

WRITTEN SUBMISSION FROM FRED DINNING

Some reflections on issues arising from Questions 3, 4 and 5

Setting a target of an 80% reduction in Scotland's greenhouse gas emissions is sound in that it is based on solid peer reviewed science and is a goal that should certainly be pursued.

The establishment of interim targets and basing those on a 3% per annum reduction from 2020 is virtuous to the extent that it sends clear signals in advance to business, industry and the populace at large. Its appropriateness, however, depends on the control framework to be established – nationally and internationally.

Greenhouse gas emissions in Scotland split broadly equally between the domestic, the commercial and the industrial sector. Again roughly equally they arise from transport, heating and electricity production. The control framework for emissions must therefore address this broad range of activities and should aim to be responsive, economically efficient and enforceable in each of these areas. If the year on year targets are to be met reductions across will require to be closely co-ordinated.

Control measures may be based on behaviour change, direct regulation or market instruments. Behaviour change would be the most desirable route to follow – in that the populace would support it and it would require less detailed regulatory and policy intervention. However progress in securing such change has been slow and I therefore concentrate on regulation and markets – nonetheless any progress that can be made to reduce energy consumption by behavioural change will make the task easier.

Currently the framework for control is patchy and has different embedded carbon values e.g. the EUETS, the climate change levy and the Renewables Obligation each have a different embedded carbon values. Other sources such as heat have no carbon value. This is arguably inefficient policy making – and can lead to perverse price signals.

Government's record in designing complex policy instruments (and industries response) has been patchy. For example the Renewables Obligation has consistently undershot the targets resulting in sizeable 'buyout payments' being recycled to operators and the desired level of renewable energy not being secured even when prices are rising. Initial allocations under the EUETS were such that the carbon price in the first compliance period fell to near zero and many industries received what in effect were sizeable windfalls leading to a 'lobbying culture' in which promises of action are 'exchanged' for future permits (e.g. the operation of the New Entrant Reserve).

Stern, in his review of costs and options, indicated that the cost of making an 80% reduction was affordable and he presents therein details of the cost of savings for various measures. The review suggests that savings be made on the basis of cost alone, without technological or geographical restriction. This is also the underlying logic of emissions trading as envisioned by the Kyoto Protocol.

Emissions Trading as established by Kyoto also allowed as a principle the sharing of burden between signatories (JI) and credit for reductions made in non Annex 1 countries. Implicit in trading is that reductions be made where most cost effective and that technology transfer can be facilitated – in effecting smoothing out step by step achievements over time and amongst participants. Major emitters such as US, Australia, China and India are supportive of the principle of trading and there is a body of thinking that suggests that developing countries will not accept binding targets without some element of wealth and/or technology transfer – indeed a figure of 0.7% of developing country GDP has been mooted as an opening negotiating position. Scotland needs to consider in designing the detail of the Climate Change Bill that it will have to fit with likely future international frameworks – and hopefully will facilitate them.

The placing of limits on the use of carbon credits could therefore be argued to make it more difficult to secure international agreement on post Kyoto measures. It also will increase global compliance costs that in the absence of such trade would result in Stern's cost estimates to be low. Using a geographical basis rather than a cost basis for reductions could therefore be thought likely to be economically inefficient and a barrier to the agreement of flexible international agreement.

Placing strict non-tradable geographical limits is also likely to result in different carbon abatement costs in different regions. This in turn is likely to lead to industries moving to areas where targets are currently lighter or compliance costs cheaper e.g. iron and steel to countries with loose targets, aluminium and paper to areas with cheaper carbon free hydro power etc. The smoothing and flexibility impact of trading is in effect lost because of the need for short term stepwise compliance rather than a move to broader targets.

Direct regulation has been proposed by some commentators as an alternative means of ensuring that the 3% per annum targets can be met. However this would require robust legislation and regulators with extensive knowledge of industry costs, abatement options etc. (a much tighter regime than any of us have seen thus far). Emissions trading on the other hand is argued to be more likely to be certain in effect in that abatement costs will rise or fall, driving compliance measures. (Whereas regulation requires regulators to always get it right). In addition different regulatory standards, requiring products to be made by different processes in different countries (unless regulation could be harmonised globally) would have significant impacts on free trade.

Scotland is a small country with a comparatively small number of major emitters most of whom operate in open markets (electricity on a UK basis, whisky, paper and oil refining on an international basis). Plant size for many operators is large and often a measurable percentage of total Scottish emissions. Abatement measures are usually a step change – the changing of a method of firing, the closure of a plant or the fitting of carbon capture and storage. It would be a very significant task to ensure that these could mesh together (with transport and domestic heating) to result in something close to a 3% per annum target which is consistently met without sizeable over or undershoot - take as examples the closure of Torness, the opening of a new carbon capture ready coal fired power station (with capture actually fitted later) or a cessation of refining operations at Grangemouth.

In the absence of banking and borrowing or burden sharing, the setting of a 3% per annum reduction is therefore going to be very difficult to achieve by pure regulation. This is equally true of trading unless that is allowed to operate on an international (or at least EUETS wide) scale. These points suggest that because of the size of our country and the scale of major processes then setting a Scotland specific emissions budget is likely to be very limiting and economically inefficient in comparison to the flexibility and certainty of working within a tight international trading framework.

As noted above the great variety of policy measures designed to limit emissions, each having a different embedded carbon value is a barrier to economic efficiency. A control framework based on regulation would be likely to exacerbate this situation unless the regulator could second guess abatement costs and issue licenses accordingly. The logic behind emissions trading without international limits is that the market would discover a cost and abatement would take place wherever it is most cost effective (and this is Stern's assumption). If this were adopted, Scotland's emissions might rise, not fall and we might see a quite different range of technologies implemented (for instance Stern suggests abatement using nuclear power is much cheaper than many renewables). Economic purists would argue that this is how it should be – actions being driven by cost without devising complex regulation and a variety of technology support measures etc. This also would fit with the concept that over time all products and services, on a global basis should contain a carbon value – hence avoiding the need for continued Government intervention.

Turning briefly to the situation with regard to heat and to transport, some analysis of abatement possibilities also points to large step changes being common. Changes in emissions arising from heat production are likely to arise from a switch to Combined Heat and Power in industry (triggered by plant refurbishment) and by increases in gas price in the domestic sector. Securing a target of an 80% reduction will require heat and electricity to be produced in a largely carbon free fashion if some level of aviation use is to continue (as carbon free alternatives to aviation fuel are not currently regarded as feasible in the 2050 timescale).

Transport emission reductions too are likely to be driven largely by technology and that technology is likely to be driven by international policy – EU vehicle emission standards, the inclusion of aviation in the EUETS etc. and/or by major infrastructure projects such as rail electrification. This too points to it being difficult to see how Scotland as small country can meet fixed shorter term targets in a cost effective fashion.

In summary, then, setting fixed targets and restricting Scotland's emissions budget in terms of trade will result in the design of control frameworks becoming very difficult. It is quite arguable that with full flexibility Scotland could realistically set targets that are tougher still, going beyond the 80% currently proposed.

If the control approach is to be based on regulation then extensive legislation and policy instruments will be needed (many of which may not currently be possible in terms of devolution, EU legislation, GATT rules etc.). If an approach based on trading were to be adopted, then that would be highly distorted by these restrictions – and would result in different embedded carbon costs for Scottish produced goods and services. The more flexibility, the less the cost, the less the need for complex regulatory intervention, the more likelihood of compliance and the ability to set tighter targets still.

In conclusion, therefore, we need to think carefully about the kind of control frameworks we feel are preferable and the fit with international emission control mechanisms before finalising the approach – and that desired approach has to be embedded in the final wording of the Climate Change Bill.

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He is currently a Board member of the Scottish Environment Protection Agency, Chair of the Carbon Trust's Consultant Accreditation Panel and is Chair of the Advisory Group to the Energy Joint Research Partnership of the Edinburgh Research Partnership (a co-operation between Edinburgh, Heriot Watt and Napier Universities). He was also Convenor of the Church of Scotland Church and Society Council's sub group looking at energy/environment issues and sits on WWF Scotland's Advisory Council.

This response is made in a personal capacity reflecting his own experience and opinion and not those of any of the organisations listed above.