



# Climate Change Adaptation

Impact on our functions  
A response to the Secretary of State's Direction of  
31 March 2010

September 2011

# Purpose of this Report

In March 2010 Ofcom was directed to provide the Secretary of State with a report on climate change adaptation. The Direction asked us to summarise our functions and assess the possible impacts of climate change in relation to these functions. The letter accompanying the direction clarified that the report should provide proposals for ongoing monitoring and identify barriers to action. This report, agreed with DEFRA, is our response to this request.

## Section 1

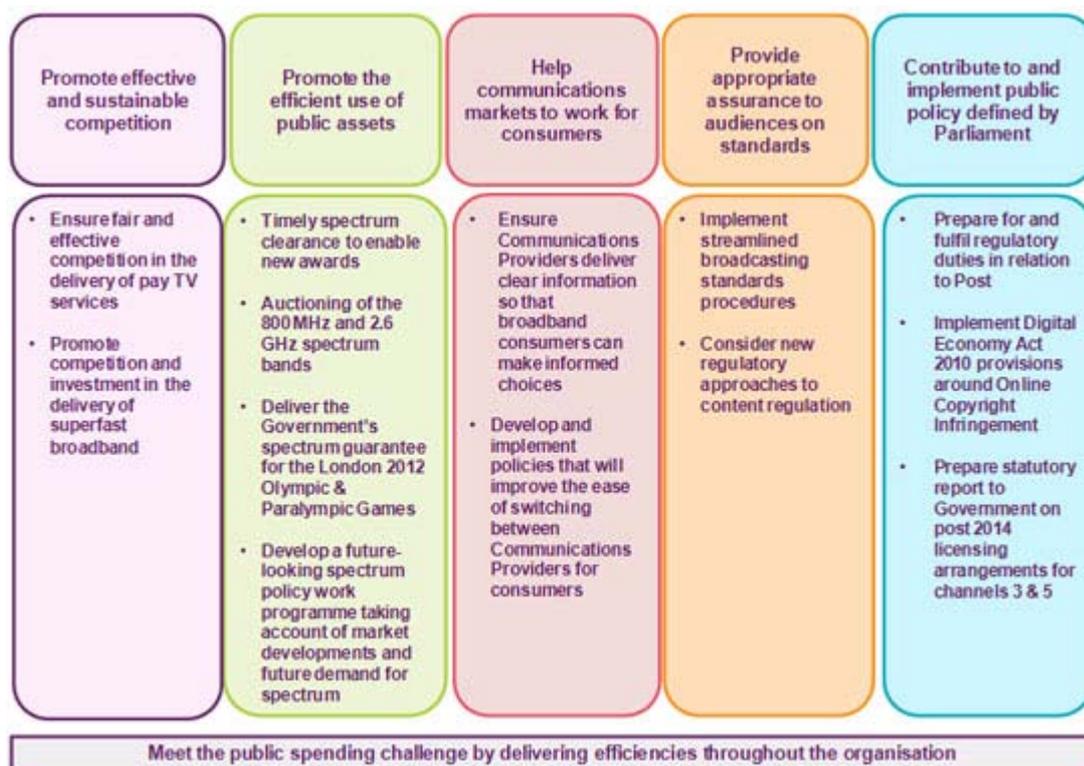
# Introduction

- 1.1 Ofcom is the independent regulator for the UK communications industries, with responsibilities across television, radio, telecommunications and wireless communications services. Our duties and powers are determined by statute, principally the Communications Act 2003, the Wireless Telegraphy Act 2006 and the Broadcasting Acts 1990 and 1996 (all as amended). Ofcom has no functions that are not set out in statute.
- 1.2 Under the Communications Act, our principal duty is to further the interests of citizens and consumers in relation to communications matters where we have functions. Meeting this duty is at the heart of everything we do. In particular, we are required to secure:
  - i. The availability throughout the UK of a wide range of electronic communications services
  - ii. The optimal use of spectrum for wireless communications
  - iii. The availability throughout the UK of a wide range of TV and radio services of high quality and variety
  - iv. The maintenance of a sufficient plurality of providers of TV and radio services
  - v. The application of standards that provide adequate protection to the public against offensive or harmful material in TV and radio services
  - vi. The application of standards that provide adequate protection to the public and others from unfair treatment or unwarranted infringements of privacy in TV and radio services
- 1.3 Under the Postal Services Act, we will take responsibility for regulating postal services in October 2011.

## Setting our Priorities

- 1.4 In order best to serve citizens and consumers, we know that we must respond to economic, technological and political change. Our priorities for 2011/12, as set out in our Annual Plan and in Figure 1, are guided by our strategic priorities to 2015

Figure 1: Our Priorities



## Reporting on Climate Change Adaptation

- 1.5 The Climate Change Act 2008 gives the Secretary of State the power to direct some public bodies to produce reports on the impact of climate change on their functions and their proposals and policies for adapting to it. Reporting authorities are required to have regard to the statutory guidance published by the Department for Environment, Food and Rural Affairs (DEFRA) in November 2009.
- 1.6 On 31 March 2010, Ofcom was directed to report and to include:
- a summary of our statutory and other functions;*
  - the methodology used to assess the current and predicted impacts of climate change in relation to those functions; and*
  - the findings of the assessment of the current and predicted impact of climate change in relation to those functions.*
- 1.7 In March 2010, in its letter to Ofcom, DEFRA clarified that it would like Ofcom to report on our “ability to act, rather than to give [Ofcom’s] view of the resilience of electronic communications companies”.
- 1.8 The aim of Ofcom’s report was confirmed as to identify:
- the risks that climate change presents to Ofcom’s relevant functions and duties as the regulator of the communications sector – to be determined by Ofcom in agreement with Defra and BIS;*

- b. action in terms of how you propose to address these risks in the context of your current powers, and where this is not possible the scope for you to engage with the industry on a voluntary basis;*
- c. proposals for ongoing monitoring, taking into account your proposed requirement to report on infrastructure (described in further detail below); and*
- d. identification of barriers to action, within the limitations set out above.*

- 1.9 In addition to the preparatory work for the National Adaptation Plan, to which our report will contribute, the Government is already looking at how climate change can affect critical national infrastructure and the interdependencies between sectors. We welcome ongoing discussions on the challenges facing the communications sector as it looks to adapt and will respond appropriately to any future requests from DEFRA for more analysis of the potential issues.
- 1.10 However, given the challenges in predicting what will happen in the sector over even the next five to ten years, it would be extremely difficult to predict how the sector should adapt over the thirty year time periods that the UK Climate Projections 2009 (UKCP09) have considered or the steps that might need to be taken to adapt in each of these scenarios. For example, thirty years ago we did not have broadband, mobile or multichannel TV services.
- 1.11 Nor do we have the information necessary to assess the impact of climate change on the communications sector. Such an assessment would require a detailed analysis of specific networks, taking account of the physical location of elements of the network and the planning rules adopted by the network operators. This information is held by the relevant operators.
- 1.12 Within this context we can provide only limited analysis of the impact of climate change on the communications sector and our ability to take account of climate change as it might affect the way we fulfil our duties.
- 1.13 We have therefore agreed with DEFRA and the Department for Business, Innovation and Skills (BIS) that this report should set out some of the areas where climate change could affect the sector in the future and the mechanisms that already exist to consider such developments. It also sets out how we as an organisation will ensure we are able to adapt to climate change.

## Section 2

# Assessing Risks in the Sector

- 2.1 Ofcom fulfils its duties using the powers granted under enactments such as the Communications Act 2003. For example, our primary means of fulfilling our duty to secure the availability of a wide range of electronic communications services throughout the UK is by promoting a competitive market. Where normal market forces do not secure widespread availability, we may use other regulatory powers, such as setting universal service conditions..
- 2.2 The nature of this sector and of the regulatory regime means there are a large number of providers and types of services. There is often scope for a given problem to be solved in a wider variety of technological ways than may be the case in other sectors. For example, television services might be provided by satellite or DTT broadcasting, by cable or via the fixed or mobile internet. Ofcom must remain technology neutral and leave detailed network design to operators - it is for the providers themselves to determine how they will go about providing services in compliance with regulatory conditions.
- 2.3 Our methodology for considering the risks that climate change presents has been to consider the main variables identified in the UKCP09 and how these might broadly affect communications services in relation to which we have functions. We then go on to describe ways in which regulatory functions may capture such effects.
- 2.4 To carry out an assessment of the potential impact of climate change on communications in the UK would require significant research and the input of all communications providers who control the nature and location of communications infrastructure. Ofcom has information gathering powers, but they do not arise for the purpose of preparing this report. Even if we had these powers, such an assessment would be a significant undertaking and call on a great deal of Ofcom's resources. Consequently, in what follows, we do not attempt to do this.

## Possible risks to communications services in relation to which we have functions

- 2.5 The UKCP09 identify the main climate change variables over land as:
- Temperatures;
  - Precipitation;
  - Relative humidity and cloud; and
  - Extremes of temperature and precipitation.<sup>1</sup>
- 2.6 Over marine regions, the variables are believed to be:
- Mean daily temperature;
  - Precipitation rate;
  - Mean sea level pressure; and
  - Total cloud.<sup>2</sup>

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<sup>1</sup> DEFRA et al, *UK Climate Change Projections*, 2009, p.16, box 1.2

<sup>2</sup> DEFRA et al, *UK Climate Change Projections*, 2009, p.18, table 1.2

- 2.7 The UKCP09 go on to identify a full range of scenarios for each of these variables, with different outcomes projected across future time-periods, emission scenarios, time of year and area of the country.
- 2.8 While we do not have the information to enable us to conduct detailed analysis of these variables or to conduct a risk assessment, this section sets out how some of them could affect matters in relation to which we have functions.
- 2.9 For example, the risks we have considered could have an impact on the first two of our functions, which in turn could have an impact on the third.
- i. **The availability throughout the UK of a wide range of electronic communications services**
  - ii. **The optimal use of spectrum for wireless communications**
  - iii. The availability throughout the UK of a wide range of TV and radio services of high quality and variety
- 2.10 It is also possible that these risks could have an impact on Ofcom's day-to-day operations.

## **Infrastructure: Potential effects of climate change on communications networks**

- 2.11 The UK has extensive infrastructure over which electronic communications services are provided. The following considers some potential impacts on today's infrastructure due to predicted climate changes. However, due to the rapid pace of technology development in the communications sector, it is not possible to predict with any certainty the infrastructure that will exist following the typical timescales associated with climate change.
- 2.12 Of the risks we considered, some may be affected by the shifts in average and extreme weather patterns predicated as a result of climate change. This could include:
- **Increase in mean and maximum temperatures.** For example, the UKCP09 present a central estimate (50% confidence level) for the 2050s of a 2.8°C increase in the mean temperature for the worst affected area (South East England).<sup>3</sup> Increases in mean temperature could in turn increase the operating temperature of equipment used in communications networks, causing malfunction or premature failure if this is beyond design limits. This could be a particular issue for equipment, such as street cabinets, that is currently passively cooled and therefore dependent on the external environment. Equipment with broader operating temperature ranges or increased cooling may be required in these circumstances.
  - **Changes in precipitation.** An increase in the total amount of rain annually (for example, the UKCP09 2050s central prediction is <10% increase) or a change in the wettest day of summer or winter (-10% to +20%) could have an

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<sup>3</sup> We have looked at the 2050s because, as set out below, we do not consider it possible to make realistic predictions about communications technologies over the longer periods in the climate change models – 40 years to 90 years.

impact on infrastructure. Such changes could increase the risks of flooding and consequent damage to buildings and the communications equipment they contain. Much of the rest of the infrastructure that would be vulnerable to flooding, such as ducts and cable chambers, are underground and are therefore routinely under water today. Whilst able to operate in these circumstances, such infrastructure will typically require more maintenance, and this maintenance will be more costly than for infrastructure that remains dry. Increased flooding may therefore increase the proportion of infrastructure that is routinely submerged, and hence increase operating costs.

In some prediction scenarios, average rainfall may decrease as a result of climate change. This may ease some existing operational costs but have negative implications if infrastructure is damaged as a result of ground movements. Decreases in snowfall could ease existing operational difficulties due to extreme winter conditions.

- **Incidences of storms and high winds.** The likely impact of storms and high winds due to climate change seems uncertain in the current predictions. However, if the frequency and/or severity of these events increase, they have the potential negatively to affect communications networks.

For wired networks, while increasing amounts of infrastructure are buried below ground, a significant amount of overhead cabling still exists. Most of this is final access connections to millions of homes and businesses, typically in the form of copper cables via telegraph poles. There are also higher-capacity backhaul and core links, such as fibre cables, sharing overhead electricity poles and pylons.

Such infrastructure may be adversely affected by high winds. This could be in the form of temporary service degradation or loss that returns to normal when the weather calms. More serious events can cause lasting damage that requires equipment or infrastructure to be repaired or replaced before service can be restored.

- **Sea level rise.** As with increases in precipitation noted above, this could lead to increased flooding of vulnerable sites, damage to the associated equipment and operational problems.

## **Spectrum: Potential effects of climate change on use**

- 2.13 Spectrum is the airwaves on which all wireless communications rely and underpins many of the communications services that consumers use today, such as TV, radio and mobile telephony. We are responsible for managing civil use of spectrum by authorising its use through regulation and the issue of licences. Our work involves making spectrum available for new uses as well as ensuring it is used efficiently. We also identify cases of harmful interference and take action against the unauthorised use of wireless devices, such as illegal broadcasting.
- 2.14 The shifts in average and extreme weather patterns predicated as a result of climate change could have an impact on spectrum users. This is because of the way wireless communications signals propagate (i.e. travel) through the atmosphere.

2.15 Of the risks we considered, the key mechanisms by which climate change may affect some spectrum users are:

- **Changes in precipitation.** Signals at some frequencies are absorbed by rain or snow and so propagate less far. This can lead to the transmitted signals not being received clearly or at all if they travel through heavy precipitation. This is likely to be more severe at higher radio frequencies. For example, it is likely to have a greater impact on satellite TV than terrestrial TV. Some services are planned to transmit with enough extra power to make sure even in strong rain or snow that the signals can still be received. However, some services may be affected and may require increased transmission powers to accommodate poorer weather without increased levels of outage. This in turn could limit the number of users that could be supported in a given spectrum band without harmful interference.
- **Increase in mean and maximum temperatures and increased storm activity.** Atmospheric changes, such as changes in temperature and pressure, can cause radio waves to propagate much further than usual. This is known as ducting and it is more likely to take place at low frequencies. In some cases this can have a negative effect due to different wireless communications systems interfering with each other more than is usually expected. For example, the result might be increased problems with TV or radio reception, which could affect how we fulfil our duties in respect of these services.
- **Increased wind speeds or prevalence of high winds:** Wind can create large forces on the antennas used for transmitting and receiving signals. If average or peak wind speed levels increase, these forces could knock antennas out of alignment or mean that masts need to be stronger.

## Impact of climate change on our operations

2.16 We employ 720 members of staff (March 2011), most of whom are based in our central London office. We also have staff in our offices in Belfast, Cardiff and Glasgow – in accordance with our duty to maintain separate offices in each of those parts of the UK. Our field force is based across the country and we maintain offices in Baldock, Birmingham and Haydock for operational reasons.

2.17 Like all other regulators and businesses, including all of our stakeholders, we need to consider how we might need to alter our practices in order to minimise the impact of climate change on our day to day functioning. Business continuity planning has found we have no unusual vulnerability to such changes or extreme weather events. In fact, our operations are rather less vulnerable than those of many organisations as we have few time-critical operations and are not reliant on customers or staff coming to the site.

2.18 However, there are a few risks that we need to consider:

- **Flooding:** The main risk to our head office is flooding. The main building is situated by the Thames, and although there is limited risk of flooding due to the river rising, its low lying location means there is a risk of pluvial flooding as rainwater runs towards the river. The building's construction makes effective flood-proofing unfeasible.

- **Extreme weather - access to offices:** Extreme weather events could make it difficult or dangerous for our staff to reach their office.
- **Extreme weather - field operations:** We have staff working in the field investigating cases of interference to wireless communications and using enforcement powers when necessary. Extreme weather could make this difficult or put our staff in danger.

## Analysis and uncertainties

- 2.19 The time scales associated with climate change and the pace of change in the communications sector result in a large number of uncertainties. It is difficult to comment on whether and when climate change might have an impact on the communications sector and, if it does, the level of disruption it would bring.
- 2.20 Historically, some parts of the communications network, such as buildings, broadcasting towers, the cables in the ground and the ducts they run through, have persisted for many decades. Technological change has meant other parts of the network have changed much more rapidly, including the electronic equipment used for current telecoms and broadcasting networks and the technology used for spectrum services.
- 2.21 We cannot predict how the network will change in the future. Some elements of networks may persist in the 2050s and beyond while others may not and we do not know what impact radical technology shifts will have on longer-lived assets. If the existing infrastructure does persist, there are also questions about how it would cope with climate change, as well as how infrastructure and spectrum users would respond to changes in the weather. These include:
- i) **Infrastructure:** As discussed above, increased temperatures may impact the operation of communications equipment in the future. Assessing this impact requires an understanding of how the equipment is used. For example, the amount of equipment installed in a given building and the cooling arrangements could be as important as the specification of the equipment itself. These details are complex and are likely to change by operator, by location and over time, in response to various operational and cost pressures and technology developments.
  - ii) **Spectrum:** The usable spectrum currently ranges from 9kHz to around 300GHz and different frequency bands have very different characteristics and uses. At the lowest frequencies radio signals are capable of travelling very long distances but can carry relatively little data. At the higher frequencies they are capable of carrying large amounts of information but can only travel shorter distances and can be impeded by trees and buildings, or weather such as snow and rain.

Partly because of this diversity in characteristics and usage, we manage the spectrum in a number of different ways, using market mechanisms where appropriate. In many situations spectrum licensees are free to use the spectrum for what they see is the best use and we exercise little control over their usage or networks, other than ensuring they do not cause harmful interference.

Some existing types of wireless equipment may have sufficient transmitter power margins to deal with predicted precipitation increases over its life time but others may not. Decisions by manufacturers, network operators and purchasers as to

product design and purchasing are affected by their own assessments of cost and user needs. Some services may not be able to increase transmitter power margins without causing harmful interference to others, but this will vary from service to service and may change as technology develops.

## Section 3

# Ongoing Monitoring

- 3.1 There are some mechanisms already in place that could contribute towards monitoring the impact of climate change on the sector on an ongoing basis (along with other risks).
- 3.2 We have relatively new duties to report on electronic communications networks and services matters, and to ensure that operators take appropriate steps to manage the risks posed to their security and resilience. These duties do not relate directly to climate change adaptation, although they may act as something of an early warning system if the performance of communications networks and services is starting to degrade as a result of changing weather patterns.
- 3.3 Our rolling business continuity plan also enables us to ensure our operations adapt as necessary. We have also taken steps to minimise the organisation's impact on climate change through a series of carbon reduction initiatives.

## Infrastructure Report

- 3.4 The Digital Economy Act 2010 amended the Communications Act to give us a new duty to report to the Secretary of State every three years on electronic communications networks and services matters. We will deliver our first report in September 2011. The reporting areas can be summarised as:
  - i. the geographic and population coverage, and capacity, of the different UK networks and services, including international comparisons;
  - ii. the amount of network sharing and wholesale access taking place;
  - iii. the use of spectrum;
  - iv. the amount of time for which the different networks and services are and are not available, including the steps that have been or are to be taken to maintain or improve the level of availability; and
  - v. preparations made by network and service providers for responding to emergencies.
- 3.5 For the first report we plan to cover the most widely available and commonly used voice, data and digital broadcasting networks and services, with a particular focus on mobile and broadband coverage. We have already engaged with communications providers during the preparations for our first report and will continue to do so for future reports. The report will draw on data we already hold, supplemented with new data from operators where appropriate.
- 3.6 The final two reporting areas listed above are the most likely to be of relevance to climate change adaptation. The data collected for our reports will be historic in nature and so will not show plans for future adaptation. While we expect to include some forward looking information on communications providers' infrastructure plans, the associated information gathering powers do not allow us to require operators to undertake a climate change risk assessment.

- 3.7 Nonetheless, the reporting process is likely to identify any worsening of performance by communications networks and services over time. As well as any degradation in performance of networks over time we might expect this to include any degradation that was suffered as a result of changes in the wireless spectrum characteristics.
- 3.8 We are required to report every three years, and on an ad hoc basis if necessary, and will update at least some of the data on an annual basis, we will gather time series data that will enable us to identify these possible trends. Some of these may be the result of climate change and any failure adequately to adapt to it. While this might highlight any lack of adaptation, it would be difficult to rule out drops in performance for other reasons. It would also be difficult to identify any adaptations that have been made by operators as a result of the threat of climate change. This is because operators regularly upgrade their networks as a matter of normal maintenance activity.

## Security and resilience

- 3.9 The Electronic Communications and Wireless Telegraphy Regulations 2011 amended the Communications Act to require providers appropriately to manage risks to the security of public networks and services, in particular to minimise the impact on end users and interconnected networks, and to take all appropriate steps to maintain network availability.
- 3.10 Providers must also report to us any breaches of security or reduction in availability which have a significant impact on the network or service.<sup>4</sup> We have the powers to investigate any potential non-compliance with these requirements and to take formal enforcement action if required.
- 3.11 We published guidance on these new requirements on 10 May 2011.<sup>5</sup> We expect to update this from time to time to reflect the final outcomes of ongoing work to develop a common approach to implementation across European member states.
- 3.12 Under these requirements we expect communications providers to undertake some risk management and to demonstrate documentation relating to this if we were to carry out an investigation into compliance. Additionally, providers are required to take measures to maintain the availability of their services. Although not specifically mentioned, if climate change may negatively affect network availability, providers will need to take this into account in their mitigations.
- 3.13 As set out in our guidance, we are aware that the majority of providers already take security and availability of services very seriously. In most cases there are clear commercial drivers for this, but corporate responsibility and reputation management also play a part.

## Electronic Communications - Resilience and Response Group (EC-RRG)

- 3.14 EC-RRG is an industry chaired group, facilitated by BIS, which brings together the major UK network operators, the Government and the regulator and aims to foster the use of best practice and allow information sharing.

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<sup>4</sup> This is defined as all general risks, with reference to the national risk register which includes issues such as flooding.

<sup>5</sup> Ofcom, *Ofcom guidance on security requirements in the revised Communications Act 2001 – Implementing the revised EU Framework*, <http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/851653/guidance.pdf>

- 3.15 As part of the group's activities, and in conjunction with the government, the industry has produced voluntary resilience guidelines for providers of critical national telecommunications infrastructure.<sup>6</sup> It also contributed to the National Emergency Plan for Telecoms<sup>7</sup> which sets out the arrangements for dealing with emergencies which affect communications. The National Emergency Alert for Telecoms (NEAT) process forms part of these arrangements and is used for information sharing, both among EC-RRG members and with any government command structures in place, up to and including COBR.

## Operational

- 3.16 We have mechanisms in place to enable us to respond to operational risks. We review our business continuity plan (BCP) every year or if there has been a significant change. This includes a risk assessment and a strategy in response to several types of risk, including climate change. Our planning cycle is over five years and focuses on our response to sudden events rather than long-term changes.
- 3.17 Our risk assessments are mainly conducted in house, with the use of external consultants when we need to address a specific area which requires more dedicated and specialist resources.
- 3.18 Extreme weather presents the greatest risk to our operations and we have a number of processes in place to ensure that our work can continue in the event of such an event.
- **Flooding:** We have limited the extent to which our London office's building management and security systems could be disabled by a flood. For example, in the last year we have reduced our dependence on our main building by moving most of our computing facilities off site.
  - **Remote working.** Some extreme weather events, which may become more frequent due to climate change, may prevent our staff from reaching their place of work. Most of our staff are able to work remotely if needed, and we can rapidly increase the capacity of our remote working systems if necessary.
  - **Getting people on site.** Some of our operations (e.g. our contact centre and some finance activities) do require staff on site. Our operational and monitoring centre in Baldock is a 24/7 unit and specific contingency plans are in place to protect its operation against sudden weather events. So far, our business continuity arrangements have enabled its work to continue uninterrupted.
  - **Ensuring the safety of our Field Engineers.** During severe weather we prioritise the work of our Field Engineers so that they are not exposed to unreasonable risk.
  - **Disaster recovery.** In preparation for particularly extreme events we have identified our critical activities and have plans to ensure that these can continue at a sufficient level during disruption.

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<sup>6</sup> Cabinet Office, *EC-RRG Resilience Guidelines*,

[http://www.cabinetoffice.gov.uk/sites/default/files/resources/telecoms\\_ecrrg\\_resilience\\_guidelines.pdf](http://www.cabinetoffice.gov.uk/sites/default/files/resources/telecoms_ecrrg_resilience_guidelines.pdf)

<sup>7</sup> Cabinet Office, *National Emergency Plan for the Telecommunications Sector*,

<http://www.cabinetoffice.gov.uk/sites/default/files/resources/emergency-plan-telecomms-sector.pdf>

## Climate change mitigation

- 3.19 In addition to preparing for the implications of climate change through our BCP, we are also taking steps to reduce our impact on factors that contribute to climate change.
- 3.20 Following an initial carbon audit in 2007, we publicly committed to a challenging 25% reduction in carbon emissions by the end of 2012/13 (relative to a 2007 baseline). The Footprint and Sustainability project was set up to monitor progress and activities and ensure that this target is met.
- 3.21 A second audit was carried out in 2009, which confirmed that we were on track to deliver against this target and had already achieved a 15% reduction in emissions. We have developed a programme of work to meet the remaining 10% of the original target and to ensure that our operations adhere to environmental best practice. A third audit will be carried out towards the end of 2011.
- 3.22 We have also obtained Carbon Trust Standard accreditation, which is an independent recognition and validation of our internal carbon reduction strategy and achievements.

## Section 4

# Interdependencies, Cross-Sector Work and Voluntary Action

## Interdependencies

4.1 The communications sector does not operate in isolation – it is dependent upon other sectors, and other sectors are dependent upon communication services.

- **Infrastructure** – The communications sector is reliant on other infrastructure, most notably power, for its continued operation. Therefore, even if the communications sector proved to have sufficient resilience to cope with the direct effects of any weather changes, it may still be impaired as a result of any problems in other sectors.

We are aware that some communications providers have back-up power arrangements for certain sites, such as telephone exchanges and switching centres. These are often in the form of batteries and generators, with emergency refuelling arrangements for extended outages. We are not in a position to comment on the extent or potential effectiveness of these arrangements or on whether, or how, they might need to adapt in response to climate change.

- **Impact of communications on other sectors** - Today, almost all the private and public sectors are dependent upon communications technologies. The onus is on them to ensure they understand the resilience of the services they purchase and have disaster recovery provisions in place with their suppliers.
- **Responding to pressure on communications infrastructure** – Provisions are already in place to enable communications systems to cope with periods of unusual demand. For example:
  - calls to the emergency services are prioritised over other voice traffic and where appropriate are delivered using dedicated equipment and routes separated from other traffic;
  - in times or locations of potentially high mobile call volumes, it is possible for operators to increase capacity by putting up temporary masts;
  - fixed and mobile operators routinely throttle call volumes at various points in their network to ensure it is not overloaded, a practice which is common during phone votes for major TV shows for example.
- **Our operations** – While we can make provisions in respect of our offices and operations, we are dependent upon critical national infrastructure which may or may not be protected from flooding and extreme events. For example, our central London office is supplied by two electricity sub-stations, both of which may be vulnerable to flooding.

## Cross-sector work and best practice

- 4.2 We are involved with a range of initiatives and organisations that consider these interdependencies and seek to share information and best practice. They include:
- **Government initiatives:** There are also a wide range of Government led initiatives that consider the communications sector. For example, the National Infrastructure Security Coordination Centre has published guidance to customers on Telecommunications Resilience and how to approach Communications Providers when seeking to procure resilient services.
  - **Joint Regulators Group:** This brings together senior colleagues from various sectoral and competition regulators to discuss issues of mutual concern and report on recent developments in their own particular sector. Climate change adaptation is to be discussed by this group in autumn 2011.
  - **Business Continuity – best practice groups:** Our Health and Safety Manager is an Associate of the Business Continuity Institute and regularly attends meetings of business continuity professional and occasional conferences. In addition, the business continuity managers from a number of regulators meet twice-yearly to share best practice.

## Voluntary engagement with stakeholders

- 4.3 We have been asked to consider the scope we have for engaging with the industry on a voluntary basis. While we are engaging Government and other regulators on these issues, the limits to our powers, the information available to us and our expertise mean it would not be appropriate for us to seek to engage our stakeholders on adaptation issues.
- 4.4 We also think that seeking to do so would duplicate ongoing work in this area being led by the industry and Government. However, we are happy to engage with Government on these issues and to participate in wider discussions with industry.

## Section 5

# Barriers to Further Action

- 5.1 Given the legal framework under which we operate and internal resource constraints, there are a number of barriers to Ofcom taking action in relation to the possible impact of climate change in relation to our functions.
- 5.2 Ofcom's duties and the factors to which we must have regard when carrying out our functions are set out in law. For the most part we specify the end result, rather than the means by which it is to be achieved – we set an outcome for our stakeholders to reach and leave it to them to decide how to reach this goal. We may take enforcement action if they breach the requirement.
- 5.3 Like other risks, climate change factors itself into the regulatory regime to the extent that it may lead to breach of an applicable regulatory condition and there are legal barriers to us taking action in other situations. For example:

- i) **Our duties.** Adaptation to climate change is at best only obliquely provided for within the current framework of our duties. Our principal duty in carrying out our functions is to further the interests of citizens in relation to communications matters and to further the interests of consumers in relevant markets, where appropriate by promoting competition. In relation to electronic communications networks and services, we must operate in accordance with the requirements of EC law, in particular the objectives set out in Article 8 of the Framework Directive. Section 3 of the Communications Act 2003 sets out a number of further factors to which we must have regard, including the interest of consumers in price and choice, the desirability of encouraging investment and innovation and the interests of various vulnerable groups.

As a consequence we cannot determine in advance that we will necessarily prioritise one regulatory end over another. Each decision must be taken on its merits at the time of taking it (which is also when we carry out a regulatory impact assessment). We cannot decide to use the regulatory regime to secure adaptation to climate change in those we regulate.

It is likely that it would be difficult, if not impossible, for us to weigh long term effective adaptation to climate change in the balance over the objectives to which we are required to have regard under EC and UK legislation.

- ii) **Regulatory Principles.** Our regulatory regime was designed to ensure that regulatory intervention takes place only where necessary and proportionate, and in the interests of citizens and consumers. For example, in imposing any regulatory condition, we must be able to demonstrate, with evidence, that it is necessary, proportionate, transparent and not unduly discriminatory. The uncertainties associated with climate change adaptation in the fast moving sectors we regulate would make it inherently difficult to evidence any regulatory decisions made in reliance on it.
- iii) **Information gathering powers.** Our information gathering powers are attached to the exercise of specified functions and their use is subject to tests of proportionality. For example, our power to issue information requests in relation to our functions under Chapter 1 of Part 2 of the Communications Act 2003

(electronic communications networks and services), is subject to the threshold tests in section 137 of that Act.

iv) **Appeals.** The majority of decisions Ofcom may make are subject to appeal on their merits to the Competition Appeal Tribunal. Consequently, any regulatory decisions we came to which were evidenced in whole or in part by climate change modelling, and which were appealed, would be likely to involve a full merits review in the Competition Appeals Tribunal of the climate change models we chose.

5.4 If Government consider that climate change adaptation is not sufficiently addressed within this framework, Ofcom would be happy to discuss the mechanisms that could be used to address their concerns.