



Climate change and energy security: Assessing the impact of information and its delivery on attitudes and behaviour

Climate change and energy security

Catherine Happer

Research Associate, Glasgow University Media Group

Greg Philo

Professor of Communications and Social Change,
and Director of the Glasgow University Media Group

Antony Froggatt

Senior Research Fellow, Energy, Environment
and Resource Governance, Chatham House

December 2012

UKERC/RR/HQ/2012/002

www.ukerc.ac.uk

The Meeting Place – hosting events for the whole of the UK energy research community
– www.ukerc.ac.uk/support/TheMeetingPlace

National Energy Research Network – a weekly newsletter containing news, jobs, events,
opportunities and developments across the energy field – www.ukerc.ac.uk/support/NERN

Research Atlas – the definitive information resource for current and past UK energy research and
development activity – <http://ukerc.rl.ac.uk/>

UKERC Publications Catalogue – all UKERC publications and articles available online, via www.ukerc.ac.uk

Follow us on Twitter @UKERCHQ

About UKERC

The UK Energy Research Centre carries out world-class research into sustainable energy systems.

It is the hub of UK energy research and the gateway between the UK and international energy research communities. Its interdisciplinary, whole-systems research informs UK policy development and research strategy.

- UKERC's Meeting Place, based in Oxford, serves the whole of the UK research community and its popular events, designed to tackle interdisciplinary topics and facilitate knowledge exchange and collaboration, are regularly oversubscribed – www.ukerc.ac.uk/support/TheMeetingPlace
- The National Energy Research Network provides regular updates on news, jobs, events, opportunities and developments across the energy field in the form of a popular weekly newsletter – www.ukerc.ac.uk/support/NERN

- UKERC's Research Atlas is the definitive information resource for current and past UK energy research and development activity. The online database also has information on energy-related research capabilities in the UK and a series of energy roadmaps showing research problems to be overcome before new technologies can be commercially viable – <http://ukerc.rl.ac.uk>
- UKERC is also the research delivery partner in the Technology Strategy Board's Knowledge Transfer Network (KTN) for Energy Generation and Supply, with responsibility for analysis of future and emerging opportunities. The KTN aims to accelerate the innovation of technology across the energy generation and supply landscape
- All UKERC's publications and articles can be accessed via our online Publications Catalogue, which you can link to from our home page – www.ukerc.ac.uk

Contents

Key findings	2	4. Audience studies: Energy security	12
1. Introduction	4	Awareness versus concern	12
2. Methodology and design	6	Sources and coverage	12
The creation of an information environment	6	Collective action and individual behaviours	12
Revisit interviews	7	Attitudes towards non-fossil fuel sources of energy	13
Immersion	7	Introducing the new information: responses to the blackout scenario	13
3. News media and public belief and behaviours:		5. The Revisit interviews	15
Climate change	8	Long term attitudinal change	15
Pre-existing knowledge of and associations with climate change	8	Increasing awareness	15
Perceptions of scientists, and climate science	8	Impact on behaviours: reasons for lack of action	16
Taking action, collective and individual	8	Positive behavioural changes	
Reasons for disengagement	9	6. Conclusions	17
Shifting priorities: the economy	9	7. Bibliography	20
Feelings of powerlessness	10		
Introducing the new information: Responses to the Bangladesh climate refugee and Glasgow flood scenarios	10		

Key findings

In 2011/12 The Glasgow University Media Group (GUMG) and Chatham House undertook a qualitative study of audience beliefs and behaviours in relation to climate change and energy security, employing focus groups and interviews.

The aim was to examine the specific triggers for changes in patterns of understanding and attitude – and the conditions under which these lead to changes in behaviour.

New and innovative methodologies were developed, including the preparation of authentic news broadcasts to present possible future outcomes of climate change and problems with energy security constraint. The results show how beliefs held by audiences can be affected when they receive new information. The conditions under which people believe or reject different arguments are at the heart of the study.

1. Climate change



- There is widespread public confusion over climate change which reflects the journalistic construction of the subject as one of uncertainty. Most people have only a vague understanding of the science, and believe it is inconsistent anyway.
- People do not trust politicians, and as these are some of the voices they hear most frequently on the subject, that has led to further disengagement.
- The continuing politicisation of climate change in the UK media not only leads to confusion and distrust but is a strong contributory factor in its dropping off the media agenda as the media will not consistently prioritise an issue without the sustained commitment of primary definers, most powerful of whom are politicians.
- The resultant recent dip in media attention has encouraged people to think of climate change as less of a priority.
- Tackling problems in the current economic climate are pitted against tackling climate change and the former is considered the more urgent of the two.
- There is a widespread culture of cynicism and distrust, which has led to feelings of powerlessness generally.
- The one group who have any credibility on the subject of climate change are scientists, academics and researchers who are currently not at the forefront of the debate – as a result, scientists need to force these critical issues on to the agenda of politicians and the politicians then should employ their role as primary definers to raise the profile of the issues and the way the latest science is presented in the media.

Awareness of energy security issues is low. Once the term is defined however people are concerned that it is not higher on the political agenda

2. Energy security

- Awareness of energy security issues is low. Once the term is defined however people are concerned that it is not higher on the political agenda.
- Before being raised in discussion, it was not generally considered a pressing problem or threat and the connection with potential solutions, such as renewable energies, was not consistently made. Personal behaviours are also not yet strongly associated with the issue.
- Views on renewable energies were mixed, but there was a general consensus that they are currently not sufficient to cover the UK's energy needs and for some might never be. There was further evidence that negative news coverage of renewables is beginning to create uncertainty in the minds of audiences.
- There was a general openness to nuclear power as an option in terms of supplying energy needs, but this was tinged with wariness largely as a result of the coverage of the 2011 Fukushima nuclear plant incident.
- There was widespread discontent with the UK being dependent on imports of gas - and a general belief that there are further reserves of gas in the North sea which can be tapped into.
- Energy companies are not trusted, and are seen to be another example of corruption at the top of society.



3. The impact of new information: 'extreme' news reports set some time in the future.

- After viewing the three news reports representing future possible outcomes of climate change and energy security, audiences had a heightened sense of concern and urgency in relation to these issues.
- In terms of the global impact of climate change, including the movement of climate refugees, the majority had concerns about an influx of refugees coming to the UK, much of which was related to the potential threats to people's lives and communities and reflected some confusion with refugees and immigrants more generally. Most crucially audience members no longer saw climate change as a vague and theoretical issue but one which might have real and serious consequences for themselves and their communities. Ethnicity was a key factor in heightening concern.
- A potential gap in energy supply concerned people the most across all groups, largely because it was seen as the most likely and the most immediate. This led to an increased sense of urgency towards the use of alternative energy sources.

4. Longer-term changes

- The new information opened up the potential for attitudinal change which was not always sustained in the longer term. The main reason was a return to the current media environment, which is giving only minimal attention to climate change. The attention that is there is focused on the political debate over the impact of investment in green energies on the UK economy. The latter is widely recognised by our sample as the current political priority.
- Behavioural commitments were more likely to be made by those individuals who were already open to making changes with the information tending to prompt the realisation of prior intentions. It is the intentions of this group that can potentially be tapped into in the short-term.

1. Introduction

Global media coverage of climate change peaked with the Copenhagen summit in 2009 and since then has declined, continuing to drop even further from the world's news headlines over the last year.

According to the Daily Climate global database, 2011 coverage was 20% down on the previous year and 42% down on 2009. This fall was particularly prevalent amongst editorials. Daily Climate's analysis also suggested that the BBC's volume of coverage fell by 30% between 2010 and 2011. In January 2011, both NASA and the US National Oceanic and Atmospheric Administration (NOAA) announced that 2010 tied with 2005 as the warmest year on this planet since annual records began in the late 19th century. This news was ignored by all of the UK's national newspapers except for The Guardian. Climate change, it seems, is no longer newsworthy.

The decline in media coverage of climate change has been mirrored by a fall from the political agenda in the last few years, with little domestic political attention being given since the 2008 Climate Change Act set legally binding 'carbon budgets' for the UK, aiming to cut emissions by 34% by 2020 and at least 80% by 2050. In spite of the 'absolute commitment' to running the 'greenest government ever' at the launch of the coalition government in 2010, David Cameron's has delivered just one speech on climate and environment issues since his election¹ and campaigners have described the government as 'reckless and short-sighted' in their de-prioritisation of the issue².

In contrast, energy and energy security remain high on the political agenda, in particular, as a result of higher energy prices and concerns over depletion of domestic energy sources. Coverage of the impact on domestic energy costs makes front page news while incidents in energy extraction, such as the Deep Water Horizon oil spill and the Fukushima nuclear meltdowns, or on new technologies, such as shale gas, also receive attention. Despite the resultant increasing public concern about energy bills³ however, 'energy security' is not a term or concept widely used by the public.

This shift in emphasis is recent however. The Department of Energy and Climate Change (DECC) was established in October of 2008, to formally bring energy and climate change mitigation policy together, emphasising not only the increasing importance of the two issues but that 'climate change and energy policies are inextricably linked – two thirds of our emissions come from the energy we use. Decisions in one field cannot be made without considering the impacts in the other.'⁴ Whilst the potential solutions are not necessarily the same, there was a sense of it being a dual enterprise both at a policy level and at the level of public participation.

In spite of the 'absolute commitment' to running the 'greenest government ever' at the launch of the coalition government in 2010, David Cameron has delivered just one speech on climate and environment issues since his election



In order to achieve energy and climate change policy goals, the buy-in of the public is necessary. To do this effectively there is a great need to understand the nature of public attitudes, and their relation to behavioural commitments, and ultimately the potential for change. It is recognised – not least by the Chair of the Intergovernmental Panel on Climate Change (IPCC) – that the media has enormous power in spreading awareness and shaping public opinions of these issues. Current coverage however is not communicating the importance and nature of either climate science or energy security effectively. Much has been written about the way in which journalistic norms, primarily the aim of 'balanced' reporting, has shaped climate change as an issue of uncertainty (Boykoff and Boykoff, 2004, Boykoff and Boykoff, 2007, Boykoff, 2011, Dixon and Clarke, 2012). Further it is a highly politicised issue in the British press⁵ with the ideologies of news outlets dictating the level of divergence from the scientific consensus. A study by the Public Interest Research Council (July, 2011) found that coverage of renewable energies in British newspapers was also subject to the ideologies behind individual titles. These issues with reporting are having consequences in terms of scientific enquiry as well as policy initiatives and public commitment to action (Boykoff and Smith, 2010).

As evidence of the link between media coverage and attitudes, the recent dip in media attention to climate change is reflected in the lack of prioritisation of the issue with the public⁶. Conversely, there is also evidence that further information, and more coverage do not necessarily stimulate effective action (Moser and Dilling, 2007, Hulme, 2008). What is currently lacking is an understanding of what kind of information, and from which source, and in which context, makes the difference between attitudinal and ultimately behavioural change.

What is currently lacking is an understanding of what kind of information, and from which source, and in which context, makes the difference between attitudinal and ultimately behavioural change

Aims and Objectives

The primary aim of the current study therefore was to analyse the formation of public beliefs and commitments to behavioural change in relation to debates over energy and climate security. A key feature of the methodology was the examination of information sources that are typically used by audience members; the extent to which they are trustworthy and credible; and the potential of different types of information to produce changes in behaviour. This included analysis of the way in which new information is absorbed into existing structures of belief and the possible links to behavioural change over time. The conditions under which people negotiate different arguments are therefore at the heart of the study.

2. Methodology and design

Both focus groups and individual interviews were used and a longitudinal element was incorporated

As this was qualitative research, the sample sizes were small and the purpose was not to collect data which would be generalised to whole populations. Instead the aim was to provide an insight into how beliefs are formed and the way in which opinions and behavioural commitments can be modified in interaction with others. These techniques have been used previously in work by the Glasgow Media Group but, for this study, they were adapted in three ways:

1. The creation of an information environment

First, the level of existing knowledge and belief in relation to the subjects under investigation was assessed and recorded, in line with normal focus group activity. The audience groups were then immersed in a new information environment constructed for the purposes of the research. Via television and radio news reports, newspaper articles and online content set in the future, the audience were introduced to the predicted consequences of, firstly, climate change and, secondly, energy security as if they had actually occurred. These were made in collaboration with media professionals with great attention to the conventions of mainstream print and broadcast journalism. All of the materials represented in differing forms and from differing perspectives three future scenarios which were developed through detailed research and consultation with experts in the related scientific field. The scenarios themselves were not predictions for the future. Instead their primary purpose was to identify possible triggers for attitude and behavioural change – and, as such, they were extreme in their nature to allow us to work back through other possibilities and the range of potential responses. They were, however, shaped within the limits of what could potentially occur.

The three scenarios were as follows:

- A mass flood in Bangladesh which leads to loss of land, the forced migration of millions of the population and the imminent arrival of 150,000 in Southampton where protestors are demonstrating against allowing them into the UK¹
- Following a series of severe, nationwide floods Glasgow suffers the UK's worst ever flood disaster which forces thousands from their homes and businesses amidst predictions that the Scottish economy will be adversely affected for decades².
- A shortage of natural gas, triggered by storm damage to North sea gas fields and exacerbated by a diplomatic dispute leading to an interruption of Russian supplies to Europe, results in 20 million people in the UK experiencing a loss of power.

Immediately following the consumption of each of the news reports, group discussions were conducted which focused on the elements which affected the individual members' opinions about appropriate responses in the present day, the level of individual and collective responsibility and the likelihood of such information impacting on behaviour. The aim was to identify the pivotal points at which opinions and attitudes may be altered.



The scenarios themselves were not predictions for the future. Instead their primary purpose was to identify possible triggers for attitude and behavioural change – and, as such, they were extreme in their nature to allow us to work back through other possibilities and the range of potential responses

2. Revisit interviews

To judge the impact on audiences' perceptions, understandings and the strengthening or weakening of opinions, a longitudinal element was incorporated which involved semi-structured phone interviews with participants from six of our original groups. This allowed us to compare not only the way in which media messages were ingested initially, and in the short-term, but also how they impacted over time – not only in terms of attitudinal changes but also commitments to alter behaviour in response to the sessions.

3. Immersion

Another new element of this approach was the length of time spent with each subject. A typical focus group lasts 1-2 hours, but for this project we spent the bulk of the day with participants – from 9.30 to 3.30 – and over the course of the day they got to know the facilitator and the rest of the group fairly well. This familiarity was then enhanced by further communication with participants both by phone and face-to-face, over a period of 6 months delving into any possible changes in behaviour resulting from the exposure to the range of different arguments in the groups and media materials.

Sample

The research was conducted in two waves and included 18 distinct groups and a total of 100 participants. There were 12 groups in the first wave. In the second wave six months later, interviews were conducted with 28 participants⁴ from the original groups and six new groups. These functioned as a control and mirrored in demographics and location the original six groups from which we recruited our phone interviewees. The focus groups consisted of six people on average – each from the same social economic group. Participants took part in discussions and completed questionnaires which aimed to capture top of mind thoughts. The groups were recruited to represent the normal socio-demographic criteria, and were selected on the basis of age, gender and income levels. They were also geographically diverse with respondents drawn from areas across the country including Glasgow, London, Norfolk and Bradford.

3. News media and public belief and behaviours: Climate change

The main findings in relation to climate change from all 18 groups across both the first and second waves of research were:

Pre-existing knowledge of and associations with climate change

Before introducing any information into the groups, we set out to establish the nature of current knowledge and ideas regarding climate change. It quickly became clear that climate change, in the minds of most people, conjured up a jumble of images and ideas which were often only loosely related. Responses included a mix of key terms – such as ‘global warming’ and ‘ice melting’ as well as related issues such as ‘pollution, ozone, green energy’. The most frequently raised single issue however – by 30% of participants – was perceived changes in the weather such as heavier rainfall, hotter summers and ‘unexpected [ie seasonal] weather patterns’.

Sources of information

Participants were initially asked to supply the dominant source of their knowledge of climate change. Radio, books and newspapers were mentioned. However the most referred to single source – just over half of all participants (58%) – was TV news and usually the BBC. This corresponds with other research (Ofcom, 2007).

The internet was cited most – by nearly a fifth (19%) - when we asked specifically about further sources in the questionnaire. In follow up discussions, participants indicated that online was most useful when they were actively seeking information on a subject, perhaps after they’d already received the news headlines from the TV news or a newspaper. This was a typical comment:

Male speaker: These days I find that if I can’t get to the bottom of something I go to the internet and I’ll check for it there.

Perceptions of scientists, and climate science

Scientists and academics rated most highly in terms of trust, named by more than one fifth (21%), which on interrogation was attributed to them providing information ‘straight from the horse’s mouth’. They were thought to have the expertise and knowledge which other sources such as journalists and television producers would draw on.

However, in spite of this general level of trust in scientists, participants overwhelmingly felt that the science was too confusing for lay people to fully understand. The roots of this confusion were two-fold. The first aspect was that the arguments around climate change are theoretical and cannot be easily proved or disproved, and the second was that, as a result, there is a lack of consistency within the science community. The exchange below demonstrates how this leads to confusion and scepticism of the science around anthropomorphic climate change and the difference between short time variations in climatic conditions and longer term climatic changes:

Facilitator: So did you have any doubt about the science of it then? If you read National Geographic, it was possible to predict these things at all?

Female speaker: I don’t think it’s ever possible, no.

Facilitator: You don’t think it’s ever possible to predict these things?

Female speaker: They can’t predict the weather tomorrow so how can they predict that sort of thing. You read into it what you want.

Facilitator: So you think the scientific predictions are a bit dodgy?

M1: Well, they do contradict each other

F3: One week it’s one thing, one week it’s another. It just swaps about.



The most frequently raised single issue however – by 30% of participants – was perceived changes in the weather such as heavier rainfall, hotter summers and ‘unexpected [ie seasonal] weather patterns’

The belief, expressed here, that the available evidence could be used both to argue that climate change is happening, and conversely that it is not, was widely held and adds weight to the ‘balance as bias’ argument (Boykoff, various) – and the perception that the scientific evidence was malleable or not ‘concrete’ further fuelled the idea that it could be (and is) appropriated by different interest groups, such as politicians and business leaders, to their own ends.

Taking action, collective and individual

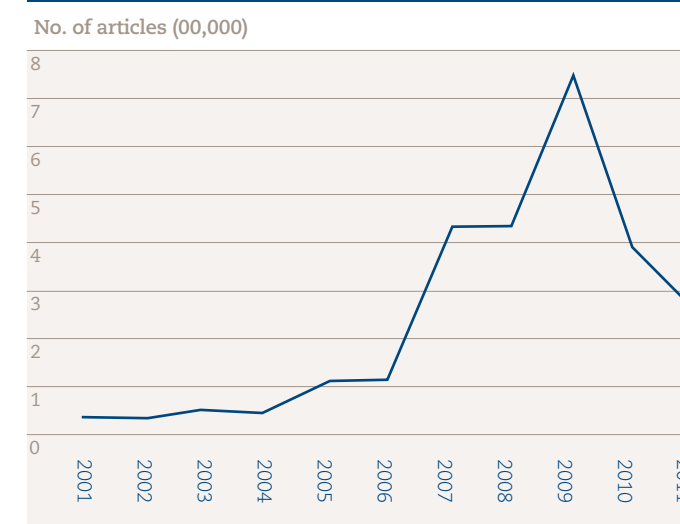
More than four fifths (88%) said that they believed that action should be taken on climate change¹. This reflected the fact that most people think it is an important issue. However positive responses were often accompanied by doubts about whether taking action would be feasible at the current time due to other political priorities and the perceived lack of global commitment. In other words, the quantitative answers to this question indicated only the general premise that action should be taken, but not necessarily a genuine commitment to it going ahead.

Likewise, most participants (60%) claimed to have altered their own behaviour as a result of their concerns about climate change when asked directly in questionnaires. Recycling was the most referred to activity followed by changes in transport arrangements such as ‘not use my car so much’, and ‘walked instead of used car’. However, as discussions progressed people conceded that the changes they had made were not always directly related to their personal beliefs on climate change. For the most part, behaviours, such as recycling, were simply adopted rather than consciously changed, and further presented simple and effective solutions which did not require a radical alteration to their lifestyles.

Reasons for disengagement

On consideration of the discussions not only in relation to the question of individual and collective action, but also the information environment, it was evident that there was a degree of disengagement – in spite of some strong feelings about the importance of climate change as an issue. This apparent disengagement was rooted in a number of issues – the first of which was the changing media environment. There was awareness across the groups that climate change was less in the media than it had been in the past and that it was no longer ‘top of the agenda’. The less the subject was covered in the media, participants noted, the less it was debated and prioritised by individuals. The extent to which climate change has fallen out of the media is depicted in Figure 1, where the peak in media coverage was achieved in 2009, at the time of the Copenhagen Climate Summit, but has fallen consistently since.

Figure 1
UK Articles Referring to ‘climate change’



Source: Google media search 2012



Scientists and academics rated most highly in terms of trust, named by more than one fifth (21%), attributed to them providing information ‘straight from the horse’s mouth’

Shifting priorities: the economy

A related theme was the shift in focus to the current economic climate. Raised in all group discussions was the current concern about the economy, and the way in which this is affecting people’s choices directly. There was a widely held perception that times are tough and that the recession is leaving little money for non-essential concerns, with ethical behaviours falling into this category. At this time there was a broad agreement that the economy is the priority. Some went as far as to suggest that it would be irresponsible to devote funds to ethical concerns at the current time. In terms of individual behaviours, for a minority the same rule applied – that ethical concerns were a luxury at the current time, as this exchange shows:

Male speaker: Because that’s what will motivate interest at large, if there’s a financial – because at the moment people are prioritising finance, if you don’t have to make that choice then that presumably solves the issue.

Second male speaker: Yeah, people see environmentalism as a luxury.

Again the background to these comments was that behaviours were more likely to be adopted if they also benefitted people financially and met the dual concerns of ethics and cost cutting.

(28%) named politicians as the source they trusted least and discussions revealed that a majority believed they could not be relied upon to act in the best interests of the public

Feelings of powerlessness

A further theme in relation to factors of disengagement which came out strongly was the widespread distrust of authority figures which led to general feelings of powerlessness. The highest number (28%) named politicians as the source which they trusted least and discussions revealed that a majority believed they could not be relied upon to act in the best interests of the public. From this came a sense of individual powerlessness and of having no public voice, which this student expresses:

Facilitator: Do you feel we have any power on any issue?

Male speaker: I don’t as an individual, no.

Facilitator: No power at all? You feel they wouldn’t listen whatever you said?

Male speaker: What are you going to do? As an individual, what can you do?

Introducing the new information: Responses to the Bangladesh climate refugee and Glasgow flood scenarios

Once we had established the nature of and background to people’s existing knowledge and beliefs, we then introduced the new information in the form of our constructed news reports and newspaper articles. Of the two climate change-related scenarios, most said that the Bangladesh refugee story affected them most (51%). Whilst participants said that they found the plight of the Glaswegians easier to identify with and emotionally potent, in terms of taking action, there was less of a sense of urgency than there was in response to the Bangladesh scenario.



Radio, books and newspapers were mentioned. However, the most referred to single source – just over half of all participants (58%) – was TV news and usually the BBC

One reason was that the localised flood did not have such a severe outcome and it was felt that Glasgow has the infrastructure to make a full recovery as this comment highlights:

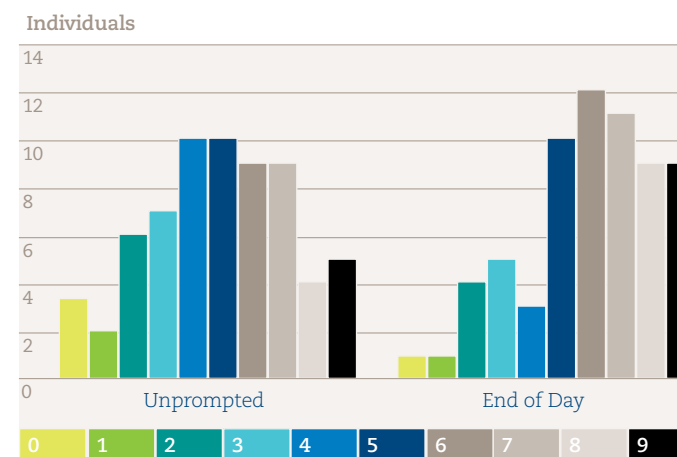
Male speaker: A whole country displaced. Obviously it’s worse. I mean it’s just flooding and people’ll get together and they’ll dry their houses out and they’ll work hard and they’ll get back on their feet again. But if your whole country’s flooded, you can’t get back into your country.

However the main reason for the greater concern and urgency was that the Bangladesh scenario tapped into existing worries about issues such as immigration and the distribution of Foreign Aid. The majority of the sample had concerns about an influx of refugees coming to the UK, largely though it tapped into existing concerns about immigration and reflected a general lack of distinction made between these two issues. The refugee scenario affected different groups in different ways. Ethnicity was a key factor in this respect with those from ethnic minority groups worried about the impact of great numbers of refugees in their own communities and the consequences for their own security.

When asked at the end of the session, whether either of the potential scenarios would lead them to change their behaviour, three quarters (75%) answered in the affirmative. Whilst a quarter gave specific examples of what they would do – such as ‘use the car less/ turn heating down a degree or two’ to ‘lobby my MPs accordingly’ – for the majority however a yes answer did not involve a commitment to actual behavioural change. Most were referring to increased awareness or caution in terms of behaviour and/or seeking more information. In follow-up questions, a substantial minority re-iterated the original reasons for disengagement. In spite of the broad impact of the new information, the factors of disengagement in relation to behaviour appeared too strong to be over-ridden by the impact of the new information for most participants.

However, as a result of the discussions and the media presentations an overall increase in concern of issues relating to climate change was detected. Figure 2 highlights this, as participants were asked to rank their concerns on climate change, from zero to nine (with nine being the greatest concern). An assessment was taken at the beginning and end of the day which showed a marked rise in concern.

Figure 2
Level of Individuals Concern on Climate Issues



Source: Glasgow Media Unit 2012

4. Audience studies: Energy security

This section presents the findings on energy security from all 18 focus groups, across both the first and second waves.

Awareness versus concern

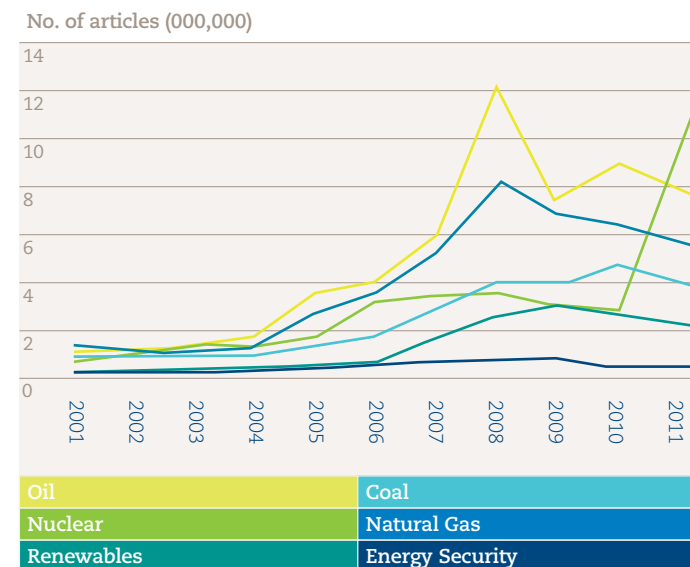
In contrast to the volume of ideas, opinions and associations regarding climate change, energy security was a term which was largely unfamiliar. Only a minority (17%) knew the phrase and had a fairly accurate idea of what it meant. Nearly one fifth (17%) did not know the term and energy security was a subject they had just never given any thought to, as one participant noted:

Female speaker: I thought that as long as there is money to pay for it, it'll never run out.

Throughout discussions, it was apparent that the participants' conception of energy security issues lacked any sense of crisis or a problem requiring urgent attention.

The lack of awareness for the expression of 'energy security' was reflected in the media coverage of the issue. While there is a gradual increase in media use of the term, the level of coverage is significantly below that of the sources (energy, oil, gas, coal, nuclear and renewables). The graphic clearly shows the coverage of the Fukushima nuclear accident in Japan in March 2011, the Deepwater Horizon oil rig incident in April 2010 and the peak in oil and gas prices in 2008.

Figure 3
Articles Referring to Energy Related Issues



Source: Google media search 2012

Sources and coverage

Participants were again asked for the source of their knowledge of energy security. Of the smaller number who answered this, the sources named were similar with TV news and newspapers still dominant. Participants noted that information about energy security was largely hidden in news about other issues and events and that there was more of a 'cloud of knowledge' than focused information:

Female speaker: There seems to be a general cloud of knowledge and I can't pinpoint any one source, it just seems to be common knowledge that oil, that we're in danger of being beholden to nations which are not necessarily friendly when it comes to supplying...Russia being the biggest example of that, I suppose.

Most felt that the broader message – that the energy supply is not secure in the long-term – was not clearly communicated – and this concerned the majority. On the other hand, it was not felt to be a contested area in the way that climate change was, and, as a result, it was thought that energy security was less controversial. As a result it was also not perceived to be so led by differing agendas as the climate change coverage.

Throughout discussions, it was apparent that the participants' conception of energy security issues lacked any sense of crisis or a problem requiring urgent attention



Attitudes towards non-fossil fuel sources of energy

The response to alternative sources of energy prior to the news report was mixed. For half the sample, when renewables were raised, they were seen as the obvious and, for some, inevitable solution, whilst others rather did not make the link or were more sceptical. Across the spectrum of opinion, especially on the costs and effectiveness of technologies, the consensus however was that the technology was not yet efficient enough to cover the UK's energy needs and there was a tendency to view them as a work in progress with doubts about when they would be ready. At the furthest end of the spectrum, a sizable minority strongly believed that renewables would never effectively replace traditional resources as this comment shows:

Male speaker: I've got friends with solar panels in place since the '80s – but they still seem to have electricity and gas in their house. Now you're being told that you can sell it back to the Grid but it doesn't look that terrific. It's not going to work out.

Nuclear power was also a commonly discussed option. The incident at the Fukushima nuclear plant in March 2011 had re-opened the debate, and its main impact was not to lead people to reject nuclear as an option but to raise questions about safety and the development of technology for disposing of the waste more safely. There was overall an openness to nuclear across the sample, although it was tinged with wariness for the majority.

Introducing the new information: responses to the blackout scenario

The blackout report made the greatest impact of all three scenarios across the day for the majority – it was also thought to be the most frightening of the three. Extreme terms such as 'dystopian future' and 'doomsday stuff' were used. Some commented on the immediacy and extent of the impact of the gas shortage in comparison with the more contained effects of climate change. The strong feeling in the three groups, expressed before the report, was reiterated in this discussion that the UK should not have sold its assets in the past. The report only served to fuel these feelings of frustration for these groups:

Female speaker: It still boils down to us selling off us all our assets, we've got no control. I mean I don't know what is happening now in Aberdeen with our gas pipelines but it said we'd opened another field, but everything is gone, we seem to be dependent on other people.

Collective action and individual behaviours

In correspondence with the widely expressed sense of concern, the large majority (94%) believed that action should be taken to secure the energy supply – higher than the equivalent figure for climate change. Most however were not sure of the options. In three of the groups, the priority was re-claiming the resources that the UK had sold off in the past and, more generally people were unhappy with the UK being so reliant on imports of gas, in particular. The question of whether there are further untapped reserves of gas in the North Sea were frequently raised. The connection with renewable energies was not consistently made across the groups. This speaker explains that the connection only struck him as the focus group progressed:

Male speaker: I think one of the interesting things that is happening here is that we all know about sustainable sources of energy and these are being sold to us on the grounds that this is going to mean less carbon being produced to foul up the atmosphere but in fact – and it's only just occurred to me – that it's also an argument, if anything is sustainable, for energy security, and I have never thought of it in that way.

Further, it was largely thought that the responsibility for action lay with governments, rather than individuals, who ultimately would have no option but to take action as energy resources were thought to be just too basic a need. As a result, conversations about behavioural change were often characterised by a lack of personal commitment. Only two fifths (42%) said that they had altered their own behaviour because of concerns about energy security – which was much lower than the equivalent number for climate change at two thirds. Of those who had made behavioural changes, they mainly referred to the use of energy-saving light-bulbs and turning down the heating. The focus was much more on energy conservation as opposed to switching to alternative sources by changing suppliers of micro-generation. The main reason for this was that the connection between individual behaviour and this issue is not yet established in people's minds.

The most notable impact of the new information for the majority however was to alter their position on renewables. For those who already viewed renewables as the way to progress, this feeling was intensified but even amongst those who were very sceptical, the approach became more open-minded. One former cynic reported that, after listening to the report, the move to renewables began to look like a 'no brainer'. For some the scenario functioned primarily to establish the connection between renewables and the issue of energy security and this exchange highlights that as well as the greater sense of urgency in terms of moving forward with renewables:

Facilitator: What would be your first thoughts in how to solve this? What approach?

Female speaker: I think renewables actually so that we are self-sufficient.

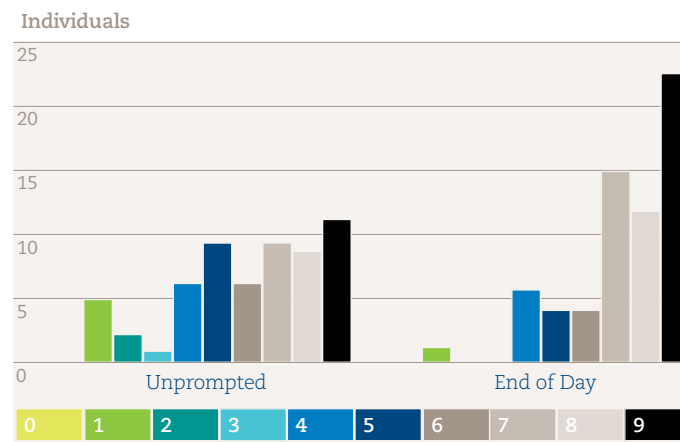
Second female speaker: Exactly, that's exactly what I was going to say. We don't want to be reliant on other countries if we can produce it ourselves with advancements in technology...

For a small minority, a nuclear programme was the preferred solution and the severity of the problem presented in the blackout scenario also encouraged some to put their doubts around nuclear to one side. Across all groups though the lack of an identifiable vision for the move to alternatives became a key source of concern and a much more urgent problem to be solved.

One former cynic reported that, after listening to the report, the move to renewables began to look like a 'no brainer'

Whilst there was evidence of significant attitudinal change, commitments to behavioural change were made only by a quarter – although the suggestions were in general more radical, such as 'look to purchase energy from green suppliers' and 'become self-sufficient'. Again though the majority did not commit to actual changes they would make beyond increased awareness and exercising caution as regards energy use. In follow up discussions, it became clear that the main reason for this reluctance was the continuing and deeply held doubts about the current efficacy of alternative technologies which individuals could feasibly install. There appeared to be some sense of will but a lack of real and visible options. However, as figure 4 shows there was a greater increase in concern over energy security as a result of the discussions than there was for climate change (figure 2)

Figure 4
Level of Individuals' Concern on Energy Security



Source: Glasgow Media Unit 2012



5. The revisit interviews

Assessing the impact of new information, and its capacity to bring on behavioural change over time was the key aim of the revisit interviews which took place six months after our original groups.

Findings on both climate change and energy security are presented together in this section.

Long term attitudinal change

The great majority of the interviewees stated that the experience of taking part in the group did not change their attitudes on climate change, although most did say that it led to a strengthening of their existing position. Many emerged with firmer opinions about the issue and, in some cases, more committed to the need for action, whilst others, even amongst those who had a strong response to the climate change scenarios during the group, sustained their positions of scepticism.

In relation to energy security, a higher number claimed that taking part in the focus groups affected their attitudes. On further probing of these responses, it was apparent that for most people this session made a greater and longer-lasting impact and much of this was related to the surprising nature of the information:

Female speaker: With energy security (as opposed to climate change), I definitely was awakened to the closeness of the problem and it has made me extra aware of my own energy usage and that has continued.

Any changes in attitude therefore related to the lack of knowledge that most approached the energy security sessions with, which lay in direct contrast to the vast jumble of ideas and information people had about climate change. This reflected a general tendency for new information to have a greater impact when participants did not bring much knowledge to bear on the subject

In relation to climate change, increased awareness related largely to changes in weather. The re-visit interviews were conducted in May-June of 2012 to a backdrop of unseasonal weather and constant coverage and comment about weather patterns

beforehand. Across both issues, the key factor in terms of the reception of new information was the level of understanding, knowledge and ideas that the participants possessed prior to our groups. This held true even in those cases in which the information we supplied was contradictory to original beliefs.

Increasing awareness

Irrespective of attitudinal change, the great majority of our participants found that they had become more alert to climate change and energy security-related issues since the original focus groups. In relation to climate change, increased awareness related largely to changes in weather. The re-visit interviews were conducted in May-June of 2012 to a backdrop of unseasonal weather and constant coverage and comment about weather patterns. This clearly influenced responses and, whilst opinions varied considerably, changes in weather largely function as confirmation of potential climate change effects. This comment was typical:

Female speaker: It's more to do with weather and I'm much more aware, I think – especially last week, we've had every type of weather going and it's definitely changing and the issues that have arisen such as down South the drought and hosepipe ban but rainfall at the same time we're experiencing drought...and I attribute these things to climate change whether that's logical or not.

Due to the starting position being one of low awareness and interest, alertness to energy security was intensified to a greater degree, as these comments demonstrate:

Female speaker: I think I'm definitely more aware of this compared with before as I didn't have as much on this as I had with climate change to start with.

Second female speaker: The discussions definitely made me more aware of some of the issues, especially those regarding energy security, as I wasn't aware of the imminence of some of the problems.



The dominant and recurring reason for a lack of change in behaviour was that people felt that they had reached the limit of what they could practically do

The most prominent area of coverage was that relating to renewable energies with three quarters of the interviewees having come across stories about renewables across the media. Again responses were mixed. We also asked specifically about shale gas and fracking which, in spite of a limited amount of media coverage, was a term familiar only to a small number and none of those fully understood the process and its environmental impacts. The interviewee commenting here had become aware of gas fracking only recently and had little knowledge of it. This exchange highlights the way in which he was currently forming his opinions and therefore more open to new information and expertise on the subject:

Male speaker: I had a drunken conversation at a party with someone who works in this industry and he explained what gas fracking is.

Facilitator: And what is it?

Male speaker: It's gas that's very hard to get at and I think it's bad for the environment but I know it can be done in a way that is good so he's trying to persuade me that it's not a bad thing – though he would as he works in the industry. I just don't know enough to have a real opinion.

Impact on behaviours: reasons for lack of action

The majority of interviewees had not changed their behaviour – which chimes with responses at the end of the focus group and reflected the continuing reasons for disengagement in spite of increased awareness and commitment to being more conscientious in climate and energy-related activities. The dominant and recurring reason for a lack of change in behaviour was that people felt that they had reached the limit of what they could practically do.

The economic downturn so widely cited in the original wave of research predictably recurred as a theme in relation to behavioural decisions. The economy was also offered as a reason not to prioritise broader concerns, including ethical behaviours at this time:

Female speaker: With the recession as well, it is really hitting everybody, it's much more to the forefront because you're thinking of the pennies and the pounds and you're not so much looking at the bigger picture day to day.

In line with the first wave of research there was a strong sense that if behaviours were financially beneficial, they were more likely to be adopted.

Positive behavioural changes

A third of interviewees however said that they had in fact changed their behaviour in response to the materials and discussions in the focus group. Most of this was due to the way in which the group (re)energised them in terms of ongoing activities such as recycling. Some however found these renewed or transformed intentions impossible to realise. This bakery owner explains her derailed plans which brings us back the question of the limits upon what individuals can achieve without wider participation and buy-in:

Female speaker: But also I recycle at home and the bakery and I bake a lot of cakes and I have a compost heap at home but I can't find anybody that will take the scraps for something – livestock or whatever – and I bake 70-80, even 100 cakes in a week and I'm still throwing the scrap away. Really with industrial waste not much is being done and that is disappointing.

The central finding from the revisit interviews was that the influence of new information was directly related to the opinions and knowledge which people approached it with – and the more firmly held their opinions, the less likely they were to alter these. Commitments to behavioural change were therefore much more likely to be made by individuals who were already open to making changes with the information simply cementing those unmet commitments.

6. Conclusion

The findings from this research indicate there is public confusion over climate change, which reflect the range and diversification of sources and views feeding audiences on this topic.

Most people have only a vague understanding of the causes and potential effects. There is some scepticism about the legitimacy of the scientific arguments and a perception that the predictions made about the impact of the planet warming are inconsistent, some of which is a direct consequence of the number of voices and opinions engaging in the media debate. Key factors such as the broad scientific consensus on the human causes of climate change and the difference between climate cycles and weather patterns in the short-term are not fully understood or recognised. Further, climate change, largely as a result of a dip in media coverage, is no longer seen as the priority it once was.

Energy security, on the other hand, suffers from low understanding and awareness, reflecting the lack of focused coverage in the media, which concentrates on aspects of different supplies rather than longer term availability or affordability. Most people are simply not familiar with the term or concept of energy security – although, once clarified, the issue is thought to be clearer and less ambiguous than climate change. As a result, there is some concern that the issue is not covered in the media as much as it should be, and the message not clarified. The connection with public behaviours is also not yet well established. Any proposed behavioural change largely refers to energy conservation rather than switching to alternative sources by changing suppliers of microgeneration. The connection between renewable energies and energy security is not being consistently made. They are not yet a top of mind solution to the problem.

Our research would suggest that people believe these issues are important though – and we found a widespread commitment to collective action, particularly in relation to energy security. What was lacking was engagement at the level of individual behaviours. There were important barriers in terms of the translation of attitudinal commitment into behavioural change. Perhaps the key factors in this were the current and widespread culture of distrust and cynicism about politicians and other authority figures at the current time – they are simply not trusted to act in the public's best interests, and a sense that individual action has no value. Politicians are therefore not trusted to speak or act on climate change, and to a lesser degree, energy security, and this is enhancing people's sense of personal powerlessness. The primacy of the economic recovery was also important,

again paralleling the shift in media attention since the recession. Everything is perceived to be less of a priority and ethical behaviours, while thought to be important, are currently seen as less urgent. A further and related barrier was the genuine financial difficulties many people were facing and there was strong evidence that behaviours which met the dual purposes of being both financially beneficial and ethically sound were much more likely to be adopted – it is not a time for luxuries.

Energy security, suffers from low understanding and awareness, reflecting the lack of focused coverage in the media, which concentrates on aspects of different supplies rather than longer term availability or affordability

The combined effect of these influences offers some insight into the reasons why attitudinal and associated behavioural change are limited at this time and why there is currently little consensus on the importance of individual action. Behavioural change in response to public information, our findings suggest, is a complex and unpredictable process. Prior knowledge and assumptions, the levels of trust and authority attributed to different media and sources of information, including politicians, experts and journalists, and specific political and social contextual factors all contribute to the complex process by which information is negotiated by publics. At the most basic level, we found our audience members were most open to new information when it did not tap into a body of assumptions and opinions which were already established – in other words, when attitudes were at the point of being formed. As a result, the information and discussions on energy security made a bigger impact on the large majority than those on climate change. Energy security is a newer and less visible area of media coverage and views were not as fixed.

Challenges and recommendations

The challenges that emerge are therefore:

- firstly, there is an urgent need for a more effective approach to the communication of public statements about climate change and energy security, contextualised by the scientific arguments about causes and risks.
- the media cannot assume understanding of the issues and must present the basics of the issues in an engaging and memorable way.
- scientists need to force these issues onto the political agenda in order for politicians to facilitate the debate, which centralises the science and scientists, whilst clarifying the way this affects policy direction and emphasising the importance of public participation.
- further, there is a need to tap into the genuine concerns that people have and translate these into altered behaviours.

The roots of all of these lie in the communicative relationship between politicians, scientists and the media, and the three dimensional process by which politicians interact with scientists, academics and researchers to shape media reporting. The media is currently setting the terms of the debate and, as a result, the basic scientific arguments about climate change upon which policy statements are based are not being widely and clearly presented. Evidence submitted to the Leveson inquiry by the Science Media Centre (SMC) in December 2011 criticised science reporting in general for ‘the appetite for a great scare story, the desire to overstate a claim made by one expert in a single small study, the reluctance to put one alarming piece of research into its wider more reassuring context, “journalistic balance” which conveys a scientific divide where there is none’. Climate change coverage was highlighted, in particular, for a ‘more sceptical approach often playing fast and loose with the facts in their desire to discredit the scientific consensus’. Even the BBC, in a BBC Trust review of its science reporting, found that ‘undue attention to marginal opinion’ was an issue in relation to its coverage of the issue.

There is the further problem – the relative silence on climate change from the major political players, including the Prime Minister, suggests a real lack of political will in this area

This historic and systematic lack of balance in media reporting is a well evidenced phenomenon and the ‘balance as bias’ (Boykoff and Boykoff, 2004, Boykoff, 2008) has largely been the focus of those looking into the communications around climate change in recent years. Since 2009 however an equal if not greater problem has been the dramatic decline in media attention to climate change. The peak of coverage was the highly anticipated United Nations climate talks in Copenhagen in 2009, the same year in which the “scandal” over the release of private emails from climate scientists stored on a server at the famous Climatic Research Unit at the University of East Anglia, widely known as ‘climategate’, occurred. Drops following these headline grabbing events, combined with the economic problems in the West and specifically the Eurozone crisis in Europe, might have been expected but the extent of the fall was largely unpredicted. As Dailyclimate.org noted that ‘2010 was the year that climate change fell off the map’. The public tend to assess the importance of issues based on the ease at which they are retrieved from memory. The memory is strengthened by both the frequency of which an issue appears in the media and the degree of understanding (Kahneman 2012).

A key problem that we have identified is that the media will not consistently prioritise an issue without the sustained commitment of primary definers, that is, those who set the media agenda, the most powerful of whom are politicians. The BBC especially takes its lead from political debate since the definition of representative democracy which it employs is that parliament represents the will of the people, so in essence the boundaries of parliamentary debate form the core of the political arguments which it will consistently feature. This raises a contradiction as the indications from our audience research are that little of what politicians actually say is believed, and there have been some high profile examples such as the political communications around BSE which failed to accurately reflect the science. Politicians at this time therefore are not best placed to effectively make these arguments.

There is the further problem – the relative silence on climate change from the major political players, including the Prime Minister, suggests a real lack of political will in this area. Climate change is not a major priority of the coalition government. The catalyst must be scientists. The scientists, academics and researchers need to force these critical issues on to the agenda of politicians and the politicians then should employ their role as primary definers to raise the profile of the issues and the latest science in media accounts. As a collective, the scientists must become much more visible, and our research shows that they are still a group which enjoys high credibility along with university professionals and academics in general. Ultimately it lies with politicians to bring about a transformation in the media landscape but crucially the evidence must be seen to be coming from the scientists and that it is they who are propelling the debate. This is very much what happened in the original AIDS/ HIV campaign and explains its success as a model for public communication.

Scientists need to force these critical issues on to the agenda of politicians and the politicians then should employ their role as primary definers to raise the profile of the issues and the latest science in media accounts



Bringing climate change back onto the agenda combined with greater clarity and balance in the communication of public statements – and the consequent requirement for a more visible role given to scientists – would therefore be a strong starting point in relation to the further challenge of translating concern and attitudes into behavioural change. However, this research has demonstrated that, even where there is broad awareness and information-based attitudinal change, the commitment to alter behaviours does not necessarily follow. Our findings suggest that there are specific conditions under which behavioural changes are most likely to occur.

Our research strongly indicated that financially beneficial opportunities and behaviours are paramount to the wider public at the current time, some of whom are in economic circumstances which leave them with few options in this respect. A key element of the promotion of ethical behaviours would therefore be to tap into the wider social and economic benefits and perhaps even an approach which tends towards incentivising those behaviours. At this time individual action is most likely to be widely implemented when there is some visible social or financial gain. Again the clear communication of this message lies in the translation of policy targets into popular media accounts, however, the connection between behaviours and benefits must also be established

A second theme is the way in which energised opinions and commitments to behavioural change quickly evaporate if it is not felt that the broader support and encouragement is there. We saw some evidence that, in the longer term, a willingness to engage with these issues can quickly translate into increased frustration if good intentions are unrealisable due to a lack of opportunity. This is compounded by the sense that, if others are not behaving likewise and, in particular, collectively enough is not being done, individual action is pointless. It is notable that the group in which behavioural intent was most clearly stated was a Norfolk residents group, who were very active in the community and strongly believed in the power of the individual as part of a collective. Currently the lack of an identifiable vision for the collective move to alternatives, for example, is a key factor in the lack of progress in this area – there is no sense of wider support for individual action.

Overall across our research, we saw evidence of public support, interest and commitment to issues of climate change and energy security however it appears that the combined effects of a number of influences are currently inhibiting both attitudinal and behavioural change. The relationship between policymakers, scientists and journalists is central in relation to engaging the public and promoting individual action. Further research is required to gain a greater understanding of the process by which science and policy statements are transformed into media accounts and the ways in which this communicative relationship might be improved. However, our evidence strongly suggests that there is no point driving home the message about behavioural change unless there are simple, effective and supported solutions open to people from which they can see the real benefits both socially and financially.

Bibliography

BBC World Service Poll (2007). *All Countries Need to Take Major Steps on Climate Change*. Globalscan & PIPA, University Maryland.

Boykoff, M.T. and Boykoff, J.M. (2004). 'Balance as bias: Global warming and the US prestige press'. *Global Environmental Change*, (14): 125–136.

Boykoff, M.T. (2008). The cultural politics of climate change discourse in UK tabloids, *Political Geography*, 27 (5) 549 -569.

Boykoff, M.T. and J. Smith (2010). 'Media Presentations of Climate Change.' in *Routledge Handbook of Climate Change and Society* 210-218, Routledge,

Gavin and Marshall (2011) 'Mediated climate change in Britain: Scepticism on the web and on television around Copenhagen' in *Global Environmental Change*, Volume 21, Issue 3, August 2011, Pages 1035–1044

Hulme, M., 2008. Geographical work at the boundaries of climate change. *Transactions of the Institute of British Geographers* 33, 5–11 Jones, S (2011) BBC Trust review of impartiality and accuracy of the BBC's coverage of science.

Kahneman D (2012), 'Thinking Fast and Slow', Penguin Books

Lorenzoni, et al (2007). 'Barriers perceived to engaging with climate change among the UK public and their policy implications' in *Global Environmental Change* Vol 17: 445-459. Elsevier.

Moser, S.C., Dilling, L., 2007. Toward the social tipping point: creating a climate for change. In: *Creating a Climate for Change: Communicating Climate Change & Facilitating Social Change*, Cambridge University Press, New York, pp. 491–516.

Ofcom (2007). *New News, Future News: The challenges for television news after digital switchover*. London: Ofcom.

Spence, A., Venables, D., Pidgeon, N., Poortinga, W. and Demski, C. (2010). Public Perceptions of Climate Change and Energy Futures in Britain: Summary findings of a survey Conducted in January-March 2010. Technical Report (Understanding Risk Working Paper 10-01). Cardiff: School of Psychology

Science Media Centre, Evidence from the Science Media Centre to the Leveson Inquiry, December 2011

Footnotes

¹ Carrington D (2012), "David Cameron to make keynote environment speech", 4th April 2012, <http://www.guardian.co.uk/environment/2012/apr/04/david-cameron-speech-environment-climate-change>

² 'Ignoring global warming is 'reckless' of the government, warn campaigners' Guardian, Monday 1st October 2012. In a letter to the Guardian and expanded on in an article in G2, campaigners including Greenpeace and Oxfam say global warming remains one of the greatest threats to human progress but condemn the fact it has dropped down the political agenda.

³ DECC, Public Attitudes Tracker – Wave 1, July 2012

⁴ DECC departmental website.

⁵ A 2011 study by the Reuters Institute for the Study of Journalism called Poles Apart – The international reporting of climate scepticism, found that climate change was much more politicised as an issue in Britain and the US than in other countries.

⁶ Public attitudes to climate change and the impact of Transport in 2011, Department for Transport 26 Jan 2012 found that levels of belief and concern about climate change have shown a general downward trend and is continuing to fall. The DECC public attitudes tracker data collected in March 2012 found that only 2% saw climate change as one of the biggest challenges facing Britain today. A Guardian/ICM poll from June 2012 found that while the public perception of climate change remained consistent, the subject had slipped down the list of priorities, with the number of committed environmentalists falling.

⁷ As a hypothetical but concrete example, the IPCC suggest that climatic change would cause destruction of lives, ecosystems, and property in Bangladesh, corresponding to a loss of 80% of its GDP.

⁸ Glasgow city is the local authority in Scotland with most properties located in the fluvial flood zone according to the Scottish Government website. Flooding in 2002 in the city highlighted major problems with the ageing drainage system. Problems associated with the way that the main sewerage and drainage systems evolved over the last 100 years mean that Glasgow is extremely vulnerable to flooding in areas of the city in response to extreme rainfall (The Metropolitan Glasgow Strategic Drainage Partnership, Briefing Note 1, Spring 2008

⁹ There were in fact 32 participants across the six groups we selected to take part in the second wave of interview research however four of these were either un-contactable or did not wish to take part in the interviews.

¹⁰ This chimes with recent research. In a 2010 poll by Cardiff University and Ipsos MORI 68% state that they would probably or definitely vote in favour of a proposal to spend taxpayers' money on British projects designed to tackle climate change.

¹¹ In the search 'energy' was added as a key word as well as the resource, and in the case of renewables: 'renewable energy', 'wind power', 'solar power' were used.

58 Prince's Gate
Exhibition Road
London SW7 2PG
tel: +44 (0)20 7594 1573
email: ukercpressoffice@ukerc.ac.uk

www.ukerc.ac.uk

The Meeting Place – hosting events for the whole of the UK energy research community
– www.ukerc.ac.uk/support/TheMeetingPlace

National Energy Research Network – a weekly newsletter containing news, jobs, events, opportunities and developments across the energy field – www.ukerc.ac.uk/support/NERN

Research Atlas – the definitive information resource for current and past UK energy research and development activity – <http://ukerc.rl.ac.uk/>

UKERC Publications Catalogue – all UKERC publications and articles available online, via www.ukerc.ac.uk

Follow us on Twitter @UKERGHQ