

Royal Society response to the UK Climate Change Bill consultation

This document is the response to the UK Climate Change Bill consultation published by Defra in March 2007. This submission has been approved on behalf of the Royal Society, by Professor David Read, the Vice-President and Biological Secretary. Our response covers a range of general issues and then addresses the consultation questions 1-2, 5-6, 11-17 and 19-20.

The Royal Society is the UK's independent national academy of science, promoting excellence in science, engineering and technology, both in the UK and internationally. The Society encourages public debate on key issues involving science, engineering and technology and the use of high quality scientific advice in policy-making.

1 Summary

The Royal Society is in principle very supportive of the Climate Change Bill in that it proposes a long term framework (incorporating legal targets for the reduction of carbon dioxide emissions (CO₂)) aimed at enabling the UK to address the issue of climate change at the domestic and international level. However, we believe that there is room for improvement in the Bill. We note the emphasis of the proposed framework is on the reduction of CO₂ emissions and recommend that this be extended to include the other greenhouse gases, aviation and shipping emissions. We recommend that the Bill identifies the overall goal that the 60% cut in emissions is aiming to achieve, such as the European Union Council target to limit global warming to a maximum of 2°C above pre-industrial, or aim to achieve a stabilisation level of between 450-550ppm CO₂ equivalents (CO₂e). Without this overall goal it is not possible to determine whether the 60% cut in emissions by 2050 is the appropriate target, nor determine the appropriate emission trajectory, nor set interim targets. We recommend that the Bill be expanded to include other measures in addition to emission reduction targets and strongly recommend that the Bill provides regulatory and policy measures designed to facilitate adaptation across all sectors in the UK. We strongly support the establishment of a Committee on Climate Change but advise that it has a primarily technical and scientific advisory role with appropriate membership to reflect this function. We suggest that an additional mechanism be proposed to meet any required consultative functions.

2 General Comments

- 1 The Royal Society is very supportive of the need for a long-term, coherent framework aimed at enabling the UK to address the issue of climate change at the domestic and international levels, and agree that the emphasis of the framework should, at this point in time, be on reducing greenhouse gas emissions.
- 2 It is unequivocal that climate change is happening and that it is a result of human activities. Climate change is global in scope and urgent political action is required if we are to reverse the increasing trend in greenhouse gas emissions and prepare for the impacts of climate change and ocean acidification. The proposed Bill is a step in the right direction. Its contribution to addressing the climate change problem

will be dependent on political will at the highest level and will require leadership beyond the climate change and energy policy portfolios.

- 3 To reflect the international context of the climate change issue and the need for urgency the Royal Society recommends that the Bill, and accompanying explanatory documentation, include reference to the target adopted at the 1996 European Council where it was agreed that the global average temperature increase should be limited to no more than 2°C above pre-industrial levels. In addition, we believe it is important that the Bill reflects the recent discussions in the IPCC Fourth Assessment Report and the Stern Report regarding what a 2°C would mean with respect to stabilisation concentration of greenhouse gases in the atmosphere.
- 4 The Royal Society would like to remind the UK government that climate change is a long term issue and one that will require action beyond 2050. For example, regulation of emissions, reduction of climate change impacts and long-term regulatory certainty for business will continue to be required. We recommend that the Bill acknowledges that the life-time of the framework is likely to extend beyond 2050 and that it contain provision for the development of goals and targets further into the future.
- 5 We support the proposal to put in statute emission reduction targets for 2020 and 2050. However, we are concerned that the targets are too weak and do not go far enough to deliver the significant cuts in emissions required if we are to avoid the dangerous impacts of climate change, particularly as non-CO₂ greenhouse gases, and aviation, shipping and land-use emissions are not included in the framework.
- 6 The Royal Society recognises that the achievement of the UK's climate change objectives will be dependent on a range of sectoral policies (eg energy, transport, building, and agriculture). A coherent and strategic framework is essential for delivering consistent policy and the Royal Society is concerned that the Climate Change Bill will deliver only part of that framework. As discussed in the recent IPCC working group 3 report on mitigation of climate change, a comprehensive, long term framework for action should also include activity focused towards innovation and adaptation. This Bill should provide strategic and regulatory direction for guiding activity in all three of these areas.
- 7 Furthermore, we are aware that the delivery of a large proportion of the emissions reductions targets are dependent on the contents of the Energy White paper, the UK Marine Bill, the Planning White Paper, and the implementation of the UK Waste Strategy. We are concerned that this creates unnecessary complexity and a confusing array of policies, and presents a risk that a range of diluted initiatives will be implemented that will fail to deliver the full scale of action required for mitigation and adaptation. To achieve the UK's climate objectives a simplified strategic framework is required to guide developments in all sectors relevant to climate change. We note also that some key sectors (eg agriculture and forestry) are not included in the framework at all currently and yet have the potential to contribute significantly to the reduction of greenhouse gas emissions (eg methane and nitrous oxide). We recommend additional specific measures be included in the Bill to address these missing sectors.
- 8 Related to 7 above, we recommend that the Bill be accompanied by a single policy document that details the mechanisms proposed to achieve the Bill's objectives. This should cover all of the sectors to be addressed by the Bill and should be updated as new mechanisms are implemented. Without this information it is very difficult to evaluate and review Government action on climate change.

- 9 We note that very little attention is given in the draft Bill to the issue of climate change adaptation. The Royal Society agrees that urgent action is required to reduce greenhouse gas emissions. Climate change impacts are inevitable so action to facilitate adaptation to reduce these impacts is essential. For example, adaptive water management, innovative building design and use of materials, and proactive land management will be important elements of a UK adaptation framework. The UK Government needs to send a strong message on the importance of adaptation. This should go beyond merely reporting progress and include specific legislation and policy measures designed to ensure action to enable adaptation.
- 10 Given that the UK cannot solve the global problem alone the UK government should be considering what else it can do to influence the behaviour of other nations to ensure that UK action is an integral component of a global plan of action.
- 11 Finally, we remind the UK government that in addition to causing climate change, CO₂ emissions are also responsible for ocean acidification. Ocean acidification is another compelling reason to reduce CO₂ emissions, as it could have significant impacts on global fisheries, particularly in coral reef areas, biological diversity, sustainable development and on the climate system itself (please see Royal Society, 2005, for further details). The Climate Change Bill should include reference to the ocean acidification problem, and must set emission reduction targets in this context. Other legislation and policy, for example the UK Marine Bill and fisheries legislation, will also be important so joined up policy across government is essential.

3 Responses to the Consultation Questions:

1 Is the government right to set unilaterally a long-term legal target for reducing CO₂ emissions through domestic and international action by 60% by 2050 and a further interim legal target for 2020 of 26-32%.

The Royal Society supports the setting of the 2050 and 2020 targets in statute. However, we are surprised that the Bill does not include an overall goal, either in the form of a temperature target or atmospheric greenhouse gas concentration, despite the 2°C target adopted by the European Council in 1996 and the recent discussions in the Stern report and IPCC Fourth Assessment working group reports. Setting a target for reducing the rate of emissions without defining its basis makes progress towards it difficult to review. As more evidence becomes available it is likely that the reduction target of 60% may prove to be inappropriate to achieve the necessary stabilisation level to limit global warming to 2°C above pre-industrial, particularly as it excludes aviation and shipping emissions (and other key sectoral emissions such as forestry and agriculture). Furthermore, the stabilisation level required to keep global temperatures below 2°C is more closely related to the cumulative emissions of greenhouse gases than the rate at which they are emitted at any one time. Excessive emissions early on will require much greater cuts in emissions over the following decades (see Question 19 for more details).

We therefore strongly recommend that the Bill refers to the need for stabilisation of atmospheric greenhouse gases concentrations and that the Bill's proposed targets be revised to reflect the UK Government's commitment to achieving the EU 2°C target, and to achieving an appropriate stabilisation goal, which is likely to be in the range of 450-550ppm CO₂e.

We recommend that work be undertaken to evaluate what the impacts of climate change will be for the UK if we achieve the 2°C target, and the targets revised accordingly.

While the Royal Society understands the difficulties involved in regulating aviation and shipping emissions internationally, we strongly believe that the Climate Change Bill should include emissions from these sectors. This could be achieved by taking an appropriate apportionment regime approach and would send a strong message to the public, the business community, and the international community that these sectors are an important part of the solution to climate change. Furthermore, by including shipping and aviation in the framework they will also be subject to the same reporting requirements as the other sectors which will be useful for improving understanding of their relative contribution to the climate change problem.

2 Is the Government right to keep under review the question of moving to a broader system of greenhouse gas targets and budgets, and to maintain the focus at this stage on CO₂?

In keeping with the international framework provided by Kyoto, and in consideration of the post-2012 context, we strongly believe that all greenhouse gases should be included within the Bill. While we agree that reducing CO₂ emissions should be the current focus, addressing the drivers of other greenhouse gas emissions will also be important in the long-term. We are concerned that by excluding the other gases from the Bill there is a risk that existing efforts to reduce emissions will lose their momentum, and that inappropriate decision making may result (for example, where tradeoffs between CO₂ and other gases are required). Furthermore, by including the full basket of gases in the framework emitters will have more flexibility in deciding what to emit.

5 Do you agree there should be a power to review targets through secondary legislation, to ensure there is sufficient flexibility in the system?

Yes, the Royal Society agrees with this proposal, however it is essential that the circumstances under which the review can be undertaken are clearly defined and that the group responsible for the review is comprised of appropriate scientific expertise (see our response to questions 15 and 16).

6 Are there any factors in addition to, or instead of, those already set out that should enable a review of targets and budgets?

According to the draft Bill the targets and budgets may be amended by the Secretary of State where there are any significant developments in scientific knowledge about climate change, or in international law or policy. To ensure this decision process is transparent we recommend that criteria be developed to determine when an amendment is required, and to determine the level of amendment required. For example the review process should be linked to the UNFCCC process. We recommend that the Secretary of State be required to consult with the Committee on Climate Change when reviewing the targets or budgets under these circumstances.

The Committee on Climate Change

11 Do you agree that establishing an independent body will improve the institutional framework for managing carbon in the economy?

Yes, we believe that an independent body is essential to the effective implementation of the framework. We support the scientific and technical advisory and analysis role proposed in the Bill. With such a remit it is essential that the Committee's membership be strongly weighted towards scientific and technical expertise.

We recommend also that the Committee is resourced, both in terms of staff and funding, sufficiently to ensure it can fulfil its required function. We note that under the existing proposal £2.0-2.25m will be allocated to meeting the costs of the Committee annually and question whether this will be adequate, particularly if new research or sub-committees are required.

12 Do you agree that the Committee on Climate Change should have an advisory function regarding the pathway to 2050?

Yes, the Royal Society believes the Committee should have an independent advisory function regarding strategies and goals for achieving the 2050 target.

We agree with the All Party Parliamentary Climate Change Group's recommendation that the role of the Committee should be to monitor, review and propose binding targets, to recommend measures to achieve year on year reductions in greenhouse-gas emissions, and to publish an annual progress report. We agree that the Committee could have a similar role (and similar powers) to that of the Bank of England's Monetary Policy Committee in terms of having an advisory role for proposing a long-term path for the price of carbon. This will be an important element for reaching the targets.

13 Do you agree with the proposal that the Committee on Climate Change should have a strongly analytical role?

Yes. We recommend that the Committee consider undertaking work to evaluate the different scenarios necessary for achieving the 2020 and 2050 targets. This analysis will be essential for assessing how feasible the emission reduction targets are, and for assessing the relative contribution the different sectors can play in achieving these targets.

14 Are these the right factors for the Committee on Climate Change to take into account in assessing the emission reduction pathway? Do you consider there are further factors that the Committee should take into account?

The Royal Society is concerned to see that environmental considerations are not mentioned as a factor for evaluation in setting the optimum abatement pathway. It is essential that when setting the emission reduction pathway the environmental impacts of climate change, and of measures taken to mitigate or adapt to climate change (including emission reduction strategies) are taken into account.

15 Do you agree the Committee should be comprised of technical experts rather than representatives of stakeholder groups?

The Royal Society believes it is extremely important that the expertise of the Committee reflects its role. As we have previously stated we believe the Committee should have an independent scientific and technical analytical and advisory function. Consequently we recommend that membership be composed of scientific and technical experts. This expertise may be drawn from different sectors but should be based on expertise rather than stakeholder representation.

It may be that the proposal for stakeholder representation on the Committee was intended to provide a consultative dimension to the role of the Committee. If this is the case then we believe that this can be done

most effectively with a separate consultative mechanism, not by the Committee itself (although it may wish to consider the results of any consultation). This should be addressed in the Bill.

16 Are these the appropriate areas of expertise which should be considered? Do you consider there are further areas that should be considered or any areas that are less important?

Ongoing input from the scientific community will be essential for guiding emissions policy and adaptation strategies.

As suggested by our response to question 15 we recommend that the Committee be weighted more heavily towards scientific and technical expertise. This may require that it be expanded to 12-18 members.

As currently proposed the range of expertise suggested lacks representation from the natural sciences. For example, climate science requires expertise in the physical, chemical and biological sciences if emissions, assessment of global and regional changes in climate, and impacts are to be adequately considered. Similarly, we were concerned to see that environmental impact expertise was not specified in the membership list and strongly recommend that this be included. We also recommend that geo-engineering expertise be included on the group as this is an area that will become increasingly important in the future.

We agree that expertise in technological development and diffusion will be important for considering adaptation and mitigation issues, but believe that the committee is currently too heavily weighted towards financial, business and competitiveness concerns and suggest that this representation be reduced.

17 Do you agree with the principle of taking enabling powers to introduce new trading schemes?

The Royal Society supports this proposal. We note also that the consultation document specifies a range of factors to be taken into consideration when deciding appropriate policies for controlling and pricing emissions. The Royal Society is concerned to see that environmental considerations are not mentioned here. When determining appropriate policies, the Government should also take account of environmental objectives, including the environmental costs and benefits of such policies.

19 Do you agree that the Committee on Climate Change should be responsible for an independent annual report on the UK's progress towards its targets which would incorporate reporting on a completed budget period every 5 years?

We support this proposal. We recommend that the annual report process reviews progress towards achieving the targets, and that this be placed in a global context of greenhouse gas emissions, climate impacts, and adaptation activity.

When advising the Government on the appropriate levels of carbon budgets, we recommend that the Committee be required to evaluate and take into account the sum of greenhouse gases emitted to date. The future budgetary period targets should be calculated depending on the quantity already emitted and the emission capacity remaining, if the 2°C or related stabilisation level for greenhouse gases goals are to be met. It is important to remember that the stabilisation level required to meet the 2°C is likely to be reached after 2050. Furthermore because of inertia in the climate system it maybe decades after a stabilisation level has been reached before it is known whether the 2°C goal has been achieved. We therefore recommend that the Bill acknowledge the life-time of the framework is likely to extend beyond 2050 and that it contain provision for the development of goals and targets further into the future.

To help maximise the UK's leadership role, we suggest also that the reports include examples of best practice collected to demonstrate where policies are resulted in success (and failure); for example for business competitiveness, decreased dependence on oil imports, biodiversity etc. This information would be useful for demonstrating the value of the policy to other countries.

20 Is statutory reporting the best way to drive forward progress on adaptation while at the same time ensuring Government is able to develop flexible and appropriate measures reflecting developments in key policy areas.

The Royal Society agrees that it is absolutely essential for adaptation to be included within the Bill. However, we are disappointed not to see proactive measures proposed on this aspect of climate change policy. We believe that if the Bill is to provide a long-term framework for addressing the climate change issue it must include regulatory and policy measures designed to facilitate adaptation across all sectors. We strongly recommend that the Bill is expanded to include such measures.

4 References

Royal Society (2005) Ocean Acidification due to increasing atmospheric carbon dioxide. Royal Society: London. Available online at: <http://www.royalsoc.ac.uk/document.asp?tip=0&id=3249>

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