

# Scottish Climate Change Bill consultation: response from Macaulay Institute

## Targets

### 1. *Should a Scottish target be based on carbon dioxide only or the basket of six greenhouse gases?*

We believe that the Scottish target should be based on carbon dioxide equivalents, but should include all six greenhouse gases in the makeup of this target, although in practice, the major concerns are carbon dioxide, methane and nitrous oxide; the contribution of hydrofluorocarbons, perfluorocarbons and sulphur together being fairly minor. Additionally, CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O are highly relevant to land use and the Agriculture, Forestry and Other Land Use (AFOLU) sector. This would address the cost concern regarding individual targets for each GHG, and would allow substitution between the GHGs according to which emission reduction measures were the most economic. This may well mean that the main reductions are in CO<sub>2</sub>, but we do not agree that the target should be based on CO<sub>2</sub> alone, as this could potentially result in perverse behaviour whereby CO<sub>2</sub> targets are met, but emissions of the other GHGs increase. (A good example of this is the recent article by Crutzen et al. 2008 – N<sub>2</sub>O release from agro-biofuel production negates global warming reduction by replacing fossil fuels, *Atmos. Chem. Phys.* 8, 389-395) Nor do we accept the argument that a basket of greenhouse gases will place additional costs on the economy as compared to CO<sub>2</sub> only – there is no getting away from the fact that global warming is caused by emissions of all GHGs, and if that requires an adjustment to the economy, then that is what should be done. This is not to say, however, that there should not be a progression of measures taken, starting from the least expensive and moving towards the more expensive, regardless of the GHG involved. For this reason also, we do not believe that there should be a *pro-rata* application of the 80% reduction target across all sectors or spatially – in principle, reductions should be made progressively along the scale of increasing abatement cost, regardless of the sector or spatial location, although it is recognised that there are often difficulties in ascertaining the true cost of abatement if there are other co-benefits or disbenefits, and that in some cases there may be other considerations that need to be taken into account. However, these should be judged on a case-by-case basis.

### 2. *Should the Bill contain provisions to alter which gases are included, for example if the reliability of data for a particular gas improves or if science changes in the future about which gases cause climate change?*

As we believe that all currently known GHGs should be included in the target, we do not agree that there should be provisions made to remove these, regardless of their data reliability. However, as it is conceivable, albeit unlikely, that other GHGs might emerge – provision needs to be made to include these, if and when the science indicates they should be taken into account. This should only be done, however, under the direction of independent scientific advice (e.g. a new Scottish Committee on Climate Change – see Question 15 below).

### 3. *The Scottish Government wishes to ensure that the Bill gives sufficient incentives to invest in energy efficiency and renewable electricity. Should the targets be based on source emissions; an end-user inventory; or on individual targets for energy efficiency and renewable electricity? Do you have any other suggestions?*

Whilst it is acknowledged that the greenhouse gas inventories are the best source of point-data for GHG emissions, which are necessary for measuring each of the GHGs included in the target, we agree that the Bill should, where possible, provide incentives to reduce demand. The proposed end-user inventory allows for any resulting reductions in energy demand to be reflected in the target,

and we would support such an approach. However, greater clarity is needed to ensure that all emissions from imported products are counted at their place of origin. A Carbon Added Tax allocated to the production or distribution part of any product could fully account for carbon use and drive the market in the right direction. Achieving the necessary reductions in GHGs is likely to require not only investments in energy efficiency, but also large-scale programmes of reducing demand for energy. Moreover, such an inventory is wholly compatible with, and would reflect measures to increase the utilisation of renewable energy sources, from large to small scale schemes. Although it is clear that net energy demand can often be lowered by investing in energy efficiency measures (although this is not always the case, as noted in the draft Bill), the activities associated with energy demand often remain unchanged. There are some instances where large-scale investment in technologies (e.g. smart-meters) at the domestic scale would result in reductions in energy demand. Beyond this, it is increasingly acknowledged that behavioural change is central to the reduction of energy demand, and we would encourage the Scottish Government to give more weight to strategies which seek to both understand and attempt to alter individual behaviours in relation to both energy demand and climate change generally.

4. *Do you agree that the Bill should allow the means of measuring the target to be changed through secondary legislation to reflect international developments or unforeseen consequences of the Bill?*

As the ‘means of measuring’ the target are scientifically, and possibly economically, determined, we do not agree that these can be changed because of unforeseen consequences of the Bill or by international developments apart from improvements in the methodology of measurement. It is conceivable that targets themselves may have to be changed ‘to reflect international developments or unforeseen consequences of the Bill’, but not the ‘means of measurement’ of these targets. If the question is taken to mean whether adjustments to the balance of the basket GHGs should be permitted due to unforeseen circumstances, we believe that the CO<sub>2</sub>-equivalents approach in Question 1 above should allow this, provided the overall target is still maintained. Overall, we do believe that some flexibility should be allowed in relaxing emission targets, but this should only be done in extreme circumstances and only under the guidance of independent (and perhaps international) scientific advice. Examples may include prolonged global cooling, or the need to respond to global crises greater than those foreseen, such as potential food crises currently being projected. Under such circumstances, where scientific evidence of rising costs of climate change were compelling, we would see a strong case for adjusting targets upwards.

5. *Should the emissions reduction target take account of the abatement effort made by companies under emissions trading schemes? If so, how?*

Trading presumes transfers of credits, allowances, permits and quotas, all of which are to be linked directly to the reduction of emissions of GHG stipulated in the Kyoto Protocol. It is important here to distinguish between permit trading and credit trading, both of which have their characteristics. Credit trading occurs when the government mandates that emitters each reduce emissions by a certain amount. Firms that reduce emissions below the required level receive credits ready to be sold to firms that cannot meet their target. Permit (allowances) trading is where the authority sets an emissions quota and issues permits in that amount (or sells them at auction). This is a cap and trade scheme.

We see emissions trading schemes (ETS) as instruments that can be employed to reduce GHG emissions, and recognise their economic efficiency in that they allow emissions reductions to be made where they are least expensive according to the marginal costs of abatement. However, we do recognise the complexities of integrating national targets with an international trading scheme in which choice of actual emissions in the latter is devolved to the emitting installations rather than the Scottish Government. Rigorous studies are required to determine the best way to do this, but we believe that the allowances to emitting installations under the EU-ETS should be counted in the national target.

Even though Scottish installations may choose to emit more than these allowances, they must purchase permits (or credits) to do so, meaning that emission reductions will occur elsewhere in the world, with the net emissions being equal to the allowance. In the case where the national emission target share of an installation is below the EU-ETS allowance (as it is likely to be), then one approach may be to require Scottish installations to meet the gap between their national target commitments and their EU-ETS allowances either by investing in low-emission technologies, or by purchasing credits from within the EU-ETS. If either of these has the effect of making Scottish businesses uncompetitive or drives them or their production activities abroad, consideration could be given to subsidies to help them make the necessary investments or purchase these credits in the interests of achieving a public good. Another idea is that of a 'green tax system'; the costs of the target being balanced by a reduction of the amount of other taxes. The government would get additional resources from the sales of carbon credits (on the international market) while fewer resources from the 'traditional' tax system. Firms would have to pay more for carbon credits, while paying less for other taxes.

If allowances are to be auctioned in following years rather than allocated, we believe this will act in a positive way on helping to meet the national target. Again, if businesses opt to buy their way out of reducing emissions, the use of allowances rather than actual emissions will mean that national targets will still be met, even though, in essence, they are being met from outside Scotland. However, whatever mechanism is used, strict accounting at the EU level will be needed to ensure that such emission reductions are not double-counted. It is essential that the reduction in emissions in Scotland represents a real reduction in global emissions rather than leakage.

6. *Do you agree that international credits should be counted towards Scottish targets? Should there be limits on credits counted towards Scottish targets?*

Similar arguments put forward in Q5 are applicable to Q6. In principle, provided that purchase of international credits are from certified reductions (i.e. that they represent a real global reduction in emissions), we have no objection to international credits being counted towards Scottish targets, particularly if they are from Clean Development Mechanisms (or their successors post-2012) so that developing countries can also benefit. A Scottish company purchasing international credits from reduced GHG emissions elsewhere in the world is analogous to that company investing in lower emitting technology for itself to use in Scotland, with the key difference being that the reductions occur outside Scotland. However, again, an overriding principle should be that GHG reductions are not double-counted through being in different countries – there is the danger that the same GHG emissions might be counted towards the targets of both countries – and that Scottish emission reductions are not exported elsewhere in the world. There is also a risk with CDM that even if the low-carbon technologies deployed in developing countries represent a real-terms decrease in GHG emissions, people in those countries may then undertake GHG-emitting activities they didn't before (i.e. national leakage). CDM is thus only of benefit if it leads to the introduction of technologies replacing current or planned high-emitting activities. One idea might be for Scotland to 'twin' with one or more tropical countries, and devising joint strategies to achieve overall emission reductions for both partners, which could include, for example, mechanisms aimed at compensating such countries for avoided deforestation. The creation of terrestrial carbon credits is therefore considered important, as is the solving of problems how to bring them into an emission trading system. (e.g. high transaction costs associated with measuring, assessing and monitoring of carbon).

There is also the possibility, that in the short-term, Scottish companies may 'buy their way out of' having to make reductions, thereby not having to make any significant change in lifestyles or manufacturing methods in Scotland, so that the early reductions in emissions recommended by the Stern report are not made, and we are not in a position of having adopted low-carbon lifestyles by 2050. We believe, therefore, that there should be some limits to the amount of international credits included in the Scottish target.

Another way of looking at the target is simply that the Scottish Government seeks to reduce global emissions by an amount equivalent to 80% of Scotland's current emissions (i.e.  $1.7 \text{ MT C/yr} \times 0.8 = 1.36 \text{ MT C/yr}$ ), regardless of whether it occurs in Scotland or not. A significant challenge to this, however, is the double-counting already mentioned.

Although we recognise that the flexible instruments of the KP provide opportunities to cope with CC from the economic perspective, analysis suggests that it appears unlikely that both credit and permit (allowance) trading will occur on a large scale, internationally. This not because of a lack of interest from the involved parties, but primarily from a breakdown in necessary economic and market conditions, such as imperfect information and high transaction costs. Some countries have low capacity of social capital and institutions to develop serious markets for CO<sub>2</sub> trading, and this is also an obstacle to emissions trading at the international level. The realisation is also important that the KP addresses only a small proportion of potential global emissions and there is no effective penalty for non-compliance.

7. *Should the Bill allow the level of the 2050 target to be changed through secondary legislation? If so, should this only be allowed on the basis of independent, expert advice, to reflect international developments or unforeseen consequences of the Bill? Should any changes to the target be limited to an increase in the target?*

As many things can happen between now and 2050 (e.g. war, global cooling, increased warming), we believe that provision should be made for the target to be changed either up or down, but this should only be on the basis of independent, and perhaps international, scientific advice. There is some evidence to suggest that countries will likely have less incentive in the future to commit themselves to international agreements. This is due to undefined yet potential damages/losses from CC (mentioned under 1), and because of market/governance failures of many countries to meet their emission reduction targets, assured either by their unwillingness, or by inability to do it. Among major reasons for the failures is the proclivity of countries to rely primarily on administrative measures and on voluntary actions (common values & norms), which provide less opportunities to cope with CC from the economic perspective. Consequently, the costs of CC mitigation appear to be higher than they need to be, and these costs lower the efficiency of KP implementation, setting the stage for more difficult negotiations on emissions reduction, in the future.

## **Supporting framework**

8. *What factors should be taken into account when setting the level of budgets?*

It is important to evaluate costs (damages/losses vs. benefits) of the changing climate and use this knowledge to make the correct trade-offs between climate change (CC) mitigation and adaptation efforts. There are no doubts that CC mitigation strategies/measures are necessary to control GHG emissions. However, more (economic) analysis is needed in the future for the realisation of meaningful approaches/agreements on CC mitigation and to recommend the right balance between CC adaptation and mitigation measures. The optimal level of budget should be set theoretically by the extent to which early induced reductions address the problem more cost-effectively than later reductions. The budget should be such to stimulate early action. However, a demanding budget could have unduly adverse effects on particular sectors or areas. On balance given the desirability of market-driven solutions we see early pricing of carbon and effective trading mechanisms as necessary if demanding targets are to be set and met. The issue is not about setting demanding targets(budgets) but more about designing institutional apparatus to enable the adjustments in behaviour by firms and households in order to meet the target budget.

9. *How long should interim budget periods be?*

There is a strong case for maintaining symmetry with the UK bill, European schemes and Kyoto at five years.

10. *How many years in advance should emissions budget periods be set in order to provide sufficient time to develop infrastructure?*

There is a case for a reasonable length of advance warning, of say five years. However, there should be scope for adjusting budgets up or down depending on external circumstances. The case for so doing needs to be ratified by the Independent Climate Change Advisory Committee. The case for being able to adjust budgets means that there should be a target period, but then a mid-term review which allows adjustment upwards or downwards based on best scientific evidence.

11. *What should be the limit (in terms of absolute quantity or as a percentage of the budget period) on the amount of emissions which the Government can borrow from a following budget period?*

We recognize that there is year-to-year variation in GHG emissions due to factors over which the Government has no control (e.g. weather conditions requiring extra heating, etc.), and therefore support the principle of being able to carry over shortfalls in achieving interim reduction targets from one year to the next (or one time period to the next). However, we do not wish to see this becoming a mechanism for excusing continued shortfalls in target achievement, and would recommend that the amount of emissions that the Government can borrow from a following budget period be scientifically and rigorously determined from historical data, taking into account any other factors that might be relevant following independent scientific advice. We also recommend that there should be a binding obligation to ratchet up obligations to reduce emissions in the next period and that conscious plans should be developed in order to show how the catching-up can be achieved.

12. *Should the Bill include an interim point target? If so, what year (or years) should it be for (2020, 2025, 2030, etc.)? How should the level be chosen?*

We support the idea of an interim point target. The end-point of 2050 may seem a long way off and carry the temptation to put off action. An interim target of 40% reduction by 2020 would help focus the mind. This implies a linear 'attack'; this may not be the best model as early reductions are easier (in theory) and according to Stern better economically, but in the absence of a better theoretical background it would seem to be the simplest. It may be better to set interim point targets based on the five year budgets suggested earlier. This creates a more tangible engagement of industry, government and general public and enhanced awareness of GHG reduction needs.

## **Reporting scrutiny and framework**

*13. Should the Scottish Ministers be required to report on any other issues related to climate change in addition to the requirements already set out. If so, what and how often?*

Scottish Ministers should be required to take into account both increases and decreases in net *global* emissions which can reasonably be attributed to actions taken and decisions made in Scotland. First, the Scottish emission information should, unlike that currently published at UK level, take into account emissions from air and sea transport for all journeys beginning or ending in Scotland (half the total emissions for the journey in each case). Second, the transfer of particular activities, such as livestock rearing, either into or out of Scotland, will generally involve an increase of net emissions in one country, and a decrease in another. Both need to be accounted for. For example, methane emissions from Scotland could be greatly reduced by reducing sheep and cattle numbers; but clearly (aside from its other drawbacks), this would be almost certain to lead to a corresponding increase elsewhere.

*14. Is a process of Parliamentary scrutiny the appropriate way of holding the Scottish Government to account if targets or budgets are not met?*

In addition to Parliamentary scrutiny, scrutiny by a public body with as much independence as possible, and as tight a focus on climate change issues as possible, should be instituted. In order to achieve the necessary independence and focus, a new Scottish Committee on Climate Change should be set up. This should include experts on the causes and impacts of climate change, from Scotland and from a range of other countries, including specifically some of those likely to be more vulnerable to the effects of climate change than Scotland, over the next few decades. The SCCC should work closely with the proposed UK Committee on Climate Change, and some overlap in membership could be useful.

*15. What should be the primary source of advice to the Scottish Government for setting emissions targets or budgets and why? Options include: the proposed UK Committee on Climate Change, a new Scottish Committee on Climate Change, an existing public body in Scotland, or the Scottish Government itself.*

We believe that the Scottish situation is sufficiently different from the overall UK situation (e.g. low population density, greater renewables potential, greater contribution to GHG emissions from agriculture, forestry and other land uses, high proportion of organic soils) to justify the establishment of a new Scottish Committee on Climate Change, which would obviously report to the newly formed UK Committee on Climate Change. Moreover, as Scotland is only a small country, there are particular advantages in having a short chain of communication between scientists, policy-makers, and other stakeholders, which would be lost if there was only one overall UK Committee on Climate Change. This Committee should be independent of the Scottish Government, and should be able to provide advice, and also coordinate the monitoring (Question 17) and scrutinizing (Question 19) of the progress of the Scottish Government on reducing emissions. We also strongly believe that the data on performance should be within the public domain.

*16. If it were to be an existing Scottish public body, which public body is most suited to carrying out this task and why?*

As mentioned above (Question 15), we believe that a new Scottish Committee on Climate Change should be set up rather than an existing Scottish public body.

*17. Which organisation should be tasked with monitoring the progress of the Scottish Government on reducing emissions and why? Options include: the proposed UK Committee on Climate*

*Change, a new Scottish Committee on Climate Change, an existing public body in Scotland, or the Scottish Government itself.*

See answer to Question 15 above.

*18. If it were to be an existing Scottish public body, which public body is most suited to carrying out this task and why?*

Not applicable

*19. Should additional independent mechanisms for scrutinising the effectiveness of the Scottish Government's policies in reducing emissions be created by the Bill (in addition to any scrutiny already provided by the Scottish Parliament)?*

See answer to Question 15 above.

*20. If so, which organisation is best placed to carry out this function and why? Options include a new Scottish Committee on Climate Change or an existing public body in Scotland.*

See above

*21. If it were to be an existing Scottish public body, which public body is most suited to carrying out this task and why?*

Not applicable

*22. Are there any other functions related to climate change, existing or new, which should be carried out at arm's length from the Scottish Government and why?*

The SCCC should also be charged either with producing a detailed plan for achieving the reductions in net greenhouse gas emissions proposed by the Scottish Government, or with assessing such a plan produced under the aegis of the Scottish Government. Without such a plan, targets are insufficient, but to gain the widest possible credibility and support, it must be either produced or assessed independently.

## **Supporting measures**

23. *Should the Bill contain enabling powers to introduce a duty on certain parts of the public sector (i.e. local authorities and large public bodies) to take specified actions on climate change or other specified environmental issues? Why?*

The Bill should deal exclusively with climate change and not other environmental issues. There is a case for expecting leadership from Scottish public sector bodies. However, if the marginal cost of emissions reduction is greater in the public sector than elsewhere in the economy, it would be foolish to prescribe public sector reductions in GHG emissions at the same level as the national requirements. Nevertheless, leadership from public bodies should be expected. The Bill should obligate public bodies to produce GHG reduction plans, to disseminate information, to inform and educate their clientele, and to be transparent about how the particular organisation is addressing GHG emissions reduction (through carbon/GHG accounting and use of specific measures). We do not under-estimate the cultural transformation and enormous attitude shifts that will be needed to deliver the desired changes in GHG emissions. However, we are firmly of the opinion that there is still an enormous educational challenge to gain acceptance of the scale and potentially adverse impacts of anthropogenic climate change. Public sector bodies such as SEPA, SNH, and Councils must adopt an explicit educational role, which engenders better informed decision making by a range of private actors-whether households or firms. They will need to re-orientate their portfolio of activities to mainstream climate change and should be given a statutory responsibility to provide educational and advisory material to enhance GHG-reducing behaviours and actions.

24. *What should such a duty (or duties) include?*

See 23 above

25. *Should the Bill contain enabling powers to introduce statutory guidance for certain public sector bodies (i.e. local authorities and large public bodies) on specified climate change or other environmental measures? Why? Are there gaps in any existing guidance?*

See 23 above

26. *What should this guidance include?*

See 23 above

27. *Should the Bill contain enabling powers to create a requirement for certain public sector bodies (i.e. local authorities and large public bodies) to make regular reports on specific measures they are taking to tackle climate change (whether mitigation or adaptation) or other environmental issues? Why? What should be included in such reports?*

Yes, as indicated above. Councils and public bodies should be required to produce publicly available GHG audits and develop rolling five-year GHG reduction action plans, subject to biennial reporting on progress and subject to review in the event of under-/over-shoot.

28. *As a potential non-legislative measure, should current Best Value guidance be amended to take specific account of climate change mitigation and adaptation? If so, how should Best Value guidance be amended?*

All local authority actions, public sector actions and actions by business shaped by co-financing from the public sector should be GHG-proofed. Where new or replacement facilities were provided by the public sector or grant aided by the public sector (perhaps above a certain level) there should be an explicit obligation on the public body to show how GHG emissions have been minimised in or by that investment.

*29. Are there any amendments to existing legislation or any enabling powers needed to allow for variable charging (for example by local authorities) to incentivise action or eliminate perverse incentives?*

There is a case for enabling powers to be given to local authorities, for example in relation to variable pricing or grant aiding, to incentivise GHG emission reductions. To take a trivial example, the reduction of private car-borne access to schools in built up areas might be incentivised by 'walking buses'. These could be locally organised and be apart of wider schemes to engage local actors in GHG-reduction strategies. In road traffic planning multi-occupancy cars can be given access to bus lanes. Equally, local authorities could enable local food sector developments to reduce the GHG footprint of farming, either through market or social businesses.

*30. Are there any provisions to help Scotland adapt to the impacts of climate change which should be included in the Scottish Climate Change Bill?*

We question whether the current regulatory system favours sufficiently the development of GHG-reducing behaviour, either in the business or community sector. We feel that the scope for community engagement with, for example, community energy projects, is significantly impeded by the high transaction costs of overcoming regulatory hurdles and that instead developments by corporate bodies who can accommodate failures in their portfolio are more likely to be undertaken.

We regard the cultural ownership of the anthropogenic global warming by those that are the cause of the problem through their consumption behaviours to be essential, but for this to be enabled to operate community based activity needs to be nurtured by supportive legislation not impeded. Nonetheless, we fully recognise the need for good science to drive GHG reductions and would not wish the support of community power to over-ride compelling business or environmental reasons for not supporting particular schemes. We regard the development of an enabling environment in the planning system for community initiatives to produce green energy or reduce GHG footprints as an urgent need.

*31. Should provisions within the Environmental Assessment (Scotland) Act 2005, be amended in order to provide clearer links with emissions reduction? If so, how should this be done?*

*32. What are the equalities implications of the measures in the proposals for the Scottish Climate Change Bill?*

It is inconceivable that the reductions in GHG emissions can be achieved without pricing carbon or the wider use of economic instruments. Although poor people use less carbon than better off people, they use proportionately more of their income on heating. They may be too poor to afford effective insulation; they are more likely to live in rented accommodation; and they are more likely if resident in rural areas to depend on electricity for heating, which has a relatively high carbon footprint. Equally, those in the public sector may be well placed (as Aberdeen and Aberdeenshire councils have done in installing renewable energy plant in public housing and schools).

If a tax is put on carbon, there are also major implications for any sector that is more dependent on carbon consumption than another. Industries with high energy consumption (electricity production) or industries with high emissions (ruminant livestock production) and their employees would be adversely affected by carbon taxes. Equally remote rural households will be more adversely affected because of higher car dependence and greater travel needs to access services. Bridging support may need to be given to certain sectors, but equally there should normally be degressivity in support to incentivise GHG emission reductions.

*33. Is there any existing legislation within the competence of the Scottish Parliament (devolved) which needs to be amended so that appropriate action on climate change can be taken by sectors in society?*

We firmly believe that there needs to be a detailed overall land use strategy to address climate change that takes into account all mitigatory and adaptation responses and the spatial variability of these across the country. At the moment, there are a number of individual strategies (e.g. Agricultural Strategy, Forestry Strategy, Biomass Strategy, etc.), but there is little evidence of how these relate to each other, and whether they complement or compete with each other. Macaulay Institute has made a start on investigating the implications of various mitigation options (e.g. biomass crops, biofuels, small-scale hydro, future energy demand, etc.) for the tradeoffs and synergies between different ecosystem services (e.g. food, fibre, fuel, recreation, biodiversity, etc.), but this work needs to be taken much further.

It is very important to translate CC policy guidelines into sustainable development requirements, i.e. to go for “win-win solutions”, and avoid, where possible, measures which alleviate CC, but at too high costs for people and/or for the environment. The public should therefore be involved even more actively in CC policy-making and decision-taking. The research to identify and explain what CC policy measures are most acceptable & desirable for people has been initiated at MI to offer insights into the connection between Scottish CC policy and its integrated/sustainable rural development strategy.

*Compiled by Robin Matthews on behalf of the Climate Change Theme and others  
Macaulay Institute  
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