

**The Environmental Audit Committee Climate Change – The UK
Programme 2006 inquiry**

Memorandum by The Royal Society of Chemistry

The Royal Society of Chemistry (RSC) welcomes the opportunity to comment on “The Environmental Audit Committee Climate Change – The UK Programme 2006” inquiry.

The RSC is the largest organisation in Europe for advancing the chemical sciences. Supported by a network of 43,000 members worldwide and an internationally acclaimed publishing business, our activities span education and training, conferences and science policy, and the promotion of the chemical sciences to the public.

This document represents the views of the RSC. The RSC’s Royal Charter obliges it to serve the public interest by acting in an independent advisory capacity, and the RSC is happy for this submission to be put into the public domain.

The document has been written from the perspective of the Royal Society of Chemistry and consequently our comments relate to only parts of the consultation document.

The evidence submitted was for the most part published in an RSC report¹ entitled “Chemical Science Priorities for Sustainable Energy Solutions”, the RSC responses to the DTI energy review², the EAC inquiry into Reducing Carbon Emissions from Transport², the S&T committee inquiry into carbon capture and storage² and the joint RSC and Bioscience Federation response to the EFRA inquiry into biofuels².

¹ www.rsc.org/Gateway/Subject/EnvEnergy/

² www.rsc.org/policy

The Prime Minister continues to identify climate change as “probably the greatest long-term challenge facing the human race”. Does the 2006 Climate Change Programme represent a realistic strategy to prepare the UK to meet this challenge?

The RSC is encouraged that the Government is committed to tackling climate change and supports a number of the measures that are proposed or in place internationally and domestically. In particular the RSC agrees that climate change is a long-term challenge and that measures and programmes must reflect this with clear and consistent long-term messages.

The RSC stated in our recent response to the DTI Energy Review³ that “*with sufficient support, the chemical sciences will be critical in developing clean energy technologies in the medium and the long-term. Technologies will include solar power, fuel cells, hydrogen as a fuel, safe nuclear waste management, carbon capture and storage, energy storage and energy efficient lighting. These technologies will reduce our reliance upon imported energy sources and reduce UK carbon emissions.*”

Energy policy must account for the full life-cycle implications of energy generation, including extraction, construction, transformation, transmission, usage and end-of-life. Only through a comprehensive and transparent process will the environmental impact be known and only then can energy options be compared on an equal basis. This will only be achieved with an intimate knowledge of the chemistry and thermodynamics of energy generation. This process will identify major opportunities for new chemistry such as methodology for highly efficient and low energy *in situ* extraction. The major challenge here is to develop life cycle assessment methodology that is globally accepted, robust and transparent.

Energy policy must also recognise the impacts of energy options upon air quality, human health and climate change. The “DEFRA Air Quality Expert Group report: Air quality and climate change: a UK perspective”⁴ is an important source of information here and should be recognised in future energy policy.

Internationally the RSC urges the UK Government to show leadership in developing long-term measures to tackle climate change. In particular it is vital that decisions on long-term future of the EU Emissions Trading Scheme (ETS) and the Clean Development Mechanism are made sooner rather than later in order to provide business with the confidence to invest in innovative commercial opportunities and technologies.

The UK should collaborate with other countries where there is a key opportunity to maximise the speed of technology development. Key technologies include:

- Natural gas

³ RSC response to DTI energy review – www.rsc.org/policy

⁴ <http://www.defra.gov.uk/corporate/consult/airqual-climatechange/index.htm>

- Nuclear power
- Renewable power
- Carbon capture and storage (CCS)
- Hydrogen as an energy source

In the **energy supply sector** the RSC is encouraged that the Government is committed to microgeneration technologies, carbon capture and storage, the Renewables Obligation and to the consideration of the role of CHP within the EU ETS. The RSC encourages the Government towards a long-term UK energy policy that promotes a diverse energy mix and avoids over reliance upon a single energy source.

In the **business sector** it is vital that energy policy is clear and should be applicable to businesses of all sizes and types so that there is significant buy-in across all sectors. Energy policy must include a mixture of incentives and regulation. Current energy policy has had a limited impact because it is confusing and complicated, it spans a number of Government departments and uses numerous policy tools that are sometimes contradictory. The “How to plug the energy gap” report⁵ recommends that a *permanent independent cross-party energy commission should be set up to manage the UK energy and emissions budget, set policy and represent the UK in global energy debate*. The RSC recommends that this suggestion be given serious consideration.

For the **transport sector** the RSC encourages the uptake of biofuels through the Renewable Transport Fuel Obligation. However, when considering biofuels it is important that they are produced efficiently otherwise the benefits of reduced carbon emissions can be eroded. A move towards vehicles with greater fuel efficiency through the use of lighter materials of construction, advanced fuel additives, increased engine efficiency, the use of advanced technologies such as hybrid vehicles and those with fuel cells should be encouraged both through support for technology development and through policy that offers incentives for using fuel efficient vehicles. Carbon emissions from air travel are expected to increase substantially in the medium term, and whilst technology can reduce the emissions per flight, it is much more important to reduce the overall number of flights.

The **domestic sector** offers a huge opportunity and a challenge for reducing carbon emissions. The RSC is encouraged that the Climate Change Programme includes measures for much needed energy efficiency improvements to domestic buildings and building regulations. Domestic energy efficiency measures can play a significant part in meeting UK carbon reduction targets. 40% of energy consumption is used to heat homes, and in turn, 30% of this energy is lost through windows. The RSC is concerned that the measures proposed do not adequately address energy efficiency in older buildings and that this is a missed opportunity. Smart coatings on glass and highly efficient insulation materials could dramatically reduce heat loss in buildings saving money and reducing carbon emissions. With sufficient

⁵ “How to plug the energy gap” - www.geolsoc.org.uk/template.cfm?name=PR60

support, scientists and engineers will continue to develop products and services that are energy efficient.

In the **public sector** the Government must show leadership and demonstrate significant carbon emission reduction in both its buildings and its vehicle fleet. Such a scheme would increase stakeholder confidence in carbon emission measures and provide valuable data on high impact programmes and technologies.

The RSC endorses the commitment to raising public awareness and encouraging **personal action**.

Does the Government need to do more, and if so what, to try to ensure that it meets the 20% reduction in carbon dioxide emissions by 2010?

The RSC believes that the only way to meet the 2010 target for reducing carbon dioxide by 20% is for the UK to become significantly more energy efficient. To ensure that carbon emissions are further reduced beyond 2010, significant UK investment in clean energy technologies such as renewables, carbon capture and storage and low emission vehicles is required now, alongside a continued commitment to energy efficiency.

The RSC is disappointed that the Government has admitted that the UK will fall short of the 20% reduction in carbon dioxide emissions target that was set in the 2003 Energy White Paper. The failure to meet this target is a missed opportunity to demonstrate world leadership in commitment to tackle climate change.

The RSC stated in our recent response to the DTI Energy Review⁶ that *“Technology will not provide a short-term solution to meet Government carbon emission reduction targets; reducing energy demand is the only way to achieve these targets. The critical sectors to concentrate upon are domestic living and transportation.”*

To what extent, if at all, will the outcome of the Energy Review affect the implementation of the Climate Change Programme?

The RSC hopes that the outcome of the energy review will promote a diverse energy mix and avoid over reliance upon a single energy source. The RSC also hopes that the energy review promotes a clear and co-ordinated energy policy and that the energy policy should:

- a. Be long-term;
- b. Not unfairly bias specific technologies but instead provide a level economic playing field for all clean energy technologies; and
- c. Perhaps best be made by an independent, cross-party energy commission rather than the Government of the day.

⁶ RSC response to DTI energy review – www.rsc.org/policy

A coordinated, long-term energy policy with a transparent framework of incentives and regulation will provide an environment in which businesses and people have the confidence to invest in new energy projects and infrastructure

The RSC hopes that a significant outcome of the energy review will be a reaffirmation of the Government's commitment to energy efficiency coupled with a vigorous programme of activities with challenging and realistic targets.