consumption accounting** to ensure that Scottish emissions are not reduced by off-shoring economic activity.

7. **International aviation and shipping** emissions should be included in Scotland's account from the outset using existing Kyoto reporting methodologies, with powers to amend the methodology in line with international practice.
8. The Bill should include the necessary enabling powers to provide effective **financial incentives** for delivery (such as a public sector climate fund) and provide clarity that **access to the courts** to ensure justiciability over targets and their delivery will follow the principles of the Aarhus Convention.
9. A **duty on public bodies**, to reduce emissions in line with national targets, and report appropriately, should be imposed and resourced from the outset. The Bill must ensure it is enforceable; and establish powers to amend it, or specify more detailed duties to help deliver targets.
10. **Energy efficiency** measures should be placed within a statutory energy hierarchy which promotes sustainable energy management and supply, and the objectives of the action plan should be in line with those in the Housing (Scotland) Act – to 'improve' efficiency, not just 'promote' it. The powers to regulate **building improvements** should be extended to all buildings, and include powers to require all identified recommendations to improve operational ratings.
11. The Bill should include a requirement to take such steps as necessary to deliver sustainable supply of **renewable heat**. The definition of renewables should exclude mass-burn incineration technologies, and prioritise heat management, efficiency and biogas from anaerobic digestion, in line with an energy hierarchy.
12. The waste management measures included in the Bill are all welcome, but fall short of a comprehensive approach to **zero waste** which would prioritise waste reduction, and seek to phase out incineration, and minimise energy-from-waste in preference to reuse and recycling which save more energy.
13. The proposals for joint venturing by the **forestry** commission are welcome, but those on leasing the estate are of questionable value. Measures to maximise climate benefits from forestry and upland land-use should be addressed in an integrated manner in a land-use strategy for Scotland. The Bill could usefully require Ministers to bring forward such a strategy, compatible with the CCB targets.

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- 1 Living within a carbon budget' (2006), available for download at:
http://www.tyndall.ac.uk/publications/briefing_notes/Livingwithacarbonbudget.pdf
 - 2 Available for download at: <http://www.scottish.parliament.uk/s3/committees/ticc/inquiries/documents/ScottishClimateChangeBill-technicalnote.pdf>
 - 3 The Tyndall Centre has identified a safe carbon budget for the UK of 4.6 Gigatonnes of Carbon Equivalent (Gt-Ceq) – equal to 16.9 Gigatonnes Carbon Dioxide equivalent - between now and 2050 (Bows et al, 'Living within a carbon budget', 2006). Crudely extracting this to a Scottish context, suggests a Scottish budget of 0.4 Gt-Ceq – or 1.47 Gt-CO₂eq
 - 4 Intergovernmental Panel on Climate Change (2007), Fourth Assessment Report, online at: www.ipcc.ch/ipccreports/ar4-syr.htm
 - 5 Stern Review, online at: http://www.hm-treasury.gov.uk/sternreview_index.htm
 - 6 See: <http://www.ipcc.ch/>
 - 7 OECD and AEI joint reports, 'Saving Electricity in a Hurry', available for download at:
http://www.iea.org/Textbase/publications/free_new_Desc.asp?PUBS_ID=1481, and 'Saving Oil in a Hurry', available for download at:
<http://www.scribd.com/doc/6494790/Saving-Oil-in-a-Hurry-by-International-Energy-Agency>
 - 8 Page 8, 'Changing our ways', Scotland's Climate Change Strategy (2006)
 - 9 See for example, McKinsey's report for the CBI 'Climate Change: Everyone's Business – options for greenhouse gas emissions reductions in the UK' (2007), online at: <http://www.cbi.org.uk/pdf/climatereport2007summary.pdf>
 - 10 In response to a question at the Scottish launch of the Committee on Climate Change's first report, the Cabinet Secretary for Finance and Sustainable Growth stated that the Government intention is to reduce domestic emissions in the first instance before considering the purchase of credits
 - 11 UK Climate Change Committee, inaugural Report, Inaugural report 'Building a low-carbon economy - the UK's contribution to tackling climate change', online at: <http://www.theccc.org.uk/reports/>
 - 12 Victor, D and Warra, M (2008),
A Realistic Policy on International Carbon Offsets, online at: http://iis-db.stanford.edu/pubs/22157/WP74_final_final.pdf.
 - 13 See for example Goush, S (2007) 'Aid, the Clean Development Mechanism and Some Open Questions',
 - 14 UK Climate Change Committee, inaugural Report, Inaugural report 'Building a low-carbon economy - the UK's contribution to tackling climate change', online at: <http://www.theccc.org.uk/reports/>
 - 15 WWF, unpublished briefing (December, 2008), The danger of "offset Europe"
 - 16 UK Climate Change Committee first report (2008), page 191-204, online at: <http://hmccc.s3.amazonaws.com/pdf/7980-TSO%20Book%20Chap%205.pdf>
 - 17 Ecofys (2009) 'Scenarios on the introduction of CO₂ emission performance standards for the EU power sector', online at:
http://www.ecofys.com/com/publications/reports_books.asp
 - 18 Bows, A. (2006). Produced in Cairns, S. and Newson, C. (2006). Predict and decide: Aviation, climate change and UK policy. Environmental Change Institute. University of Oxford
 - 19 Defra. (2007). Estimated emissions of carbon dioxide by IPCC source category, type of fuel and end user: 1970 – 2005.
 - 20 Thomas, 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
 - 21 The IPCC calculates that the extra warming effects of aviation amount to 2 to 4 times that of the forcing of its CO₂ emissions alone. See IPCC 1999, 'Aviation and the Global Atmosphere'
 - 22 Bows, A. (2006)
 - 23 Tyndall Centre, 2005, 'Decarbonising the UK: Energy for a Climate Conscious Future'
 - 24 According to a UN report leaked to the Guardian newspaper, international shipping accounts for 4.5% of global GHG emissions.
<http://www.guardian.co.uk/environment/2008/feb/13/climatechange.pollution>
 - 25 OECD Observer, 2007,
http://www.oecdobserver.org/news/fullstory.php/aid/2600/Sea_fairer:_Maritime_transport_and_CO2_emissions.html
 - 26 Marintek, 2000, report to the IMO 'Study of Greenhouse Gas Emissions from Ships'
 - 27 See IPCC Guidelines for International Greenhouse Gas Inventories <http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html>
 - 28 UK Greenhouse Gas Inventory, 1990 to 2006 report to UNFCCC April 2008

29 See: <http://www.dft.gov.uk/consultations/archive/2002/fd/scot/mc/chapter9otherkeypolicyissues1516>. Paragraph 9.1.17 notes annual tourism receipts from inbound passengers were £0.5bn in 2000, while the comparative figures for outbound expenditure by Scots travelling abroad was £0.7bn.

30 Oslo Centre for International Climate and Environmental Research report (February, 2009) online at:

http://www.cicero.uio.no/webnews/index_e.aspx?id=11095

31 Intergovernmental Panel on Climate Change (2007), Fourth Assessment Report, online at: www.ipcc.ch/ipccreports/ar4-syr.htm

32 Oxfam Scotland and Friends of the Earth Scotland's joint report, Shirra, K (November, 2008) 'Meeting Scotland's Climate Targets, Models to Incentivise Public Sector Action', available for download at <http://www.foe-scotland.org.uk/resources/publications/climatefund/>

33 For a more detailed briefing see Oxfam Scotland and Friends of the Earth Scotland's joint report, Shirra, K (November, 2008)

34 Cook, G (15 January, 2009), SPICe Briefing, 'Climate Change (Scotland) Bill'

35 Brenda Boardman, Environmental Change Institute, Oxford University. Report for the Co-operative bank and Friends of the Earth, Home Truths: a low carbon strategy to reduce UK housing emissions by 80% by 2050.

http://www.foe.co.uk/resource/reports/home_truths.pdf

36 Friends of the Earth Scotland. (2008b) Consultation on Potential Legislative Measures to Implement Zero Waste. Response by Friends of the Earth Scotland

37 UNDP 2007 World Development Report

38 Michael Russell, Scottish Government news release: <http://www.scotland.gov.uk/News/Releases/2009/01/22172356>