

**Department of Energy
& Climate Change**

3 Whitehall Place,
London SW1A 2HD
www.decc.gov.uk

3 June 2009

Mr John Simpson
request-11264-f399828f@whatdotheyknow.com

Our ref 09/0610

Dear Mr Simpson

Provision of requested information

Thank you for your request for information about future projections of UK and global temperatures, which we received on 5 May. Your request has been considered under the Environmental Information Regulations (EIR) 2004 because the information requested relates directly to future changes of the state of the elements of the environment as defined by EIR Regulation 2(a).

With respect to your request for future UK temperatures, following the creation of the Department of Energy and Climate Change (DECC) in October 2008, policy responsibility for projected UK temperatures remains with the Department for Environment Food & Rural Affairs (Defra), who you will need to approach to obtain this information. They can be contacted via their helpline 08459 33 55 77 or by e-mailing them at helpline@defra.gsi.gov.uk and specify that your request should be directed to the Adapting to Climate Change Unit (ACC) in Nobel House.

Regarding projections of future global temperatures, much of this information is already in the public domain. In the first instance, the basic information can be obtained by consulting the 2007 Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC). In particular, chapter 10 of the Working Group 1 contribution to the AR4 gives information relating mainly to unmitigated global greenhouse gas emissions scenarios (such as 'business as usual'), but it also has some information on the effects of mitigation policies i.e. the projected global temperature response to global emissions reductions. Chapter 3 of the Working Group 3 contribution to the AR4 gives more detail on the projected effects on global temperature, for a range of different levels of greenhouse gas emissions reductions. These reports are available online at the IPCC's website www.ipcc.ch.

However, the IPCC report only reviewed scientific research published up to mid 2006 and there has been some further work on future global temperatures since publication of that report. Accordingly, we refer you to two studies published recently in the journal Nature; the main study¹ discusses the amount of greenhouse gases that can be emitted between now and 2050 to give a reasonable chance of restricting future global warming to 2°C over pre-industrial. The

¹ Meinshausen, M, et al, April 2009, 'Greenhouse gas emission targets for limiting global warming to 2°C', Nature, doi: 10.1038/nature08017

companion study², undertaken mainly by UK scientists, also considers the effects of cumulative carbon emissions on global warming.

For your information we also attach an unpublished powerpoint presentation that DECC holds entitled 'Mitigation scenarios developed to inform Defra at COP13' which was originally prepared by two scientists from the Met Office Hadley Centre to inform the UK's contribution to the international climate negotiations that was held in Bali, Indonesia, in December 2007. The version attached is the one that was improved and updated in October 2008. This work provides assessments of the probability of exceeding future warming levels of 2°C and 3°C above pre-industrial for various greenhouse gas emissions projections.

You may be interested to know that DECC, in collaboration with Defra, is funding a major four year project (called AVOID) which includes further work on emissions trajectories that aim to limit future global temperature rises to a level that gives the best chance of avoiding dangerous climate change. One of the results of this project will be an improved assessment, compared to the attached powerpoint presentation, of the probabilities of exceeding specified future global temperature targets and is scheduled for completion in May 2012. However, following the project's completion in December 2012 all the results of this project will be published on DECC's public website as well as in hard copy form. As this is material still being worked on (or not yet started) with the aim of publication on completion we are entitled under EIR regulation 12.4(d) to temporarily withhold any interim information that we may hold.

You asked how accurate we consider these future temperature projections to be; as they are entirely the result of climate model simulations of future climate, these global temperature projections are inevitably subject to a degree of uncertainty and cannot be assessed for accuracy. However, scientists are confident that climate models do give credible projections of future climate change for the following reasons 1) they are based on fundamental physical principles, 2) they correctly reproduce the main features of the currently observed climate, 3) they correctly reproduce the 20th century global temperature history and 4) they have been successfully tested on past climates such as the one that prevailed at the last glacial maximum when conditions were very different from those at present. Also, modelling techniques enable probability assessments to be made for future temperature projections, which indicate the likelihood of their occurrence.

Finally, in response to your question on whether the department uses a specific forecast of temperature increases to help form policy, the department has to consider the full range of temperature projections and their implications, in line with the IPCC's recommendation that all future emissions scenarios should be considered equally likely, i.e. not weighted. However, we would point out that the Government's recent decision to aim for a greenhouse gas emissions reduction target of 80% below a 1990 baseline by 2050 was taken on the advice of the Committee on Climate Change (CCC)³, who in their analysis considered emissions trajectories that would result in the highest probability of limiting future warming to around 2°C over pre-industrial. The CCC's report is publicly available and can be read on the CCC's website at <http://www.theccc.org.uk/>.

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² Allen, M.R., et al, 2009, 'Warming caused by cumulative carbon emissions towards the trillionth tonne', Nature, doi: 10: 1038/nature08019.

³ The CCC is an independent body established by the Government under the terms of the Climate Change Act to advise on carbon reduction targets and to monitor progress towards achieving them.

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In keeping with the spirit and effect of the Environmental Information Regulations 2004, all information is assumed to be releasable to the public unless exempt. The information you requested may now be published on our website together with any related information that will provide a key to its wider context.

If you have any queries about this letter, please contact me. I also attach an annex giving contact details should you be unhappy with the services you have received.

Yours sincerely

Paul Munro
Climate and Energy: Science and Analysis
Email paul.munro@decc.gsi.gov.uk

Annex

Complaints

If you are unhappy with the service you have received in relation to your request you may make a complaint or appeal against our decision within 40 working days of the date of this letter. Please write to the responding officer who will then arrange with BERR's Information Rights Unit an internal review of your case.

If you are not content with the outcome of the internal review, you have the right to apply directly to the Information Commissioner for a decision. Please note that generally the Information Commissioner cannot make a decision unless you have first exhausted BERR's own complaints procedure. Contact details for The Information Commissioner are on their website at <http://www.ico.gov.uk/>.