



ROYAL COMMISSION ON ENVIRONMENTAL POLLUTION

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From the Chairman
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Sir Nicholas Stern
Head of Stern Review
HM Treasury
1 Horse Guards Road
London SW1A 2HQ

Dear Nick

REVIEW OF ECONOMICS OF CLIMATE CHANGE

Thank you for spending time with me and my colleagues from the Royal Commission on 1st December. I was greatly encouraged by the approach you are taking, whilst recognising the enormity of your task! As I mentioned in my earlier letter, the Royal Commission would particularly like to comment on:

- a) The choice of long-term stabilisation targets;
- b) The nature of the post-Kyoto framework; and
- c) The use of cost-benefit analysis in climate change policy.

I would also like to raise two additional points regarding the need to take account of:

- d) Commercial benefits arising from taking action on climate change; and
- e) Rapidly rising emissions from sources outside the current Kyoto framework.

(a) Long-term stabilisation targets

We are pleased that the UK and other governments have adopted long-term targets for cutting greenhouse emissions and stabilising atmospheric concentrations. We believe this is very much the right approach, and that the UK's current set of targets, including the aim of cutting CO₂ by 60% by 2050, remains valid.

Science is showing us ever more clearly that there will be serious impacts as a result of climate change, and this has prompted some to argue for stabilising CO₂ levels below the current UK/EU goal of 550 ppm. Recent evidence suggests this may be right at the upper limit of the likely prudent level, and that climate change could cause catastrophic and irreversible impacts, which will very difficult to predict or prepare for.

However, we know of no threshold in the climate system below which levels are absolutely safe, and above which they are dangerous. For those who live on a low-lying island in the Indian Ocean, the climate change to which we are already committed is dangerous, demonstrating that safe and dangerous are relative terms, with strong moral, political and socio-economic components as well as scientific ones. In this context, we are unanimously convinced that, while adaptation to climate change to which we are already committed is now an unavoidable necessity, the main priority of climate change policy must be to prevent further climate change to the maximum extent possible.

Given the current uncertainties in models we cannot confidently unscramble the different dangers associated with 450, 550 or 650 ppm CO₂, although we know that each higher level will yield more problems from gradual climate change and increase the risk of dramatic and irreversible changes. However, the differences in emission scenarios over the next decade for the three CO₂ levels are not very great, and the crucial thing is to set a course for stabilisation now, otherwise all the targets will be unattainable. *Thus we believe that the 550 ppm CO₂ goal remains reasonable for now, being challenging yet attainable, and reducing the climate change impact far below business as usual levels. It could be kept under review to allow a move to a lower target if this becomes necessary.*

(b) The post-Kyoto framework

Our 22nd Report on Energy recommended adopting a contraction and convergence framework. This seemed to us to be the most equitable approach, and though it may be hard to achieve, equity should continue to be a guiding principle in the negotiations. We believe that contraction and convergence remains a good starting point, but in our opinion other robust means of achieving the same ends would also be acceptable.

(c) The use of cost-benefit analysis in climate policy

In the Royal Commission's view cost-benefit analysis (CBA) is not an appropriate method through which to seek to determine climate policy goals.

There are two main reasons for this, both of which have far-reaching ramifications. The first is that the knowledge about the future damages from climate change is currently incapable, and is never likely to be capable, of generating robust monetary estimates of the costs of climate change damage. We understand that the recent study by Defra of this issue has concluded that the range of uncertainty of these costs is at least three orders of magnitude, but that there is no certain upper limit to these costs, nor can a best estimate be derived. A number with these characteristics is of very little use to policy.

A second reason is the distribution of climate change damages. Most scientific analysis suggests that these will fall proportionately far more heavily on relatively poor countries, and relatively poor people within countries, whereas the damages themselves are mainly the result of energy use predominately by relatively rich countries and people. Moreover, the damages are likely to be severe and involve loss of life, family and livelihood for large numbers of poor people. CBA is not an appropriate means of assessing such distributional impacts, which have a strong ethical component. Insofar as CBA seeks to take them into account (through differentially weighting the impacts, for example), the weights themselves are ethically arbitrary (normally being derived from considerations of relative income), and in any case they are not normally used, so that CBA

tends to prioritise the protection of relatively rich people's lives and property, because valuation methodologies give them a higher value than those of poor people. The Royal Commission does not regard such a procedure, or outcome, as ethically defensible.

The CBA method also often does a poor job of evaluating benefits that are extremely important but cannot be easily monetarised (such as health and ecosystem impacts). In addition, the timescale over which climate change impacts will occur, from decades to millennia, is hard to reconcile with current discounting procedures. Yet even if such uncertainties were much reduced or eliminated, this framework is still not the right one within which to make these decisions, since it expresses human preferences purely through cost in a way that does not take account of the larger reality that there are critical environmental limits that must not be breached.

Rather, as in our Energy Report, we consider that policy needs to prevent dangerous anthropogenic climate change, in line with the main objective of the UN Framework Convention on Climate Change. *The emission reduction required to achieve this should be derived from the best available science, allied to judicious use of the precautionary principle.* Cost-benefit analysis can then be used to give some idea of the relative cost-effectiveness of different mitigation measures.

(d) Commercial benefits of tackling climate change

We are aware that there are different views on the cost of action, not least on different sides of the Atlantic. In Europe it is not uncommon to hear that tackling climate change could lead to new competitive strengths and industries, while in the US the potential costs of emission reduction are more often emphasised. It is our view that, rightly guided and stimulated by public policy, the costs of emission reduction need not be excessive, given the widespread existence of cost-effective reduction measures at current energy prices, and the potential of innovation and technical change cost-effectively to reduce emissions further in the future.

We believe there are likely to be many commercial opportunities in both adaptation and mitigation, and that there are clearly huge opportunities for those with the products and know-how to service a global market. Climate change action can also generate revenue through taxes that encourage appropriate behaviours and give rise to other benefits for air pollution, fuel poverty, congestion, etc.

In the short to medium-term, much can be done to tackle emissions through conventional technology (e.g. fuel efficient cars, sustainable buildings, clean coal), without relying on long-term, advanced technologies like hydrogen. That more has not been achieved before now means we need to examine carefully how technologies are embedded in society, and the way barriers operate throughout the system to lock us into high carbon use. The Carbon Trust and DTI have done work in this area and it will also be a theme of our current report on the Urban Environment.

(e) Rapidly rising emissions from sources outside the current Kyoto framework.

There are important sources of greenhouse gases that lie outside the Kyoto Protocol, including international aviation, international marine transport and climate-induced feedbacks from soils. Some of these are growing rapidly and could endanger the achievement of current goals as well as adding to uncertainty in climate policy. It would be useful to consider the extent to which

these can be quantified and brought into the framework of international agreements, and to assess the consequences of any failure to do so.

One thing we didn't talk about during our meeting, but which I have subsequently been thinking about, is whether the scale of the scientific investment into climate change and its consequences is adequate in the UK, and I wondered whether you were going to consider this issue? My own opinion, based on my experiences at NERC is that the investment is not adequate.

I would also like to draw your attention to the work of the Intergovernmental Panel on Climate Change (IPCC), whose working groups are currently producing early drafts for the IPCC's Fourth Assessment Report. This will contain much valuable information, and it is likely to be widely seen as a definitive statement on climate change when it is published in 2007. The chairs of the different working groups would be in a good position to comment on how your work and theirs could complement one another.

To conclude, I and the other Members of the Commission would be very happy to provide further assistance to the Review where we can. Our Secretariat will also send your team some additional references and contacts that you may find useful.

Yours sincerely

A handwritten signature in black ink, appearing to read 'John Lawton', with a horizontal line above it.

JOHN LAWTON