



House of Commons
Science and Technology
Committee

**Communicating
climate science**

Eighth Report of Session 2013–14

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**Communicating
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Eighth Report of Session 2013–14

Report, together with formal minutes, oral and written evidence

Additional written evidence is contained in Volume II, available on the Committee website at www.parliament.uk/science

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Science and Technology Committee

The Science and Technology Committee is appointed by the House of Commons to examine the expenditure, administration and policy of the Government Office for Science and associated public bodies.

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The Reports of the Committee, the formal minutes relating to that report, oral evidence taken and some or all written evidence are available in printed volume(s). Additional written evidence may be published on the internet only.

Committee staff

The current staff of the Committee are: Dr Stephen McGinness (Clerk); Leoni Kurt (Second Clerk); Victoria Charlton (Committee Specialist); Dr Elena Ares (Committee Specialist); Dr Elizabeth Rough (Committee Specialist); Darren Hackett (Senior Committee Assistant); Julie Storey (Committee Assistant); and Nick Davies (Media Officer).

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Contents

Report	<i>Page</i>
Summary	3
1 Introduction	5
Our inquiry	6
2 Why is communication important?	9
Public concern about climate change	9
Public understanding of climate science	11
3 Communicating climate science	14
The media	14
Drivers for media coverage	15
False balance	16
Broadcasters	17
Newspapers	20
The Internet and social media	22
Government	24
Central Government	25
The Met Office	27
The Environment Agency	28
The Committee on Climate Change	28
Local Government	29
Scientists	30
The Royal Society	32
The interface of science and policy	33
4 Effective communication	36
An emotive issue	36
Risk and uncertainty	37
Engagement and dialogue	38
5 Conclusions	40
Conclusions and recommendations	41
Formal Minutes	44
Witnesses	45
List of printed written evidence	47
List of additional written evidence	47
List of Reports from the Committee during the current Parliament	49

Summary

Government policy on climate change has been consistent for many years based on a wide scientific consensus about the causes of climate change. The mandate for the Government to address the issue is apparent in polls showing that a significant majority of people in the UK think the climate is changing and that human activity is at least partly responsible for this. Most recent polls however have indicated a clear drop in the public support for climate change and therefore, if Government wishes to retain its mandate for action it needs to improve public understanding of the scientific basis for climate change policy.

The main source of information for the public on science (including climate change) is news media, specifically the BBC. Media reporting thrives on the new or controversial. We heard that it was difficult to justify news time maintaining coverage of climate science where basic facts are established and the central story remains the same. Reporting on climate therefore rarely spends any time reflecting on the large areas of scientific agreement and easily becomes, instead, a political discussion on disputes over minutiae of the science or the policy response to possible impacts of climate.

We found the role of the BBC, as the leading public service broadcaster, to be central to public understanding but were disappointed to find it lacked a clear understanding of the information needs of its audience with regards to climate science. We do not consider the ability of individual editors to determine the level of expertise of contributors to debates to be acceptable. Broadcasters need to develop clear editorial guidelines that ensure programmes present an accurate picture of the current state of the science. Commentators and presenters should be encouraged to challenge statements that stray too far from scientific fact.

We found little evidence of any significant co-ordination amongst Government, government agencies and bodies at national and local levels to communicate the science to the public, despite these bodies working to facilitate communities to mitigate and adapt to climate change. This may be due to the fact that the Government is not regarded as a primary, or even a reliable, source of information on climate science by the general public.

A lack of a clear, consistent messages on the science has a detrimental impact on the public's trust in climate science. The Government and other bodies, such as the Royal Society and the Met Office, are currently failing to make effective use of internet or social media to engage with the public and to become an authoritative source of accurate scientific information about climate change. The Government must work with the learned societies, national academies and other experts to develop a source of information on climate science that is discrete from policy delivery, comprehensible to the general public and responsive to both current developments and uncertainties in the science.

The Government's current approach to communicating conflates the scientific basis of climate change and the proposed solutions to its impacts and places a heavy reliance on individual scientists communicating about the science to justify the policy response. Efforts to create a clear narrative that is coherent, constructive and results in proper public engagement have been disappointing. As a matter of urgency, the Government needs to draw up a climate change communication strategy and implement this consistently across all Departments.

1 Introduction

1. The UK Climate Change Programme was put in place in 1994. Its aim was to return carbon emissions to 1990 levels by 2000. The previous Labour Government set an additional domestic target of reducing carbon dioxide emissions to 80% of 1990 levels by 2010.¹

2. The previous Government's announcement, in 2006, that it expected to fail to meet the 2010 target led to various non-governmental organisations (NGOs) campaigning for tougher targets and, eventually, the introduction of the Climate Change Bill in 2007.² The resulting Act of Parliament³ set the UK legally binding targets for reducing emissions by 80% by 2050 compared to 1990, an interim target of a 34% reduction by 2020, and an obligation for the Government to set five yearly carbon budgets.

3. The Climate Change Act⁴ also established the Committee on Climate Change, whose role is to examine, and report annually, on Government policies for meeting these budgets, provide advice on policies to Government, including advice on adaptation to a changing climate.

4. The Department of Energy and Climate Change (DECC), together with other departments, has a wide range of climate focussed policies aimed at achieving the emissions reductions it has committed to. These policies, together with actions and milestones, are set out in the UK Carbon Plan, which was published by DECC in December 2011:

This plan sets out how the UK will achieve decarbonisation within the framework of our energy policy: to make the transition to a low carbon economy while maintaining energy security, and minimising costs to consumers, particularly those in poorer households.⁵

5. The Government's policy to tackle a changing climate is firmly based on scientific advice that there is a need to reduce carbon emissions and to decarbonise the UK economy. The International Panel on Climate Change published the first part of its Fifth Assessment Report in September 2013. This concluded that there was clear evidence of warming:

Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased.⁶

¹ Department of the Environment, Transport and the Regions, *Climate Change, The UK Programme*, Cm 4913, November 2000

² [Climate Change Bill \[HL\]](#) Research Paper RP08/52, House of Commons Library, June 2008

³ Climate Change Act 2008

⁴ *Ibid*

⁵ Department of Energy and Climate Change, [The Carbon Plan: Delivering our low carbon future](#), December 2011, p3

⁶ IPCC, "Summary for Policymakers", [Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change](#), 2013

And:

Human influence on the climate system is clear. This is evident from the increasing greenhouse gas concentrations in the atmosphere, positive radiative forcing, observed warming, and understanding of the climate system.⁷

6. More recently the Royal Society restated the current understanding of the link between human activity and climate change:

Human activities—especially the burning of fossil fuels since the start of the Industrial Revolution—have increased atmospheric CO₂ concentrations by about 40%, with more than half the increase occurring since 1970. Since 1900, the global average surface temperature has increased by about 0.8 °C (1.4 °F). This has been accompanied by warming of the ocean, a rise in sea level, a strong decline in Arctic sea ice, and many other associated climate effects. Much of this warming has occurred in the last four decades. Detailed analyses have shown that the warming during this period is mainly a result of the increased concentrations of CO₂ and other greenhouse gases. Continued emissions of these gases will cause further climate change, including substantial increases in global average surface temperature and important changes in regional climate.⁸

7. The Government is clear that it accepts the science. The Department of Energy and Climate Change (DECC) states on its website “the scientific evidence that the world’s climate is changing is clear and extensive”.⁹ The website for the Department for Environment, Food and Rural Affairs (DEFRA) states that “the world’s climate and weather patterns are changing. Global temperatures are rising, causing more extreme weather events, like flooding and heatwaves”.¹⁰

Our inquiry

8. Although government policy has been consistent since at least 1994 and there is wide scientific consensus about the causes of climate change, there has been increasing debate in the public arena in recent years on the validity of the science. The Government accepts that its plans will increase costs in the first instance, though it considers that there will be an eventual cost saving.¹¹ We were concerned that it would be very difficult to gain acceptance for even short term increased costs to individuals through energy bills and taxes unless there was confidence among the general public of the need to implement these policies.

9. We launched our inquiry on 28 February 2013. We asked for evidence on the level of understanding amongst the public of climate change, what voices the public trust for information on climate change, how understanding could be improved, and the role of the

⁷ *Ibid*

⁸ The Royal Society, [Climate Change, Evidence and Causes](#), February 2014

⁹ GOV.UK, [Supporting international action on climate change](#), [website as of 18 March 2014]

¹⁰ GOV.UK, [Adapting to climate change](#), [website as of 18 March 2014]

¹¹ Department of Energy and Climate Change, [Estimated impacts of energy and climate change policies on energy prices and bills](#), March 2013, p5

media and government in doing this. We received more than sixty submissions of written evidence and held seven oral evidence sessions.

10. This report first considers the level of public understanding of climate science and the potential consequences that scientists project from increasing emissions of carbon and other greenhouse gases. It then considers the communication by various bodies by which the general public might become more informed, including scientists, the media and the Government. Finally we consider what the Government will need to do if it wants to achieve its policy aims with regard to climate and demonstrate an evidence based approach to climate policies.

11. Throughout the inquiry we have sought to ascertain what the public understand by the term ‘climate change’, what experts mean when they use it and what Government ‘climate change’ policy encompasses. We did not find clear agreed definition amongst responses from our witnesses.¹²

- Professor Slingo defined climate change as “something that transcends the natural variability of the climate on a range of time scales from seasonal to multidecadal. Within, say, our lifetime or longer—say 100 years—is the climate different now than it was 100 years ago when averaged over several decades?”
- Professor Walport agreed: “the climate is the average of the weather over a long period of time, and, if you compare two different periods of time and you see that the climate has changed, that is climate change. The issue here, of course, is the human contribution to that over a very short time scale”.
- Professor Rapley also agreed: “that a better term than climate change was global energy imbalance”. He went further preferring the term “climate disruption”: “climate disruption because it is more descriptive of what this energy imbalance threatens to cause”.
- Catherine Brahic’s definition was “it is the accumulation of greenhouse gases in the atmosphere as a result of burning fossil fuels, by and large, and the consequences of that accumulation. Carbon gets locked into the earth over the course of millions of years in the form of fossil fuels. It takes millions of years for that process to happen naturally. In a matter of seconds, when we burn fossil fuels—oil, coal, natural gas—we release it into the atmosphere, and as a result it creates an imbalance in a cycle that is normally timed and very balanced.”
- Professor MacKay’s definition was “climate is the statistics of many variables: temperatures; precipitations; wind speeds; ocean currents; ice masses. The climate is the collection of all those variables, including salinity and acidity of oceans; and climate change is a change in those statistics.”
- Minister of State Gregory Barker MP said: “climate change is climate change” or alternatively “climate change is a changing climate”. He did not believe that climate change was a technical term.

¹² Q298, Q409, Q45, Q174, Q370, Q369

12. In order to communicate what climate change is, the Government must agree a clear consistent and precise definition which can be related to direct observations and measurements. This should be based on Professors Slingo's and Rapley's definitions.

2 Why is communication important?

13. Extensive reports on public attitudes and behaviours related to the environment, including climate change, were published by the Department for Environment, Food and Rural Affairs (DEFRA) up to 2009.¹³ Since then there have been more limited annual surveys on public understanding and knowledge of the environment, supplemented by a quarterly public attitudes tracker produced by the Department of Energy and Climate Change (DECC).¹⁴ The Department for Business, Innovation and Skills has published two *Public Attitudes to Science* surveys in 2011 and 2014, which included some information on climate change.¹⁵ The availability of data was highlighted to us as an issue. Professor Nick Pidgeon, from the Understanding Risk Research Group in Cardiff University, expressed concern about the lack of good quality tracking polling and the restricted questions asked in more recent government polls. He was also critical of what he described as poorly worded ad hoc polls often commissioned by the media and called for a more consistent approach and increased funding from Government:¹⁶

More resources could be made available to adopt a systematic approach to the testing and evaluation of communications messages surrounding climate change and to maintain an on-going assessment of public attitudes to climate change. This is a critical gap.¹⁷

Public concern about climate change

14. The last in depth report published by Defra in 2009, found that 61% disagreed with the statement “the effects of climate change are too far in the future to really worry me”.¹⁸ The most recent DECC information, published in April 2013, found that when asked directly, 66% were concerned about climate change (similar to 65% in July 2012), with 12% attributing it to natural causes (down from 15% in 2012).¹⁹ A survey carried out for the UK Energy Research Centre in 2013 found that 72% of those asked thought the climate was changing, with the majority of those believing it was caused by a combination of human activity and natural processes (46%), mainly human activity (22%), or entirely human activity (6%).²⁰

15. A study by Emily Shuckburgh and funded by several Government departments, *Climate Science, the Public and the Media*, was published in 2012. 80% of those that took part thought the climate was changing. The most common belief (46%) was that this was

¹³ Department for Environment, Food and Rural Affairs, , [Public attitudes and behaviours towards the environment – tracker survey](#), September 2009

¹⁴ Department of Energy and Climate Change, [DECC Public Attitudes Tracking Surveys](#), 2013-2014

¹⁵ Department for Business, Innovation and Skills, Ipsos MORI Social Research Institute, [Public Attitudes to Science](#), May 2011; [Public Attitudes to Science](#), March 2014;

¹⁶ Understanding Risk Research Group, Cardiff University, Ev 119, para9

¹⁷ Dr Emily Shuckburgh and Dr Rosie Robison, Ev w58, para34

¹⁸ DEFRA, [2009 Survey of Public Attitudes and Behaviours Towards the Environment](#), 23 September 2009

¹⁹ Department of Energy and Climate Change, [DECC Public Attitudes Tracking Surveys](#), 2013-2014

²⁰ UK Energy Research Centre, [British public split on nuclear power](#), 19 March 2013, p24

caused by a combination of natural processes and human activity (the same as the UKERC study above). There was also a correlation between those who accepted a human influence in climate change and were concerned about it (over 70%) and willingness to change behaviour (over 75%). However, the study also found:

- 44% believed the seriousness of climate change had been exaggerated;
- 10% rejected the existence of a human impact on climate change; and
- a decrease in concern about the issue with 82% at least fairly concerned in 2005 falling to 63% in 2011.²¹

16. Attitudes to climate change may be related to experience of extreme weather events. One example is a survey carried out in Wales for the Climate Change Consortium for Wales at the end of 2012 that found increased levels of concern about climate change, partly linked to the severe floods experienced that year. The survey found 88% of respondents considered that the world's climate was changing (up from 77% in 2010).²²

17. The findings of these surveys, which show a level of acceptance of climate change amongst the public, were reflected in evidence we received from Ministers. Greg Barker MP, Minister of State in the Department of Energy and Climate Change, told us “the public are informed; there is broad support. It is not universal. The minority of those who do not accept the science are particularly vocal”.²³ David Willetts MP, Minister of State for Universities and Science in the Department for Business, Innovation and Skills, told us that amongst the public “overall there is a recognition that something very significant is happening to the climate”.²⁴

18. Despite the existing polling information, it remains difficult to draw firm conclusions on how public acceptance and understanding of climate change is changing in the UK. However, it is clear that a significant majority of people think the climate is changing and that human activity is at least partly responsible for this. The polling on public understanding is limited and unlikely to highlight the information needs of the general public. *In its response to this report, the Government should detail how it will collect, and make available, more regular and more in depth information on the public understanding of climate change.*

19. Many of those who provided evidence to our inquiry commented on a perceived reduction in concern about climate change amongst the public in recent years: “Right now the economy is the top priority for most people and politicians”.²⁵ The experience of local authorities was that the public has “more pressing issues to deal with, particularly in the current economic climate”.²⁶ The Minister, Greg Barker, told us that “most people [...] will

²¹ Emily Shuckburgh, Rosie Robison and Nick Pidgeon, “Climate Science, the Public and the News Media”, *Living with Environmental Change*, September 2012 p11

²² Capstick, S. B., Pidgeon, N. and Whitehead, M., “[Public perceptions of climate change in Wales: Summary findings of a survey of the Welsh public conducted during November and December 2012](#)”, *Climate Change Consortium of Wales*, Cardiff, 2013 p12

²³ Q357

²⁴ Q338

²⁵ Q10 [Dr Catherine Happer]

²⁶ Q214 [Paul Crick]

not act in a way that will cost them money when they have many other competing demands on family budgets, particularly in the current environment with the pressures on the cost of living”.²⁷

20. The Glasgow University Media Group (GUMG) reported that their work with focus groups showed that, in some cases, “there was an assumption that [climate change] had [already] been solved”,²⁸ which they attributed to a reduced political and media focus.²⁹ In addition, the Environment Agency told us how, in its experience, interest in climate change was correlated to severe weather events. These “are sadly, very effective at raising awareness. You rely on these weather events to give that burst of energy to the communication”.³⁰ This was evident in the coverage of the severe weather experienced this winter, which resulted in extensive debate on whether climate change could be one of the causes.³¹

21. Professor Nick Pidgeon summarised his experience of public concerns:

What we do know from the research is that people have a high level of concern in the UK. Awareness is very high of the term climate change. There is endorsement by many of an anthropogenic component. It is not necessarily the most important issue for people in life.³²

Public understanding of climate science

22. One of the main conclusions from the *Climate Science, the Public and the Media*, study was that:

while a substantial majority of the UK public believe the world’s climate is changing, many feel relatively uninformed about, or uninterested in, the findings of climate science, and a sizable minority do not trust climate scientists to tell the truth about climate change.³³

23. Acceptance of climate change as real does not necessarily correlate with a detailed understanding of the causes or the underpinning science. Defra’s 2011 survey on understanding and knowledge of the environment showed a sharp drop in the level of knowledge people felt they had about climate change. In 2009, 61% of respondents thought they “knew a lot/fair amount” about climate change and 33% just a little.³⁴ In 2011 this had

²⁷ Q392

²⁸ Q10 [Professor Philo]

²⁹ *Ibid* [Dr Happer]

³⁰ Q251 [Phil Rothwell]

³¹ “UK storms a result of climate change, say nearly half of poll respondents”, *The Guardian*, 18 February 2014; [How the floods have changed Britain: climate change](#), *The Daily Telegraph*, 22 February 2014

³² Q36

³³ Emily Shuckburgh, Rosie Robison and Nick Pidgeon, “Climate Science, the Public and the News Media”, [Living with Environmental Change](#), September 2012

³⁴ Department for Environment, Food and Rural Affairs, , [Public attitudes and behaviours towards the environment – tracker survey](#), September 2009

changed to 44% and 44% respectively.³⁵ In contrast, the *BIS Public Attitudes to Science* found that 75% of respondents felt informed about climate change in 2011 and 78% in 2014.³⁶ However, when questioned more closely people often fail to give an accurate explanation of climate change and its causes. Dr Catherine Happer, from the Glasgow University Media Group, told us how they found that “most people, unprompted, struggled to give a consistent and accurate explanation of climate change”.³⁷ People also tended to confuse climate change with other environmental issues, such as ozone depletion.³⁸

24. Dr Emily Shuckburgh who published the report titled *Climate Science, the Public and the News Media* in 2012,³⁹ believed that there was an appetite for more information and that “many non expert members of the public do have a wide ranging and subtle understanding of climate change, are able to grasp new concepts, and are willing to engage in debate”.⁴⁰ The *BIS Public Attitudes to Science 2011* survey found that, with regard to science more generally, “four in ten (38%) think they hear and see the right amount of information, while five in ten (51%) think they hear and see too little or far too little”. This 51% figure was unchanged in the 2014 survey.⁴¹

25. Professor Chris Rapley told us that there were certain key concepts that were important “but in the end most people do not have the time, or need, to understand all of the detail”.⁴² Professor Greg Philo, from the Glasgow University Media Group was of the view that “the bulk of the population” would be more likely to “trust the science if it is clearly explained to them” that there is a scientific consensus.⁴³ Kent County Council offered a different perspective, indicating “that people are not overly interested in the detailed science” but that “they know the headlines and they want to know what they can do about it”.⁴⁴ Their experience was that detailed information on the science disengaged the majority of those they worked with.⁴⁵ However, Professor Philo cautioned that the public needed to understand that this was a major issue as, “if you want to introduce behavioural change in relation to climate change and you want to alter what people do [...] you must take the public with you”.⁴⁶ The Government position reflected this; they told us that “that

³⁵ Department for Environment, Food and Rural Affairs, [Attitudes and Knowledge relating to Biodiversity and the Natural Environment, 2007–2011](#), 2011 Table 2a

³⁶ Department for Business, Innovation and Skills, Ipsos MORI Social Research Institute, [Public Attitudes to Science](#), May 2011; [Public Attitudes to Science](#), March 2014

³⁷ Q2

³⁸ *Ibid*

³⁹ Emily Shuckburgh, Rosie Robison and Nick Pidgeon, “Climate Science, the Public and the News Media”, [Living with Environmental Change](#), September 2012

⁴⁰ *Ibid*

⁴¹ Department for Business, Innovation and Skills, Ipsos MORI Social Research Institute, [Public Attitudes to Science](#), May 2011; [Public Attitudes to Science](#), March 2014

⁴² Q37

⁴³ Q5

⁴⁴ Kent County Council, Ev 160, para16

⁴⁵ *Ibid*

⁴⁶ Q11 Professor Philo

improving public understanding is necessary but not sufficient for developing increasing action to tackle climate change.⁴⁷

26. Despite the complex nature of the science, improving understanding is important to ensuring effective policy implementation.

⁴⁷ Government Departments, Ev 130, para 1

3 Communicating climate science

27. We set out to examine the routes through which individuals obtain information on climate change, how effective these are and to what extent they are trusted. Scientists, traditional media, the internet and government all play a role in providing information and are trusted to different degrees.

The media

28. James Painter from the Reuters Institute for the Study of Journalism told us that whilst it is not clear to what level media changes opinion, or behaviour, there is agreement that it has a “huge role in setting the agenda for what people talk or think about”.⁴⁸ He also explained that the media plays a crucial role in public knowledge of science:

In the specific area of science coverage, most people in the UK get their information from the media, so the way the media report and frame climate change is one significant input into public understanding of the topic.⁴⁹

29. Professor Greg Philo, of the Glasgow University Media Group (GUMG), told us that “the media have an enormous impact on behaviour and belief” and forms “the key source of information, especially the BBC, for what people believe on almost any issue you want to name”.⁵⁰ With regards to climate change, the GUMG research found that the most referred to single source of information (58%) was TV news, usually the BBC.⁵¹ Dr Shuckburgh found that “TV news was the most cited source of information on climate science”.⁵² The *BIS Public Attitudes to Science 2011* survey found that “people’s most regular sources of information on science tend to be traditional media, such as television (54%) and print newspapers (33%)”.⁵³ It also found that people mistrusted how science was presented in the media:

People also have concerns about the reporting of science. Seven in ten agree that “there is so much conflicting information about science it is difficult to know what to believe” (71%) and that “the media sensationalises science” (70%).

30. The Science Media Centre praised some of the efforts of both newspapers and broadcasters in covering climate change but it stressed that fundamental problems remain with the presentation of climate change as a news topic:

many of the underlying values remain in newsrooms: the appetite for a scare story, the desire to overstate claims made by one individual, the reluctance to put one

⁴⁸ James Painter, Ev 157, para 11

⁴⁹ *Ibid* para 12

⁵⁰ Q25

⁵¹ UK Energy Research Centre, UKERC Project Final Report, [Climate change and energy security](#), December 2012, p8

⁵² Emily Shuckburgh, Rosie Robison and Nick Pidgeon, “Climate Science, the Public and the News Media”, [Living with Environmental Change](#), September 2012

⁵³ Department for Business, Innovation and Skills, Ipsos MORI Social Research Institute, [Public Attitudes to Science](#), May 2011

alarming story into its wider context, 'journalistic balance' that conveys a divide among experts where there is none.⁵⁴

Drivers for media coverage

31. We were interested to understand what shapes the level and tone of media coverage of climate science. We were told that, in science programming, there was always a need for something new, or a new creative approach, to drive coverage.⁵⁵ Channel 4 told us that “communicating science by broadcasting is tremendously difficult” and that “if you simplify science, you often make it wrong, so the process of working with science is by degrees much more complex than the process of working with other subject areas”.⁵⁶

32. This is also a difficulty when considering news coverage as “often, there is not that much new to report, and that can be a problem”.⁵⁷ David Jordan, Director of Editorial Policy and Standards for the BBC, told us that “news is about change and things being different” and that climate coverage will be competing with other news stories, including the recession.⁵⁸ Editors told us something similar: “the general overarching narrative has not changed that much. It is the same story being told over and over again”.⁵⁹ The same issue was highlighted by journalists who told us that “you cannot write the same story every day”. Catherine Brahic, of the New Scientist, told us that “what matters, is that the public understand that the message is still the same, it is still there, and it is not an issue that has gone away”.⁶⁰ Mr Jordan, told us that “politicians driving an issue and talking about its importance and policy developments in relation to it will be clearly important to our news agenda”.⁶¹ James Randerson, of the Guardian, explained that “from an editor’s point of view, if politicians are talking about it, we report it. It gives us something to report, so if politicians are not talking about it there is one fewer source of stories”.⁶² Professor Philo also emphasised the role of politicians in ensuring a subject receives coverage because politicians “are seen as opinion leaders; they are what media specialists [...] would call primary definers”.⁶³

33. There is evidence that increased politicisation of the issue has polarised debate in the UK media. James Painter’s research suggests that “the presence of politicians espousing some variation of climate scepticism, the existence of organised interests that feed sceptical coverage and partisan media receptive to this message, all play a particularly significant role in explaining the greater prevalence of sceptical voices in the print media of the USA and the UK”.⁶⁴ On the other side of the argument, when the use, in schools, of Al Gore’s

⁵⁴ Science Media Centre, Ev 144, para3

⁵⁵ Q87 [Ralph Lee]

⁵⁶ Q84 [Ralph Lee]

⁵⁷ Q87 [Ralph Lee]

⁵⁸ Q88 [David Jordan]

⁵⁹ Q162

⁶⁰ Q163 [Catherine Brahic]

⁶¹ Q92

⁶² Q171

⁶³ Q8

⁶⁴ James Painter, *Poles Apart: the international reporting of climate change scepticism*, 2011

documentary “An Inconvenient Truth” was challenged in Court, a High Court Judge considered it to have been prudent that the Government had revised guidance for teachers to highlight nine ‘errors’ and exaggerations within the film. Fiona Harvey, environment correspondent for the Guardian, told us that “a perception that senior politicians were trying to appeal to a certain part of the populace and had the idea that they could win support by being sceptics [...] has affected the way stories are written in some parts of the press or the media more broadly, and we as journalists have had to grapple with that”.⁶⁵ The Minister, Greg Barker, echoed this when he told us that “I think it is fair to say that the science has become a bit of a political football, and that is regrettable”.⁶⁶ Professor Pidgeon was of the view that “the impacts of media reporting on attitudes may be less important than the actions and statements of the elite commentators (politicians, prominent personalities, business and NGOs, and government departments) which prompt that reporting”.⁶⁷

False balance

34. Submissions to our inquiry commented on a tendency for the media to approach climate science as an argument about two equally valid points of view, rather than discussion about scientific facts, and on the false balance of views being presented as a consequence. Professor Pidgeon questioned whether the “norm of ensuring balanced reporting [...] is appropriate where the scientific evidence is so overwhelming”.⁶⁸ When questioned about the balance of views in the media, Sir Mark Walport told us that climate change “is not a matter for opinion or belief. It is a matter of fact whether humans are altering the climate or not. There is a correct answer to this question”.

35. In his *Review of impartiality and accuracy of the BBC's coverage of science* commissioned by the BBC trust and published in July 2011, Professor Steve Jones, concluded with regard to science coverage: “in general, its output is of high quality”.⁶⁹ However, he also stated that the BBC “must accept that it is impossible to produce a balance between fact and opinion” and recommended that it take into account “the need to avoid giving undue attention to marginal opinion”.⁷⁰ Professor Jones highlighted the recent efforts made by the BBC to find a climate sceptic scientists to comment on the publication on the Physical Science Basis for IPCC Fifth Assessment Report as an example of false balance:

The producers of the recent Today Programme piece on the new IPCC report tried, we are told, more than a dozen qualified climate scientists willing to give an opposing view but could not find a single one (a hint, perhaps, that there is indeed a scientific consensus on global warming). Instead, they gave equal time to a well-known expert

⁶⁵ Q202

⁶⁶ Q352

⁶⁷ Understanding Risk Research Group, Cardiff University, Ev 122, para23

⁶⁸ *Ibid*, para22

⁶⁹ Professor Steve Jones, BBC Trust, [Review of impartiality and accuracy of the BBC's coverage of science](#), July 2011, p15

⁷⁰ Professor Steve Jones, BBC Trust, [Review of impartiality and accuracy of the BBC's coverage of science](#), July 2011, p17

and to Australian retired geologist with no background in the field: in my view a classic of “false balance”.⁷¹

36. The continuing discovery of new perspectives on the climate is necessary to keep the issue in the media but novelty also has a downside. Newspapers thrive on controversy.⁷² Dr Randerson, from the Guardian, drew our attention to the:

tendency for news desks to like things that are new and surprising and favour the underdog. A general issue with science reporting is that mavericks tend to get more coverage than perhaps they deserve.⁷³

A former environmental editor for the BBC, Richard Black, thought that disproportionate coverage in the media of sceptical views of climate science was because:

[climate sceptics] have managed to paint themselves as David in a fight with Goliath, which is a very appealing situation. Everyone has some kind of empathy with that. It is not really true, but they have done a very effective piece of image management.⁷⁴

Ros Donald, from Carbon Brief highlighted how editorial decisions may also change the way an article is read: “there may be quite a straight-up report of a scientific paper, but it would be given an outrageous headline that suggests global warming has stopped”.⁷⁵

Broadcasters

37. The Glasgow University Media Group (GUMG) told us that they found that “the BBC, across media, remains a highly trusted source—it was felt to be the least partial, and most serious about addressing the issues”.⁷⁶ In many of our written submissions the BBC was specifically praised for a great deal of its coverage⁷⁷ but the BBC itself was initially reluctant to provide either written or oral evidence to this inquiry. They justified that reluctance on the grounds that climate change is “a matter of reporting and journalistic inquiry, and one where our strong reputation for independence is paramount”.⁷⁸ We considered, given the importance of the BBC in the public eye, it was necessary for us to hear from the BBC in public session.

38. Alongside the BBC, we also took evidence from Channel 4 and Sky. Both clearly stated their position on climate change to the Committee. Fiona Ball, from Sky, told us that, as an organisation, it took the view that “climate change is one of the world’s greatest challenges” and it had a wide-ranging strategy aimed at “raising awareness and understanding of the impact of climate change”.⁷⁹ Ralph Lee, from Channel 4, told us “we are past the point

⁷¹ Professor Steve Jones, Ev w127; Professor Jones mentions the Today Programme, we note that the issue was actually with a different BBC programme, the World at One.

⁷² Q194 [Mr Lewis Smith]

⁷³ Q175

⁷⁴ Q194 [Richard Black]

⁷⁵ Q135

⁷⁶ Professor Greg Philo and Dr Catherine Happer, Ev 140, par 8

⁷⁷ Science Media Centre, Ev 144, section 4; Q64

⁷⁸ BBC, Ev 174

⁷⁹ British Sky Broadcasting Limited (“Sky”), Ev 151

where the debate is about whether or not climate change is happening [...] there is massive scientific consensus on that”.⁸⁰

39. In contrast, David Jordan, Director of Editorial Policy and Standards for the BBC, was less emphatic on the status of the science, stating that:

The BBC believes that it has an important role to play in explaining climate science, climate change and global warming, if that is what is happening, to its audiences. All our evidence is that, although we do not have specific evidence of climate change itself, the BBC’s audiences expect it to deliver high-quality programming that is informative and educational about science in general and, therefore, about climate change in particular.⁸¹

Although, later in the evidence session, he seemed less sceptical:

There are now very few people who say that no global warming is happening and it is not the result of man-made activity, but the debate has moved on to the precise ranges and all sorts of other questions.⁸²

40. Earlier in this report we saw that the majority of the public does not have a good understanding of climate change and its causes and a significant number of people would like to be better informed.⁸³ Despite this, David Jordan believed that there was no lack of understanding among the BBC audience on climate although “that may well have occurred in the early stages of climate science”.⁸⁴ Given the weight of evidence disputing this, we wrote to David Jordan on this very point, asking him to expand on his evidence for this.⁸⁵ His response stated that:

The BBC does not measure or monitor our audience’s level of knowledge about climate change. This would not fall within the BBC’s remit and would, in any case, be extremely difficult to quantify.⁸⁶

41. We acknowledge the difficulty for broadcasters in maintaining coverage of climate change when the basic facts are established and the central story remains the same. We consider it vital, however, that they continue to do so. Our greatest concern is about the BBC given the high level of trust the public has in its coverage. It did not convince us that it had a clear understanding of the information needs of its audience and we note its rejection of Professor Jones’ recommendations on climate.

42. This is not to say that non-scientists should be excluded from the debate, the BBC has the responsibility to reflect all views and opinions in society and it is worth remembering that not all frauds and mistakes in science have been uncovered by

⁸⁰ Q114

⁸¹ Q83

⁸² Q108

⁸³ Para 23

⁸⁴ Q90

⁸⁵ What is the BBC’s understanding about the level of knowledge about climate science amongst television audiences? What are your views on the findings published by the Glasgow University Media Group and Shuckburgh et al?

⁸⁶ BBC, Ev 174

scientists. Where time is available for careful consideration and discussion of the facts, it should be possible to explore more detailed consideration of where the science is less certain, such as how feedback mechanisms and climate sensitivity influence the response of the climate to increasing concentrations of carbon dioxide in the atmosphere. Scientists, politicians, lobbying groups and other interested parties should be heard on this issue but the BBC should be clear on what role its interviewees have and should be careful not to treat lobbying groups as disinterested experts.

43. Lack of appropriate training for news editors may be an issue. The importance of their role was explained by David Jordan who told us “editors of individual programmes (whether news or otherwise) are responsible for fact checking their content before it is aired”.⁸⁷ Professor Jones raised the issue of training in his review and there have been efforts by the BBC to address the problem.⁸⁸ However, we were very surprised to hear that the science training for the BBC provided by the College of Journalism, and introduced at Professor Jones’ recommendation, did not include any direct interaction with scientists because “debates about science are approached from a journalistic point of view”.⁸⁹ It is not clear to us how a ‘journalistic point of view’ which presumably emphasises accuracy, can be at odds with a scientific approach whose prime objective is the establishment of empirical fact.

44. David Jordan told us that, in the BBC Trust *Review of impartiality and accuracy of the BBC’s coverage of science*, Professor Steve Jones recommended the BBC “regard climate science as settled in effect and, therefore, it should mean we should not hear from dissenting voices on the science of climate change. We did not agree with that”.⁹⁰ Professor Jones took issue with David Jordan’s assertion and in a submission to our inquiry made it clear that this was a strong misrepresentation of the content of his review:

Attempts to give a place to anyone, however unqualified, who claims interest can make for false balance: to free publicity for marginal opinions and not to impartiality, but its opposite. [...] Why the BBC remains so obsessed with contrarian views on this subject I do not know.⁹¹

This lack of distinction within BBC News between proven scientific facts and opinions or beliefs is problematic. The BBC editorial guidelines include guidance on accuracy. These were also referred to by David Jordan in evidence to us. However, these state “accuracy is not simply a matter of getting facts right. If an issue is controversial, relevant opinions as well as facts may need to be considered. When necessary, all the relevant facts and information should also be weighed to get at the truth”.⁹²

⁸⁷ BBC, Ev 174

⁸⁸ *Ibid*

⁸⁹ *Ibid*

⁹⁰ Q93

⁹¹ Professor Steve Jones, Ev w127

⁹² BBC Editorial Guidelines, [Section 3: Accuracy](#) [website as of 18 March 2014]

45. The BBC News teams continue to make mistakes in their coverage of climate science by giving opinions and scientific fact the same weight. BBC guidelines have stringent requirements for the coverage of politicians and political parties. For example, any proposal to invite politicians to contribute to non-political output must be referred to the Chief Advisor Politics. The BBC could benefit from applying a similarly stringent approach when interviewing non-experts on controversial scientific topics such as climate change.

46. The BBC uses another rule that works in its coverage of political issues, particularly during elections. The likely or historical electoral success of an individual party determines the coverage of that party and its manifesto proposals thus avoiding false balance. The BBC could reasonably apply similar rules to those representing minority views on scientific issues.

47. We recommend that the BBC should develop clear editorial guidelines for all commentators and presenters on the facts of climate that should be used to challenge statements, from either side of the climate policy debate, that stray too far from the scientific facts. Public service broadcasters should be held to a higher standard than other broadcasters.

Newspapers

48. During our inquiry concerns were raised about inaccurate and misleading reporting of climate science by newspapers. Bob Ward and Naomi Hicks from the Grantham Research Institute were critical of the role played by newspapers:

much greater damage to the public interest is resulting from inaccurate and misleading coverage by the UK's national newspapers in print and online. In particular, some newspapers are able to exploit the systemic weakness of the self-regulatory system.⁹³

James Painter noted the increased coverage of sceptical opinion in the press in both the US and UK and outlined the findings from his research into the drivers for newspapers that include sceptical coverage or opinion:

It can be to do with the overall political ideology of the newspaper; it can be an editor or proprietor imposing his or her will; it may be that that type of sceptical column appeals particularly to the readership.⁹⁴

49. Concern was expressed about the difference between the accuracy of reporting in news items, which was generally viewed as acceptable, and the frequent inaccuracies seen in some opinion pieces or personal columns. James Painter told us that “many of the uncontested sceptical voices or opinions were to be found in the opinion pages rather than the news pages”.⁹⁵ Richard Black, former BBC Correspondent, was critical of the coverage in the Mail on Sunday and the regular inaccuracies that appeared:

⁹³ Bob Ward and Naomi Hicks, Ev w87

⁹⁴ Q136

⁹⁵ James Painter, Ev 158

This is something that *The Mail on Sunday* clearly does not have a problem with because it has done it many times before. Complaints have been submitted and mistakes pointed out, and the same thing carries on happening. Whether one wants to see that as part of a polarised or increasingly variegated media landscape, or see it in terms of a political game, depends on how one looks at it.⁹⁶

James Painter told us that despite “lots of evidence that people distinguish between news and opinion” what worried him was the finding in his research that “that there is an awful lot of uncontested sceptical opinion in the opinion pieces and editorials in much of the right-leaning press”.⁹⁷ Fiona Harvey, Environment Correspondent for the Guardian, told us that this distinction may not exist when reading an article on the internet, as readers could have arrived at a page via many different routes.⁹⁸ Lewis Smith, a freelance journalist, explained that there was an inherent bias in newspapers which affected which stories they covered; “it is never going to be delineated as opinion, but in reality it is opinion”.⁹⁹

50. Despite two invites, neither the Daily Mail nor the Daily Telegraph were able to attend an evidence session with the Committee. However, they did each, eventually, agree to provide a written submission. This limited engagement contrasted with that of the Guardian, which dedicates a significant amount of effort and resources on their coverage of environmental issues and climate change in particular. The Guardian now has the equivalent of seven full-time journalists covering environment and science;¹⁰⁰ its website also has a climate change FAQ section, which includes short responses that are reviewed by the Met Office.¹⁰¹ James Randerson explained the reason behind this increase in coverage:

We took a strategic decision about five years ago that, looking at the swathe of opinion in the scientific literature and the voices of people like the Royal Society and so on, this was a major scientific issue, with potentially profound societal and economic consequences. We felt it was difficult to do that justice through the normal way of covering any other issue, so we took the strategic decision to up the register of our coverage.¹⁰²

51. There would not appear to be a significant difference between papers in their assessment of the science. The Daily Mail told us that “in climate science there is almost universal agreement that the climate is changing, and humans are having some impact on it”.¹⁰³ The Telegraph’s submission stated that “in terms of our editorial policy, it is that the climate is changing, that the reason for that change includes human activity”.¹⁰⁴

⁹⁶ Q193

⁹⁷ Q135

⁹⁸ Q199

⁹⁹ *Ibid*

¹⁰⁰ *Ibid*

¹⁰¹ Q169

¹⁰² Q158

¹⁰³ The Daily Mail, Ev 181

¹⁰⁴ The Daily Telegraph, Ev 180

52. Differences arise in how they interpret the implications. The Telegraph is of the view that “human ingenuity and adaptability should not be ignored in favour of economically damaging prescriptions”, though it failed to provide us with the evidence on which it bases this view.¹⁰⁵ The Mail considers climate science to be a political issue and is of the view “that not every piece of science by every scientist should be reported as fact”.¹⁰⁶ This ambiguous view of science may explain the claim in the Mail’s submissions that scientists were predicting an ice age 20 years ago. An examination of the scientific knowledge at the time shows that this was clearly not the case, although it was widely and inaccurately reported as such in the media at that time.¹⁰⁷

53. The Telegraph was clear that it did not see itself as a participant in the debate about climate change. Its sole responsibility was to its readers and “presenting them with a compelling daily package of news and features that they are happy to pay for”.¹⁰⁸ Both newspapers relied on their readership to distinguish between factual news reporting and commentary by columnists and absolved themselves of any responsibility for the content of opinion columns. The Telegraph told us “we report information, and rely on our commentators to interpret it.”¹⁰⁹ The Mail also made a clear distinction between its own views and those set out in opinion pieces, telling us their readers are “very familiar with the way it reports news and comment”.¹¹⁰

54. We are very disappointed by the heavy reliance that the Daily Mail and the Daily Telegraph place on the ability of their readers to distinguish between fact and opinion on climate science. This is especially the case because opinion pieces about climate science in these publications are frequently based on factual inaccuracies which go unchallenged.

The Internet and social media

55. The Glasgow University Media Group study found that, after traditional media, the internet was cited most (19%) when respondents were asked specifically about further sources of information used.¹¹¹ Dr Burch, from the Science Museum, emphasised the potential for using “multiple routes for multiple audiences in order to communicate and engage around this issue”.¹¹² The Met Office told us of “a need and appetite for increased and informative communication on climate change” and pointed to their website traffic and engagement with social media as evidence for this.¹¹³ Lord Deben, Chair of the Committee on Climate Change (CCC), told us the internet is an important form of

¹⁰⁵ The Daily Telegraph, Ev 180

¹⁰⁶ The Daily Mail, Ev 181

¹⁰⁷ Peterson, Thomas C., William M. Connolley, John Fleck”, [The Myth of the 1970s Global Cooling Scientific Consensus](#)”, *Bulletin of the American Meteorological Society*, vol 89, (2008) 1325–1337; and National Academy of Sciences, [Understanding Climate Change: A programme for action](#), 1975

¹⁰⁸ The Daily Telegraph, Ev 180

¹⁰⁹ *Ibid*

¹¹⁰ The Daily Mail, Ev 182

¹¹¹ UK Energy Research Centre, UKERC Project Final Report, [Climate change and energy security: Assessing the impact of information and its delivery on attitudes and behaviour](#), December 2012

¹¹² Q41

¹¹³ Met Office, Ev 137, par1 and Q262

communication for the CCC.¹¹⁴ Both the Committee on Climate Change and the Department for Energy and Climate Change (DECC) highlighted their use of Twitter as a means of communication;¹¹⁵ DECC specifically mentioned its use in quickly “responding to factual errors”.¹¹⁶

56. In a written submission, Dr Phillip Bratby, told us of the level of trust he and other members of the public who are sceptical about climate change have in the internet as a source of information:

Most members of the public who have an interest in “climate change” get their information from widely trusted internet websites and a few independent media correspondents who do not have vested interests and tell the truth.¹¹⁷

Andrew Montford, himself a source for sceptics on the internet,¹¹⁸ concluded that some become climate sceptics because they “realise that the [traditional] media is only telling them the environmentalist side of the story, which again makes them suspicious”.¹¹⁹

57. Catherine Brahic, of the New Scientist magazine, explained that the internet was often a forum for debate and that “climate change articles, especially anything that relates to politics, get a huge amount of comments”.¹²⁰ She cautioned against reading comment threads and taking them “as a representation of the public views at large. They tend to be the views of people who have very strong opinions”.¹²¹ James Randerson confirmed the level of interest, telling us that people were “very interested in these topics, and they tend to do very well online”.¹²²

58. The Grantham Research Institute highlighted how the internet, by its very nature, allows for inaccurate information to be rapidly absorbed into the mainstream debate:

the primary way in which climate change ‘sceptics’ damage the public interest is through the spread of inaccurate and misleading material via websites to sympathetic journalists in the mainstream media, creating an ‘echo chamber of climate change denial.’¹²³

We would expect a topical and policy relevant scientific topic such as climate change to merit an obvious online presence from the Government aimed at communicating the science to the public clearly and consistently. It was therefore disappointing to find that, despite claims from the Government and organisations such as the Met Office that they

¹¹⁴ Q313

¹¹⁵ Q314, Q377

¹¹⁶ Q377

¹¹⁷ Dr Phillip Bratby, Ev w5

¹¹⁸ [Bishop Hill Blog](#)

¹¹⁹ Andrew Montford, Ev 105

¹²⁰ Q169

¹²¹ *Ibid*

¹²² Q159

¹²³ Bob Ward and Naomi Hicks, Ev w86

increasingly use online means to communicate, there is little evidence of any significant activity to support these statements.

59. The internet and social media are increasingly used by the public when seeking to verify media reports or obtain further detailed information about climate change. The Government and other trusted bodies are currently failing to make effective use of internet or social media to engage with the public and provide accurate scientific information about climate change.

Government

60. We received evidence from Government Departments and from non-departmental bodies such as the Environment Agency, the Met Office and the Committee on Climate Change. These are the bodies and organisations that should be interpreting the science and putting in place an effective, evidence-based policy response. If the resultant policies are to gain public support, the Government and its agencies need to properly articulate the science supporting them.

61. In its submission to us the Government stated that “it is essential to have a simple, clear evidence-based narrative about climate change, its causes and likely impacts in the public domain and regularly reported in the media”.¹²⁴ However, in oral evidence to us, both Lord Deben and Fiona Harvey told us that, in their view, this was lacking.¹²⁵ Professor Slingo, Chief Scientific Adviser to the Met Office, told us that there is still “quite a lot of work to do to create these narratives that people can relate to. That is where it is not just about the climate science, but the translation of that and what its implications are, and then taking it down to the local level”¹²⁶ and cautioned against “having too many multiple voices with different messages”.¹²⁷ The Royal Academy of Engineering was of the view that “consistency across government departments and policies is particularly important”.¹²⁸ Mr Paul Crick, Director of Planning and Environment at Kent County Council, expressed his frustration with the lack of clear messaging from the Government:

Clear messages from trusted sources are what win public support. It does not help, when their national adaptation programme is soft launched, that things like the feed-in tariffs are changed and business cases that we previously had for solar panel installations that had a payback of three to five years all of a sudden have a payback of eight years plus.¹²⁹

He concluded that there is currently a “conflicting message” coming from central Government when it should be about “consistency, clear messaging and consistent policy”.¹³⁰ David Kennedy, Chief Executive of the Committee on Climate Change told us

¹²⁴ Government Departments, Executive summary, Ev 130

¹²⁵ Q203

¹²⁶ Q295

¹²⁷ Q264

¹²⁸ The Royal Academy of Engineering, Ev w80

¹²⁹ Q224

¹³⁰ *Ibid*

“someone needs to take charge of the story” and “we can provide a story, and we aim to do that [...] but in terms of cascading and multiplying that narrative there has to be an important role for the Government. There is more that both central and local government can do once there is a story”.¹³¹ **We consider the lack of a narrative strongly reflects a lack leadership in climate change.**

62. The public expects clear leadership from Government. Professor Pidgeon told us that people want Government to take a lead.¹³² Local authorities told us that in the public’s view climate change is a problem that is too big to address at a local level and “it is for national Government to decide or take leadership on”,¹³³ that “what regularly comes up when we are talking to the public is that the roles of local and central Government need better clarification and communication”.¹³⁴ Katie Stead from Kirklees Council told us that their surveys “show almost 100% of people agreed that they had a part to play in terms of an impact on climate change” but they were looking for a lead on exactly what to do from local and central Government.¹³⁵

Central Government

63. There has been internal wrangling amongst Ministers and a lack of clarity about what Government considers the climate science to show; all of which have been widely reported. Most recently the Rt Hon Edward Davey, Secretary of State for Energy and Climate Change, referring in a speech to Conservative politicians, criticised those “seizing on any anomaly in the climate data to attempt to discredit the whole”.¹³⁶ He was of the view that “it [undermines] public trust in the scientific evidence for climate change—which is of course overwhelming” and concluded that “we can see around us today the possible consequences of a world in which extreme weather events are much more likely”.¹³⁷ The Evening Standard published a response to this from the Minister of State for Business and Energy, the Rt Hon Michael Fallon MP, who was quoted as saying that “unthinking climate change worship has damaged British industry and put up consumer bills”.¹³⁸ These comments were subsequently widely reported in the press. That coverage contrasts with media claims that Owen Paterson MP, Secretary of State of for Environment, Food and Rural Affairs, whose department has responsibility for climate change adaptation, is less engaged with the climate agenda and may even doubt the need for action on climate change.¹³⁹

¹³¹ Q314

¹³² Q36

¹³³ Q216

¹³⁴ Q224

¹³⁵ Q226

¹³⁶ Rt Hon Edward Davey MP, [Energy Divided? Building Stability in Energy Policy](#), 14 February 2014

¹³⁷ *Ibid*

¹³⁸ “[Cameron urges rail and power firms to help flood victims - after warning Thames crisis could last two more weeks](#)”, *Evening Standard*, 14 February 2014

¹³⁹For example: “[Climate scepticism blamed as Owen Paterson slashes spending on global warming](#)”, *The Independent*, 26 January 2014 “[Owen Paterson at odds with Cameron whether storms caused by climate change](#)”, *The Telegraph*, 9 January 2014

64. The lack of clear, consistent messages from Government has a detrimental impact on the public's trust in sources of information on climate science. This was highlighted as an issue by many witnesses, as discussed earlier.¹⁴⁰ It also, as we have seen, has an effect on the quantity and tone of media coverage of the science.¹⁴¹

65. The Minister, Greg Barker, told us that previous Government efforts to communicate with the public about climate science, in particular the "Act on CO₂ Campaign", had not been successful. A reduction in available funding had also had an impact on departmental activity.¹⁴² The Minister mentioned initiatives such as the 2050 Calculator, a toolkit for school, an energy road show and the use of social media but admitted that the Department's efforts were "a work in progress".¹⁴³ He told us that in his view no Government had got it right.¹⁴⁴ The 2050 calculator was only mentioned in one other submission to our inquiry.¹⁴⁵

66. More recently the focus within Government has shifted. Professor MacKay, Chief Scientific Adviser to the Department of Energy and Climate Change, stressed to us that one of the Government's principal roles in communication was to fund climate scientists and to "support those scientists in communicating the science themselves to policymakers and the general public".¹⁴⁶ Sir Mark Walport, the Government Chief Scientific Adviser, was of the view that as "many people as are competent to deliver the message do so".¹⁴⁷

67. The Minister also told us that, when it comes to communicating about climate science, "there is an underlying strategy and a clear acceptance of our respective responsibilities".¹⁴⁸ However, Professor MacKay described this as a "process" rather than a communication strategy which consisted of "having roughly monthly meetings to co-ordinate DECC, the Met Office and others".¹⁴⁹ The lack of a proper strategy was illustrated by the response from John Hirst, Chief Executive of the Met Office, who, when asked for details of what happened within Government at a strategic level to co-ordinate communication about climate science, told us:

That is a question that is difficult for me to answer because I do not have a role or an influence on the strategic communications of climate science on behalf of the Government.¹⁵⁰

¹⁴⁰ Para 59

¹⁴¹ Para 32

¹⁴² Q362

¹⁴³ Q354

¹⁴⁴ Q354

¹⁴⁵ Understanding Risk Research Group, Cardiff University, Ev 118

¹⁴⁶ Q353, Q354 [Prof David MacKay]

¹⁴⁷ Q424

¹⁴⁸ Q362

¹⁴⁹ Q363

¹⁵⁰ Q255

Professor MacKay told us that the Met Office was one of the organisations DECC regularly met with to coordinate a “comms strategy”.¹⁵¹ There is very little evidence that this is being translated into any kind of effective strategy for communicating to the public.

The Met Office

68. The Met Office is the UK's National Weather Service. It falls under the Department for Business, Innovation and Skills and operates on a commercial basis. The Met Office Hadley Centre, set up in 1990, is funded by DECC and the Department for Environment, Food and Rural Affairs (Defra). The purpose of the programme is to “provide up-to-date, robust and traceable scientific evidence to government on climate variability and climate change”.¹⁵² In its submission the Met Office told us it was focused on the needs of decision makers and their science was not, therefore, specifically aimed at the public.¹⁵³

69. The Met Office does however already devote some effort to communicating climate science to the public, despite not having a specific mandate to do so.¹⁵⁴ In its view, there is “both a need and appetite for increased and informative communication on climate change that allows the public to increase their understanding of the issues, the basic science, and the latest challenges of climate change research”.¹⁵⁵ Mr Hirst, told us “we would welcome a greater responsibility for communication of science”.¹⁵⁶ The Met Office also provided us with evidence of the traffic on their website between 2011 and August 2013, with over 700,000 visits to their climate pages and over 90,000 visits to climate posts in 2012.¹⁵⁷ They also had, in March 2014, 200,760 followers on Twitter.

70. We asked what preparation the Met Office had made for the publication of the first part of the Intergovernmental Panel on Climate Change Fifth Assessment Report (IPCC AR5). We were told there were a whole series of efforts planned, including briefing several key organisations.¹⁵⁸ After publication of IPCC AR5 we were able to find only a single web page on the AR5 report and two blog posts, and three messages on Twitter, one of which linked to the Met Office webpage. There have been some belated updates to the website and, while the information aimed at the public is now better than at the time of the publication of the report, it was disappointing, initially to find so little information with limited efforts to make it engaging to a lay audience.

71. The Met Office is an organisation seeking to have a greater role in the communication of climate science. As such we would have liked to have seen greater effort to communicate to the public on the publication of the IPCC AR5 report. It should have been more timely with information that should be far more accessible to the public at large.

¹⁵¹ Q363

¹⁵² [Met Office: Weather and Climate](#)

¹⁵³ The Met Office, Ev 137

¹⁵⁴ *Ibid*

¹⁵⁵ The Met Office, Ev 137

¹⁵⁶ Q263

¹⁵⁷ The Met Office, Ev 137

¹⁵⁸ Q289 [Mr John Hirst] Q291 [Prof Julia Slingo]

The Environment Agency

72. The Environment Agency told us that, with regards to climate change, it focused on priority risks and sectors in the National Adaptation Plan and therefore its service was aimed at organisations and businesses rather than the general public. However, it also worked with partners to help the public and communities understand their risk of flooding.¹⁵⁹

73. The Environment Agency has found that audiences are usually interested in climate change only to the extent that it affects their direct interests and have concluded that it is more productive to focus on impacts such as flooding or drought. It does not tend to talk about the science¹⁶⁰ and has found that “it can also be effective to focus on adaptation actions (solutions) rather than climate (uncertain problems). In many cases, no or low-regret actions can be taken that make sense regardless of future climate”.¹⁶¹ The Agency has also found that “using more active language, such as ‘adapting to a changing climate’ and being ‘Climate Ready’ helps audiences to move on from the idea of climate change being remote and something they need to believe in, to needing to take action now”.¹⁶²

74. Whilst we accept that the Agency’s focus is on adaptation and resilience to climate change we are disappointed to see the limited value placed by the Agency on communicating the wider context. That this may be counterproductive in the long term was illustrated by some of the reaction to the extreme winter rain recently experienced in the UK and the resulting criticisms of the Agency’s work on flood prevention.¹⁶³ We note that the trust that the Environment Agency believed it had achieved on the risk of flooding may have been damaged.

The Committee on Climate Change

75. The Committee on Climate Change’s (CCC) role is to advise the Government on meeting its carbon targets and monitoring progress in doing this. The CCC told us that whilst public understanding was not directly a matter it took into account it is an important consideration in its work.¹⁶⁴ Under the *Climate Change Act 2008*, the CCC “must have regard to the desirability of involving the public in the exercise of its functions”. The Chair of the CCC, Lord Deben, told us of his aim of involving the public more.¹⁶⁵ However, he was reluctant to accept any significant extension of the CCC’s work in communicating science, instead viewing its role as enabling others to do so.¹⁶⁶ The CCC was also critical of the Government’s efforts:

¹⁵⁹ Environment Agency, Ev 170

¹⁶⁰ Q216

¹⁶¹ Environment Agency, Ev 173, para 28

¹⁶² Environment Agency, Ev 170, Summary

¹⁶³ “[UK floods: Environment Agency board backs chairman Lord Smith](#)”, *BBC*, 11 February 2014

¹⁶⁴ “[Climate change means we won’t in future be able to engineer our way out of flooding](#)”, *The Guardian*, 11 February 2014

¹⁶⁵ Committee on Climate Change, Ev 136

¹⁶⁶ Q312

¹⁶⁶ Q314

The Government has not succeeded in presenting a compelling narrative to the public over the need for action, and the components of an effective response. It has at times been alarmist, and has given mixed messages.¹⁶⁷

David Kennedy, Chief Executive of the CCC, also highlighted the failure to provide a narrative “I think there is a sense in the Government that we have moved on and we do not need a narrative any more” because the Government’s view was that it was already delivering a policy response.¹⁶⁸

Local Government

76. The requirement for Local Authorities to report on progress on meeting climate targets has been abolished. However, most continue to work in this area. As a result many local authorities are involved in communication about climate change at a local level.

77. We heard from Kirklees Council, which has been engaging with the public for the last ten years to reduce domestic carbon emissions and tackle climate change with a strong focus on improving energy efficiency in its area. It now has plans to stimulate a local green economy and create jobs.¹⁶⁹ We also heard from Kent County Council, which focuses on coastal flooding and the impacts of severe weather and is committed to taking action to address climate change.¹⁷⁰ Both are members of the Local Government Association’s Climate Local Initiative.¹⁷¹

78. Paul Crick, of Kent County Council, told us that his council saw its actions to address climate change as part of its local leadership role and part of the Kent Environment Strategy.¹⁷² Katie Stead, Environment Officer at Kirklees Council, told us how the messages her council used to engage the public had changed over time. They now focused on those with more direct resonance such as “how to save money on their fuel bills and how to improve their health and wellbeing by providing more affordable warmth and comfort in their homes”.¹⁷³ Local authorities use multiple avenues to communicate and their experience demonstrates that people are motivated to take action. Financial benefits alone are unlikely to drive behaviour change.¹⁷⁴ They have found that “tackling areas street by street is incredibly powerful in stimulating uptake by word of mouth and seeing neighbours take up an offer”.¹⁷⁵ Kent County Council found many residents “citing uncertainty as a reason not to take action”.¹⁷⁶ Successful tools in communication included focusing on outcome, keeping information local to make it relevant, and identifying

¹⁶⁷ Committee on Climate Change, Ev 136

¹⁶⁸ Q314

¹⁶⁹ Kirklees Council, Ev 165

¹⁷⁰ Kent County Council, Ev 160

¹⁷¹ [Local Government Association, Climate Control](#) [website as of 18 march 2014]

¹⁷² Q220

¹⁷³ Q214

¹⁷⁴ Kirklees Council, Ev 168 par 4.5

¹⁷⁵ Kirklees Council, Ev 169

¹⁷⁶ Q216

actions for communities which ensured climate change was seen as more of a challenge than a threat.¹⁷⁷

79. We heard from Government, government agencies and bodies at national and local levels working at engaging with the public on mitigating and adapting to climate change. We found little evidence of any significant co-ordination amongst them to communicate the science. Neither is there any indication that the Government is regarded as a primary, or even a reliable, source of information on climate science by the general public.

Scientists

80. The Glasgow University Media Group told us that the public had a high level of trust in scientists, academics and other experts.¹⁷⁸ This was supported by the findings of an Ipsos Mori poll from 2012 which found that scientists would be trusted by 66% of respondents if they were giving views on climate change. There was relatively little trust in other sources of information, including journalists and politicians and the poll found that 15% of respondents said they would not trust anyone.¹⁷⁹ The Government also emphasised trust in scientists in its written submission, referring to a Carbon Brief poll which found that 69% of respondents thought scientists and meteorologists were very (20%) or quite (49%) trustworthy “in providing accurate information about climate change”.¹⁸⁰ Tom Sheldon from the Science Media Centre told us:

Trust in science is routinely so high because science is not led by an agenda; it is neutral. Climate data tell a very important story that needs to be heard, but the evidence itself is politically and socially neutral. Scientists need to communicate that.¹⁸¹

81. Communicating research findings is, increasingly, seen as an integral part of a scientist’s role. Sir Mark Walport, the Government Chief Scientific Adviser, told us “I do not think that scientific research is complete until the results are communicated. Part of that communication is communication to the general public as well as to the specialist audiences that scientists normally communicate with”.¹⁸² Dr Emily Shuckburgh’s research indicated that while “many of the participants [in her study about communicating climate] found it difficult to relate to scientists [...] nevertheless many felt it is important to hear directly from the people who are doing the research”.¹⁸³

82. This level of trust in scientists is not reflected among those sceptical about the science. Many submissions to the Committee from individual members of the public express views such as:

¹⁷⁷ Kent County Council, Ev 160

¹⁷⁸ Professor Greg Philo and Dr Catherine Happer, Ev 140, para 9

¹⁷⁹ Ipsos MORI, [Public attitudes regarding climate change](#), 2 February 2012

¹⁸⁰ Carbon Brief, [How does Carbon Brief's polling fit in with other research?](#), 2 April 2013

¹⁸¹ Q4

¹⁸² Q458

¹⁸³ Emily Shuckburgh, Rosie Robison and Nick Pidgeon, [“Climate Science, the Public and the News Media”](#), *Living with Environmental Change*, 28 September 2012, p19

Scientific and engineering institutions are not trusted because of their perception as Government propagandists being funded by Government (he who pays the piper calls the tune).¹⁸⁴

Andrew Montford, author of a blog “with a focus on dissenting opinion in the climate and energy debate”¹⁸⁵, when asked about his trusted sources on climate, responded “it is probably nobody really. You have to verify everything. Peer review is completely overdone”.¹⁸⁶ We cannot agree with this contention as we made clear in our report *Peer review in scientific publications*, in which we concluded that peer review was “crucial to the reputation and reliability of scientific research”.¹⁸⁷ Nick Pidgeon summarised the concerns often expressed by those who are sceptical:

People who are sceptical about climate change—there are about 15% you could define currently amongst the UK population—said three things. They said the point about, “You couldn’t trust the scientists.” The second group said, “No, it’s all natural cycles,” and actually there is a sense in which that is not entirely untrue, because climate change is a combination of natural and anthropogenic forcings. The third thing was, “Actually, this is a get up job because the Government wants to tax us more.”¹⁸⁸

Professor Chris Rapley told us that “for those who have formed an opinion that they do not accept the premise, lack of trust in the science community is a key rationalising factor”.¹⁸⁹ Greg Barker MP, Minister for Climate Change, told us that the approach to those who are sceptical should be to “listen to their views and treat them with respect, but we should not let the views of a relatively small minority dominate the whole agenda”.¹⁹⁰

83. We were interested in how trust in climate scientists may have been compromised by the “Climategate” story surrounding the disclosure of climate data from the Climatic Research Unit at the University of East Anglia (UEA) in 2010.¹⁹¹ In our inquiry into the matter, we concluded then that “climate science is a matter of global importance and of public interest, and therefore the quality and transparency of the science should be irreproachable”.¹⁹² Needless to say this still applies, so it was reassuring to hear from Professor Sutton that the leak of the UEA e-mails and subsequent reviews has stimulated “debate about how to make climate science more open”.¹⁹³ Professor Slingo also commented that there was much more openness about the science as a result:

¹⁸⁴ Dr Phillip Bratby, Ev w5

¹⁸⁵ Andrew Montford, Ev 105

¹⁸⁶ Q134

¹⁸⁷ Science and Technology Select Committee, Eight Report of Session 2010-12, [Peer review in scientific publications](#), HC 856, p88

¹⁸⁸ Q43

¹⁸⁹ *Ibid*

¹⁹⁰ Q380

¹⁹¹ Science and Technology Select Committee, Eighth Report of Session 2009-10, [The disclosure of climate data from the Climatic Research Unit at the University of East Anglia](#), HC 387-I,

¹⁹² *Ibid*

¹⁹³ Q76

Scientists have never been secretive, but what we clearly did not understand was that, in a situation as important as dealing with climate change, this whole business of openness, transparency, open data wherever possible, was critically important.¹⁹⁴

84. With respect to the impact on the public trust in climate scientists, the Glasgow University Media Groups told us that, in their research, “individual stories disappear. Even with Climategate, nobody raised that with us. The only people who even remembered it vaguely were those in East Anglia. The e-mails were from their local university and they remembered it for that reason. Nobody else had any recollection of it”.¹⁹⁵

85. The science community has recognised that it is important that scientists themselves communicate science, particularly climate science.¹⁹⁶ Media training, such as that now offered by the IPCC to contributing authors, is one way to address this¹⁹⁷ but engaging with the media is time consuming and it can interfere with scientists’ core business of research.¹⁹⁸ Professor Rowan Sutton, Director of Climate Research at the National Centre for Atmospheric Science, told us that “there is not an understanding across the board about the need to communicate effectively”.¹⁹⁹

86. Climate science is an area of both relevance and interest to the public and scientists are the most trusted source of information on this subject. It is, therefore, especially important that every effort is made by all publicly funded scientists working in this area to actively engage with the public, either directly or through the media. It must also be recognised that there is a minority of the public who in all likelihood will never trust anyone on climate science.

The Royal Society

87. We received submissions from The Geological Society, The Royal Academy of Engineering and the Royal Meteorological Society. The Royal Society, despite initially declining to formally respond to the inquiry, provided us with both written and oral evidence and we were grateful for the intervention the Society’s president, Sir Paul Nurse, on this. The Royal Academy of Engineering told us that learned bodies had a role in ensuring there was a consistent message about climate science:

What is vital, but challenging, is a consistent message from all parties that does not shy away from these difficulties and uncertainties. Government, industry, academia and learned bodies all have a role to play in providing the public with a coherent message.²⁰⁰

¹⁹⁴ Q275

¹⁹⁵ Q10 [Professor Philo]

¹⁹⁶ For example, Q59 [Prof John Wormsley]

¹⁹⁷ Q65 [Prof Rowan Sutton]

¹⁹⁸ Q75 [Professor Sutton]

¹⁹⁹ Q57

²⁰⁰ The Royal Academy of Engineering, Ev w80

88. The written submission from the Royal Society was not as extensive as we expected. However, it did highlight its role in “providing independent and authoritative scientific advice to UK, European and international decision makers”.²⁰¹ The Society also told us that it worked on a wide range of issues related to climate science “with a particular emphasis on communicating accurately the most up-to-date science to non-specialist audiences”.²⁰² Professor John Pethica, speaking on behalf of the Royal Society, agreed that, as a body in receipt of public funds, it had an obligation to communicate to the public about climate science.²⁰³ We found it difficult to establish evidence of this activity. The Royal Society’s joint publication of *Climate Change Evidence & Causes*²⁰⁴ on 27 February 2014 with the US National Academy of Sciences, was its first publication on climate science since the publication, in 2010, of *Climate Change: a summary of the science*²⁰⁵ and, though it has held several scientific conferences since then on various aspects of climate science and participated in a briefing event to parliamentarians, the Society has not held any public event on climate science. The last event with any relation to climate was held nearly three years ago, in March 2011, which focused on carbon storage.²⁰⁶

89. The Royal Society receives the majority of its funding, £47.1 million a year, from the Government. Block 2 of its delivery plan up to 2015 is for Science Communication and Education but, of the £515,000 a year allocated to science communication since 2011, very little appears to have been spent on communicating on climate science.²⁰⁷ The public profile the Society has on this issue is due to the ongoing debate about climate science taking place directly between Sir Paul Nurse, President of the Royal Society, and Lord Lawson from the Global Warming Policy foundation. This debate has been widely reported in the press.²⁰⁸

90. Sir Paul Nurse has very publicly engaged with prominent climate sceptics in the past. But the same is not true of the Royal Society as a whole. The launch of its joint report with the US National Academy of Sciences could have been used better to promote and communicate accurately the most up-to-date science to a non-specialist audience.

91. *The Royal Society is a publicly funded body with a responsibility to communicate about science. We encourage it to step up to that responsibility.*

The interface of science and policy

92. As a Committee we have always been of the vital importance of science in informing evidence based policy. However, in the case of climate change, discussion and disagreement about the policy response have become disagreements about the validity of

²⁰¹ The Royal Society, Ev 149

²⁰² *Ibid*

²⁰³ Q71-Q72

²⁰⁴ The Royal Society, [Climate Change, Evidence and Causes](#), 27 February 2014

²⁰⁵ The Royal Society, [Climate Change: a summary of the science](#), September 2010

²⁰⁶ The Royal Society, [Carbon storage: caught between a rock and climate change](#), (Lecture), 24 March 2011

²⁰⁷ The Royal Society, [Royal Society Delivery Plan 2011-2015](#) p3

²⁰⁸ “[Manmade global warming: a stormy meeting between sceptics and believers](#)”, *The Guardian*, 13 December 2013; and “[The secret society of warmists](#)”, *The Telegraph*, 30 November 2013

the science. This difficulty in separating discussions about the science, which is a factual debate, from discussions about the appropriate policy response, which is a matter of judgement, was referred to by witnesses. This is of particular concern for scientists, who are wary of being drawn into areas outside their expertise. As Professor Sutton told us:

Sometimes scientists can be drawn in to comment on things that, frankly, they should not comment on, because an interview goes in that direction.²⁰⁹

93. Professor Tim Palmer, from the Royal Meteorological Society, said that it was important for scientists to focus on the science when talking about climate change:

As a scientist I try to separate [how science will affect society] from the science issues, especially when speaking in public. I believe that the public's confidence in climate science and climate scientists may increase if it is felt that the scientists can take a mostly disinterested view on climate policy.²¹⁰

94. We were told that “confusion between the science and the politics bedevils the public dialogue” and that “the profound policy implications of climate change mean that public discussion often constitutes policy debate masquerading as science”.²¹¹ ClimateXChange, the research group that advises the Scottish Government on climate change issues, told us why, in their view, communicating about climate change had become so complicated:

Climate change is a politicised debate involving conflicting interests and challenging societal and individual habits. The discourse on climate change is complicated by difficulties in communication between science, policy, the media and the public. There is space for miscommunication, resistance and politicisation at any stage of the discourse.²¹²

Carbon Brief highlighted how this confusion is reflected in media coverage: “rapid jumps between detailed scientific specifics, broad scientific conclusions and pundits or politicians arguing about climate policy are unlikely to increase understanding in audiences”.²¹³ RCUK wrote that “whilst most publicly-funded climate scientists will acknowledge that their research is relevant to society, engaging in what can often be a challenging dialogue about controversial issues can be a daunting task”.²¹⁴

95. The National Centre for Atmospheric Science indicated that this did not mean that scientists had no role in the policy discussion, “it is not the role of publicly funded climate scientists to advocate any specific policy responses, but it is part of our role to explain the likely or potential consequences of alternative policy choices, based on current scientific understanding”.²¹⁵ Professor Sutton, told us that scientists should be involved in “explaining, on the basis of the available evidence, the potential consequences of different

²⁰⁹ Q64

²¹⁰ Royal Meteorological Society, [Climate Change Simulation by Tim Palmer](#), 1 February 2013

²¹¹ UCL Communicating Climate Science Policy Commission, Ev 127, para 25

²¹² ClimateXChange, Ev w59

²¹³ Carbon Brief, Ev 133

²¹⁴ Research Councils UK, Ev 115

²¹⁵ National Centre for Atmospheric Science, Ev 107

policy choices. That is very different, of course, from advocating any particular policy”.²¹⁶ Professor John Womersley, Champion for RCUK Public Engagement with Research, expressed similar views: “I think it is completely appropriate for scientists to become involved in the public policy debate, if they wish to, to make sure that that debate remains evidence-based, but it is not mandatory”.²¹⁷ Professor Palmer, was more cautious and expressed the view that scientists should simply present the science and allow politicians to discuss its relevance to policy.²¹⁸

96. The politicisation of climate science has made it extremely difficult to discuss the science without becoming involved in climate politics. This makes a dispassionate assessment of new climate data extremely difficult. The communication of these findings can be subject to politicisation before their implications are fully understood. This heightened political context makes scientific progress or debate very difficult.

²¹⁶ Q66

²¹⁷ *Ibid*

²¹⁸ *Ibid*

4 Effective communication

97. We needed to consider how communicating the science of climate change and the evidence of anthropogenic influence is different from other science topics. That this communication may not be straight forward is demonstrated by the continuing dispute about the level of consensus about the science and a persistent minority of those actively sceptical of both the science and related Government policies. The Met Office and Kent County Council have commissioned research to establish how best to communicate with the public.²¹⁹ University College London has set up a Communicating Climate Science Policy Commission precisely to address this issue.²²⁰

An emotive issue

98. Climate change is a complex subject which is not “emotionally neutral”.²²¹ There is an increasing interest amongst scientists about the reasons people may or may not support policies addressed at reducing emissions and the impacts of climate change.²²² The UCL Communicating Climate Science Policy Commission told us how “the ‘unwelcome messages’ of climate science have the capacity to arouse emotions of anxiety, fear, guilt, loss, interdependency and helplessness” and that “values and worldviews are predicative of climate change concern”.²²³ People with sceptical attitudes to climate change may still support carbon policies as achieving a “more desirable, less polluted future”.²²⁴ Research also indicates that communication focusing on how mitigation efforts “can promote a better society”²²⁵ is more likely to engage those sceptical of the science. This has led some to advocate targeting different messages to different audiences. For example, the Climate Outreach and Information Network published *A new conversation with the centre-right about climate change* in 2013 aimed at “developing a better understanding of how to engage centre-right citizens on climate change”.²²⁶ But this approach carries risks: “people are very sensitive to feeling that you may be trying to manipulate them”.²²⁷

99. Lord Deben was of the view that the key issue was about what happened when “the general becomes the practical and particular”:

²¹⁹ Q280 [Mr John Hirst]; Sutton R. et al., (2012) *Engaging coastal communities in climate mitigation and adaptation measures*. Unpublished report commissioned by Kent County Council for the CC2150

²²⁰ [UCL Communicating Climate Science Policy Commission](#)

²²¹ Q34 [Prof. Chris Rapley]

²²² Nature, Climate Change, [Focus: Public and Experts’ Views about Climate Change](#)

²²³ UCL Communicating Climate Science Policy Commission, Ev 126, para16

²²⁴ Understanding Risk Research Group, Cardiff University, Ev 123 para 28

²²⁵ *Ibid*

²²⁶ Climate Outreach and Information Network, [A new conversation with the centre right about climate change](#), July 2013, p2

²²⁷ Q51 [Prof Chris Rapley]

If you add to that those who have a very strong view that almost any kind of regulation is unhappy and is a disadvantage, there will be a tendency to argue rather more on more of the issues.²²⁸

Professor Pidgeon considered that the best approach was a message that focused on making the links with climate change explicit and offered “positive rationales and objectives”²²⁹ that went beyond climate change and therefore engaged with a wider section of the public.

Risk and uncertainty

100. As we have previously found in our inquiries into energy infrastructure and advice to government during emergencies, the communication of risk is not easy. Climate communication suffers from similar problems and these are often attributed to be misunderstandings of the language used by scientists, particularly what is meant by scientific uncertainty and how it relates to risk. The Minister, Greg Barker MP, was aware of this and told us that “we are dealing with probability and risk rather than absolutes, which would be much easier”:

Even though the probabilities are extremely high, which are now statistically almost off the scale according to the IPCC—they said they were 95% certain—they are still nevertheless dealing with a range of probabilities, and that can be difficult to convey. It also leaves open an opportunity for doubt—some of it reasonable doubt and some of it just sceptics who take a very contrary view.²³⁰

ClimateXChange, in their evidence to the Committee told us there is very little uncertainty about human activity influencing the global climate among climatologists.²³¹ However, uncertainty means different things to the scientific community and the lay public and this difference can result in information being misinterpreted:

Some of the inevitable debates and uncertainties expressed by experts and scientists are often misinterpreted by the public as a lack of certainty in anthropogenic climate change and therefore become a reason for scepticism by the public in climate change.²³²

101. The Royal Meteorological Society, in evidence to the Energy and Climate Change Select Committee inquiry into the IPCC AR5, highlighted the difference in how scientists use the terms uncertainty and risk in contrast to their everyday use and that there was value in “testing and evaluating whether statements have been interpreted as intended and exploring alternative ways of communicating”.²³³ James Painter, in his paper *Climate Change in the Media: reporting risk and uncertainty*, pointed out that school science made

²²⁸ Q319

²²⁹ Understanding Risk Research Group, Cardiff University, Ev 123, para 29

²³⁰ Q359 Greg Barker

²³¹ ClimateXChange, Ev w60

²³² *Ibid*

²³³ Energy and Climate Change Select Committee, IPCC 5th Assessment Review, [Royal Meteorological Society](#) (IPC0029), para 12

the communication of risk and uncertainty even more difficult as science was treated as “a source of solid facts and reliable understanding”.²³⁴ This is different to research science where “uncertainty is engrained and is often the impetus for further investigation”.²³⁵ In his submission to the Energy and Climate Change Committee inquiry he expressed the view that the discrepancy between the expected scientific certainties and the reality of “scientists constantly [talking] about uncertainty” could lead to uncertainty on how to proceed, dodging the problem and even anger.²³⁶ Mr Painter went on to explore some of the benefits of talking in terms of risk:

Many argue that when compared to the messages of disaster or uncertainty that often surround climate change, risk is far from being a panacea, but it does offer a more sophisticated and apposite language to have the discussion in and a more helpful prism through which to analyse the problem.

[...] it shifts the debate away from what would count as conclusive proof or overwhelming certainty before taking action, towards an analysis of the comparative costs and risks of different policy options (including doing nothing).²³⁷

Using risk terminology rather than uncertainty was supported by the Grantham Research Institute in its evidence to the Energy and Climate Change Committee inquiry in which it stated that, in its view, talking about uncertainty “might lead to a misinterpretation that there is no disadvantage in delaying until further certainty is attained”.²³⁸

Engagement and dialogue

102. There was a strong view amongst many witnesses that the deficit model, where the reason for a lack of understanding is perceived to be a deficit of information provision, was not appropriate in the area climate change and its causes. For example, University College London told us there was extensive evidence demonstrating that “a ‘deficit model’ of communication, in which experts treat non-experts as ‘empty vessels’ to be filled with facts, is flawed”.²³⁹ Despite polls that indicate that the public trusts scientists, “statements from scientists are rarely sufficient to persuade or compel particular viewpoints or actions”.²⁴⁰ In UCL’s view, traditional debate was also unhelpful and it suggested dialogue as a more effective approach.

103. We were told by several other witnesses that two-way engagement had proven more effective, though it was more expensive and resource intensive. The National Centre for Atmospheric Science told us “direct engagement [...] is probably one of the more effective mechanisms, but also one of the most costly”.²⁴¹ This was the view of many witnesses.²⁴²

²³⁴ James Painter, *Climate Change in the Media: reporting risk and uncertainty*, 2013

²³⁵ *Ibid*

²³⁶ Energy and Climate Change Select Committee, IPCC 5th Assessment Review, [James Painter](#) (IPC0044), para9

²³⁷ *Ibid*

²³⁸ Energy and Climate Change Select Committee, IPCC 5th Assessment Review, [Bob Ward and Naomi Hicks, Grantham Research Institute on Climate Change and the Environment](#) (IPC0051), para12

²³⁹ UCL Communicating Climate Science Policy Commission, Ev 126

²⁴⁰ *Ibid* para 13

²⁴¹ *Ibid*

Kent and Kirklees Councils told us of the effectiveness of two way dialogue as a way of engaging with public but also cautioned that “that sort of behaviour change is quite resource-intensive and not something we can do so much of anymore”.²⁴³

104. Direct engagement, the most effective approach, may therefore be too expensive to be used for communicating on climate science to the public on a significant scale. There remains a need to produce good quality information. This was highlighted by the Royal Meteorological Society who carried out a survey in 2009 which found that “100% of the public surveyed on weather and climate matters were interested, or very interested, in a plain English explanation of the causes and effects of climate change”.²⁴⁴ There is also an appetite for more information on science, generally, amongst the public as highlighted in the BIS Attitudes to Science Surveys.

²⁴² Q40 [Prof Chris Rapley]

²⁴³ Q216 [Katie Stead]

²⁴⁴ Royal Meteorological Society, Ev 110

5 Conclusions

105. Successive Government efforts to create a clear narrative that ensures a discourse about climate change that is coherent, constructive and results in proper public engagement has been disappointingly limited.

106. The Government's hands-off approach to engaging with the public and the media, relying heavily on scientists as the most prominent voice, has resulted in a vacuum that has allowed inaccurate arguments to flourish with little effective challenge.

107. If the Government is to demonstrate its climate policies are evidence based, it needs to be an authoritative and trusted voice which explains the current state of climate science. It is important that climate science is presented separately from any subsequent policy response. *We recommend that the Government work with the learned societies and national academies to develop a source of information on climate science that is discrete from policy delivery, comprehensible to the general public and responsive to both current developments and uncertainties in the science.*

108. We have always sought to ascertain that policy is evidence based. We remain convinced that peer review is the best current option for judging the strength of science in any issue. Peer reviewed science is overwhelmingly of the view that anthropogenic climate change exists.

109. Science is the ultimate sceptic, challenging theories and opinion and ready to abandon or adapt as the available evidence changes. Genuine scepticism should be embraced by the climate science community. Dogma on either side of the debate should be revealed as such.

110. *To achieve the necessary commitment from the public to climate policy, the Government must demonstrate a coherent approach to communicating both the scientific basis and the proposed solutions. We recommend that the Government consolidates its strategic approach to communicating climate science across all Departments, formulate the principles of that approach and make it public. All Ministers should acquaint themselves with the science of climate change and then they, and their Departments, should reflect the Government approach in person, in media interviews and online by a presenting a clear and consistent message.*

Conclusions and recommendations

C&R Sub heading

1. In order to communicate what climate change is, the Government must agree a clear consistent and precise definition which can be related to direct observations and measurements. This should be based on Professors Slingo's and Rapley's definitions. (Paragraph 12)
2. Despite the existing polling information, it remains difficult to draw firm conclusions on how public acceptance and understanding of climate change is changing in the UK. However, it is clear that a significant majority of people think the climate is changing and that human activity is at least partly responsible for this. The polling on public understanding is limited and unlikely to highlight the information needs of the general public. In its response to this report, the Government should detail how it will collect, and make available, more regular and more in depth information on the public understanding of climate change. (Paragraph 18)
3. We acknowledge the difficulty for broadcasters in maintaining coverage of climate change when the basic facts are established and the central story remains the same. We consider it vital, however, that they continue to do so. Our greatest concern is about the BBC given the high level of trust the public has in its coverage. It did not convince us that it had a clear understanding of the information needs of its audience and we note its rejection of Professor Jones' recommendations on climate. (Paragraph 41)
4. This is not to say that non-scientists should be excluded from the debate, the BBC has the responsibility to reflect all views and opinions in society and it is worth remembering that not all frauds and mistakes in science have been uncovered by scientists. Where time is available for careful consideration and discussion of the facts, it should be possible to explore more detailed consideration of where the science is less certain, such as how feedback mechanisms and climate sensitivity influence the response of the climate to increasing concentrations of carbon dioxide in the atmosphere. Scientists, politicians, lobbying groups and other interested parties should be heard on this issue but the BBC should be clear on what role its interviewees have and should be careful not to treat lobbying groups as disinterested experts. (Paragraph 42)
5. We recommend that the BBC should develop clear editorial guidelines for all commentators and presenters on the facts of climate that should be used to challenge statements, from either side of the climate policy debate, that stray too far from the scientific facts. Public service broadcasters should be held to a higher standard than other broadcasters. (Paragraph 47)
6. We are very disappointed by the heavy reliance that the Daily Mail and the Daily Telegraph place on the ability of their readers to distinguish between fact and opinion on climate science. This is especially the case because opinion pieces about

climate science in these publications are frequently based on factual inaccuracies which go unchallenged. (Paragraph 54)

7. The internet and social media are increasingly used by the public when seeking to verify media reports or obtain further detailed information about climate change. The Government and other trusted bodies are currently failing to make effective use of internet or social media to engage with the public and provide accurate scientific information about climate change. (Paragraph 59)
8. We consider the lack of a narrative strongly reflects a lack leadership in climate change. (Paragraph 61)
9. The Met Office is an organisation seeking to have a greater role in the communication of climate science. As such we would have liked to have seen greater effort to communicate to the public on the publication of the IPCC AR5 report. It should have been more timely with information that should be far more accessible to the public at large. (Paragraph 71)
10. We heard from Government, government agencies and bodies at national and local levels working at engaging with the public on mitigating and adapting to climate change. We found little evidence of any significant co-ordination amongst them to communicate the science. Neither is there any indication that the Government is regarded as a primary, or even a reliable, source of information on climate science by the general public. (Paragraph 79)
11. The Royal Society is a publicly funded body with a responsibility to communicate about science. We encourage it to step up to that responsibility. (Paragraph 91)
12. Successive Government efforts to create a clear narrative that ensures a discourse about climate change that is coherent, constructive and results in proper public engagement has been disappointingly limited. (Paragraph 105)
13. The Government's hands-off approach to engaging with the public and the media, relying heavily on scientists as the most prominent voice, has resulted in a vacuum that has allowed inaccurate arguments to flourish with little effective challenge. (Paragraph 106)
14. If the Government is to demonstrate its climate policies are evidence based, it needs to be an authoritative and trusted voice which explains the current state of climate science. It is important that climate science is presented separately from any subsequent policy response. We recommend that the Government work with the learned societies and national academies to develop a source of information on climate science that is discrete from policy delivery, comprehensible to the general public and responsive to both current developments and uncertainties in the science. (Paragraph 107)
15. We have always sought to ascertain that policy is evidence based. We remain convinced that peer review is the best current option for judging the strength of science in any issue. Peer reviewed science is overwhelmingly of the view that anthropogenic climate change exists. (Paragraph 108)

16. Science is the ultimate sceptic, challenging theories and opinion and ready to abandon or adapt as the available evidence changes. Genuine scepticism should be embraced by the climate science community. Dogma on either side of the debate should be revealed as such. (Paragraph 109)
17. To achieve the necessary commitment from the public to climate policy, the Government must demonstrate a coherent approach to communicating both the scientific basis and the proposed solutions. We recommend that the Government consolidates its strategic approach to communicating climate science across all Departments, formulate the principles of that approach and make it public. All Ministers should acquaint themselves with the science of climate change and then they, and their Departments, should reflect the Government approach in person, in media interviews and online by presenting a clear and consistent message. (Paragraph 110)

Formal Minutes

Wednesday 26 March 2014

Members present:

Andrew Miller, in the Chair

Jim Dowd
Stephen Metcalfe
Stephen Mosley
Sarah Newton
David Tredinnick

Mr David Heath
David Morris
Pamela Nash
Graham Stringer

Draft Report (*Communicating climate science*), proposed by the Chair, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 110 read and agreed to.

Summary agreed to.

Resolved, That the Report be the Eighth Report of the Committee to the House.

Ordered, That the Chair make the Report to the House.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

Written evidence was ordered to be reported to the House for printing with the Report.

[Adjourned till Wednesday 2 April at 9.00 am

Witnesses

Wednesday 19 June 2013

Page

Dr Catherine Happer, Glasgow University Media Group,
Professor Greg Philo, Glasgow University Media Group, and
Tom Sheldon, Senior Press Officer, Science Media Centre

Ev 1

Wednesday 26 June 2013 (Atmosphere Gallery, Science Museum)

Professor Nick Pidgeon, Understanding Risk Research Group, Cardiff University, **Professor Chris Rapley**, Communicating Climate Science Policy Commission, UCL, and **Dr Alex Burch**, Director of Learning, Science Museum Group

Ev 10

Professor John Womersley, Chief Executive, Science and Technology Facilities Council, and Champion for RCUK Public Engagement with Research, **Professor Tim Palmer**, Vice-President, Royal Meteorological Society, **Professor Rowan Sutton**, Director of Climate Research, National Centre for Atmospheric Science, and **Professor John Pethica**, Physical Secretary and Vice-President, Royal Society

Ev 19

Wednesday 17 July 2013

David Jordan, Director of Editorial Policy and Standards, BBC, **Ralph Lee**, Head of Factual, Channel 4, and **Fiona Ball**, Head of Environment and Engagement, BSkyB Limited

Ev 27

Ros Donald, Carbon Brief, **Andrew Montford**, Bishop Hill Blog, and **James Painter**, Head of the Journalism Fellowship Programme, Reuters Institute for the Study of Journalism

Ev 36

Monday 9 September 2013

Dr James Randerson, Assistant National News Editor, environment, science and technology, *The Guardian*, **Catherine Brahic**, News Editor: environment and life sciences, *New Scientist*

Ev 46

Fiona Harvey, Environment Correspondent, *The Guardian*, **Lewis Smith**, Freelance Journalist, and **Richard Black**, former BBC Environment Correspondent

Ev 54

Wednesday 11 September 2013

Tony Grayling, Head of Climate Change and Communities, Environment Agency, **Phil Rothwell**, Head of Strategy and Engagement (Flood and Coastal Risk Management), Environment Agency, **Paul Crick**, Director of Planning and Environment, Kent County Council, and **Katie Stead**, Environment Officer, Investment and Regeneration Service, Kirklees Council Ev 60

John Hirst, Chief Executive, Met Office, and **Professor Julia Slingo**, Chief Scientist, Met Office Ev 69

Wednesday 9 October 2013

Rt Hon Lord Deben, Chairman, and **David Kennedy**, Chief Executive, Committee on Climate Change Ev 77

Rt Hon David Willetts MP, Minister of State for Universities and Science, Department for Business, Innovation and Skills Ev 82

Rt Hon Gregory Barker MP, Minister of State for Climate Change, **Professor David MacKay**, Chief Scientific Adviser, and **David Warrilow**, Head of Science, Department of Energy and Climate Change Ev 85

Wednesday 6 November 2013

Professor Sir Mark Walport, Chief Scientific Adviser to HM Government and Head of the Government Office for Science Ev 95

List of printed written evidence

1	Andrew Montford (CLC 04)	Ev 105
2	National Centre for Atmospheric Science (CLC 19)	Ev 107
3	Royal Meteorological Society (CLC 28)	Ev 109
4	Carbon Brief (CLC 30)	Ev 111
5	Research Councils UK (CLC 36)	Ev 114
6	Understanding Risk Research Group, Cardiff University (CLC 42)	Ev 118
7	UCL Communicating Climate Science Policy Commission (CCSPC) (CLC 45)	Ev 124
8	Government Departments (CLC 47)	Ev 130
9	Committee on Climate Change (CLC 49)	Ev 136
10	Met Office (CLC 50)	Ev 137
11	Dr Catherine Happer and Professor Greg Philo (CLC 51)	Ev 139
12	Science Media Centre (CLC 52)	Ev 142
13	Science Museum, London (CLC 53)	Ev 145
14	The Royal Society (CLC 54)	Ev 149
15	British Sky Broadcasting Limited ('Sky') (CLC 55)	Ev 151
16	Channel 4 (CLC 56)	Ev 153
17	James Painter, Reuters Institute for the Study of Journalism Department of Politics and International Relations University (CLC 57)	Ev 156
18	Kent County Council (CLC 58)	Ev 160
19	Kirklees Council (CLC 59)	Ev 165
20	Environment Agency (CLC 60)	Ev 170
21	BBC (CLC 64)	Ev 173
22	Sir Mark Walport, Chief Scientific Adviser to HM Government and Head of the Government Office for Science (CLC 66)	Ev 175
23	Met Office (supplementary to CLC 50) (CLC 68)	Ev 177
24	The Daily Telegraph (CLC 70)	Ev 179
25	The Daily Mail (CLC 71)	Ev 181

List of additional written evidence

(published in Volume II on the Committee's website www.parliament.uk/science)

1	Adrian Camp (CLC 01)	Ev w1
2	Ron Hughes (CLC 02)	Ev w1
3	Gillespie Robertson (CLC 03)	Ev w3
4	Philip Foster (CLC 05)	Ev w4
5	Dr Phillip Bratby (CLC 06)	Ev w4
6	Ralph Morris (CLC 08)	Ev w6
7	Dr Christopher Shaw (CLC 09)	Ev w7
8	The Scientific Alliance (CLC 11)	Ev w8
9	Sciencewise (CLC 13)	Ev w10

10	Caroline Peacock (CLC 14)	Ev w14
11	David Holland (CLC 15)	Ev w17
12	Professor Anthony Trewavas (CLC 16)	Ev w20
13	Jonathan Peacock (CLC 17)	Ev w24
14	Adam J L Harris, Nigel Harvey, Leonard A Smith, David A Stainforth, Erica Thompson (CLC 18)	Ev w25
15	ADS Group (CLC 20)	Ev w28
16	Tyndall Centre for Climate Change Research (CLC 21)	Ev w31
17	Plymouth Marine Laboratory (CLC 22)	Ev w35
18	The James Hutton Institute (CLC 23)	Ev w37
19	Paul Matthews, School of Mathematical Sciences, University of Nottingham (CLC 25)	Ev w45
20	Dr Neil T Gavin, The University of Liverpool (CLC 26)	Ev w47
21	UK National Committee for UNICEF (CLC 27)	Ev w52
22	Dr Emily Shuckburgh, British Antarctic Survey, and Dr Rosie Robison, Global Sustainability Institute, Anglia Ruskin University (CLC 29)	Ev w55
23	ClimateXChange (CLC 31)	Ev w58
24	EDF Energy (CLC 32)	Ev w61
25	The Geological Society (CLC 34)	Ev w64
26	John G Gahan (CLC 35)	Ev w65
27	Brian Gallagher (CLC 37)	Ev w69
28	Brian R L Catt (CLC 38)	Ev w75
29	The Royal Academy of Engineering (CLC 39)	Ev w79
30	Rupert C E Wyndham (CLC 40)	Ev w81
31	Bob Ward, Policy and Communications Director, and Naomi Hicks, Public Communications Manager, Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science (CLC 41)	Ev w84
32	Sir Christopher Audland (CLC 43)	Ev w90
33	Green Alliance (CLC 44)	Ev w93
34	Professor Erik Bichard, University of Salford (CLC 46)	Ev w97
35	John D Taylor (CLC 48)	Ev w101
36	Alex Henney (CLC 61)	Ev w105
37	David Fogarty (CLC 62)	Ev w121
38	Dr Richard Lawson (CLC 63)	Ev w124
39	At-Bristol (CLC 65)	Ev w126
40	Professor Steve Jones (CLC 67)	Ev w127
41	UK Association for Science and Discovery Centres (CLC 69)	Ev w128

List of Reports from the Committee during the current Parliament

The reference number of the Government's response to each Report is printed in brackets after the HC printing number.

Session 2013–14

First Special Report	Educating tomorrow's engineers: the impact of Government reforms on 14–19 education: Government Response to the Committee's Seventh Report of Session 2012–13	HC 102
First Report	Water quality: priority substances	HC 272-I (HC 648)
Second Special Report	Marine science: Government Response to the Committee's Ninth Report of Session 2012–13	HC 443
Third Special Report	Bridging the valley of death: improving the commercialisation of research: Government response to the Committee's Eighth Report of Session 2012–13	HC 559
Second Report	Forensic science	HC 610 (Cm 8750)
Fourth Special Report	Water quality: priority substances: Government response to the Committee's First Report of Session 2013–14	HC 648
Third Report	Clinical trials	HC 104 (Cm 8743)
Fifth Special Report	Clinical trials: Health Research Authority Response to the Committee's Third Report of Session 2013–14	HC 753
Fourth Report	Work of the European and UK Space Agencies	HC 253 (HC 1112)
Fifth Report	Pre-appointment hearing with the Government's preferred candidate for Chair of the Natural Environment Research Council (NERC)	HC 702
Sixth Special Report	Forensic science: Research Councils UK Response to the Committee's Second Report of Session 2013–14	HC 843
Seventh Special Report	Clinical trials: Medical Research Council Response to the Committee's Third Report of Session 2013–14	HC 874
Sixth Report	Women in scientific careers	HC 701
Seventh Report	Pre-appointment hearing with the Government's preferred candidate for Chair of the Arts and Humanities Research Council (AHRC)	HC 989
Eighth Special Report	Work of the European and UK Space Agencies: Government Response to the Committee's Fourth Report of Session 2013–14	HC 1112

Session 2012–13

First Special Report	Science in the Met Office: Government Response to the Committee's Thirteenth Report of Session 2010–12	HC 162
First Report	Devil's bargain? Energy risks and the public	HC 428 (HC 677)
Second Report	Pre-appointment hearing with the Government's preferred candidate for Chair of the Medical Research	HC 510-I

	Council	
Second Special Report	Engineering in government: follow-up to the 2009 report on Engineering: turning ideas into reality: Government Response to the Committee's Fifteenth Report of Session 2010–12	HC 511
Third Report	The Census and social science	HC 322 (HC 1053)
Fourth Report	Building scientific capacity for development	HC 377 (HC 907)
Fifth Report	Regulation of medical implants in the EU and UK	HC 163 (Cm 8496)
Sixth Report	Proposed merger of British Antarctic Survey and National Oceanography Centre	HC 699 (HC 906)
Third Special Report	Devil's bargain? Energy risks and the public: Government Response to the Committee's First Report of Session 2012–13	HC 677
Fourth Special Report	Building scientific capacity for development: Government and UK Collaborative on Development Sciences Response to the Committee's Fourth Report of Session 2012–13	HC 907
Fifth Special Report	Proposed merger of British Antarctic Survey and National Oceanography Centre: Natural Environment Research Council Response to the Committee's Sixth Report of Session 2012–13	HC 906
Seventh Report	Educating tomorrow's engineers: the impact of Government reforms on 14–19 education	HC 665 (HC 102, Session 2013–14)
Eighth Report	Bridging the valley of death: improving the commercialisation of research	HC 348 (HC 559, Session 2013–14)
Sixth Special Report	The Census and social science: Government and Economic and Social Research Council (ESRC) Responses to the Committee's Third Report of Session 2012–13	HC 1053
Session 2010–12		
First Special Report	The Legacy Report: Government Response to the Committee's Ninth Report of Session 2009–10	HC 370
First Report	The Reviews into the University of East Anglia's Climatic Research Unit's E-mails	HC 444 (HC 496)
Second Report	Technology and Innovation Centres	HC 618 (HC 1041)
Third Report	Scientific advice and evidence in emergencies	HC 498 (HC 1042 and HC 1139)
Second Special Report	The Reviews into the University of East Anglia's Climatic Research Unit's E-mails: Government Response to the Committee's First Report of Session 2010–12	HC 496
Fourth Report	Astronomy and Particle Physics	HC 806 (HC 1425)
Fifth Report	Strategically important metals	HC 726 (HC 1479)
Third Special Report	Technology and Innovation Centres: Government Response to the Committee's Second Report of Session 2010–12	HC 1041
Fourth Special Report	Scientific advice and evidence in emergencies: Government Response to the Committee's Third Report of Session 2010–12	HC 1042

Sixth Report	UK Centre for Medical Research and Innovation (UKCMRI)	HC 727 (HC 1475)
Fifth Special Report	Bioengineering: Government Response to the Committee's Seventh Report of 2009–10	HC 1138
Sixth Special Report	Scientific advice and evidence in emergencies: Supplementary Government Response to the Committee's Third Report of Session 2010–12	HC 1139
Seventh Report	The Forensic Science Service	HC 855 (Cm 8215)
Seventh Special Report	Astronomy and Particle Physics: Government and Science and Technology Facilities Council Response to the Committee's Fourth Report of Session 2010–12	HC 1425
Eighth Report	Peer review in scientific publications	HC 856 (HC 1535)
Eighth Special Report	UK Centre for Medical Research and Innovation (UKCMRI): Government Response to the Committee's Sixth Report of session 2010–12	HC 1475
Ninth Report	Practical experiments in school science lessons and science field trips	HC 1060–I (HC 1655)
Ninth Special Report	Strategically important metals: Government Response to the Committee's Fifth Report of Session 2010–12	HC 1479
Tenth Special Report	Peer review in scientific publications: Government and Research Councils UK Responses to the Committee's Eighth Report of Session 2010–12	HC 1535
Tenth Report	Pre-appointment hearing with the Government's preferred candidate for Chair of the Technology Strategy Board	HC 1539–I
Eleventh Special Report	Practical experiments in school science lessons and science field trips: Government and Ofqual Responses to the Committee's Ninth Report of Session 2010–12	HC 1655
Eleventh Report	Alcohol guidelines	HC 1536 (Cm 8329)
Twelfth Report	Malware and cyber crime	HC 1537 (Cm 8328)
Thirteenth Report	Science in the Met Office	HC 1538
Fourteenth Report	Pre-appointment hearing with the Government's preferred candidate for Chair of the Engineering and Physical Sciences Research Council	HC 1871–I
Fifteenth Report	Engineering in government: follow-up to the 2009 report on Engineering: turning ideas into reality	HC 1667 (HC 511, Session 2012–13)