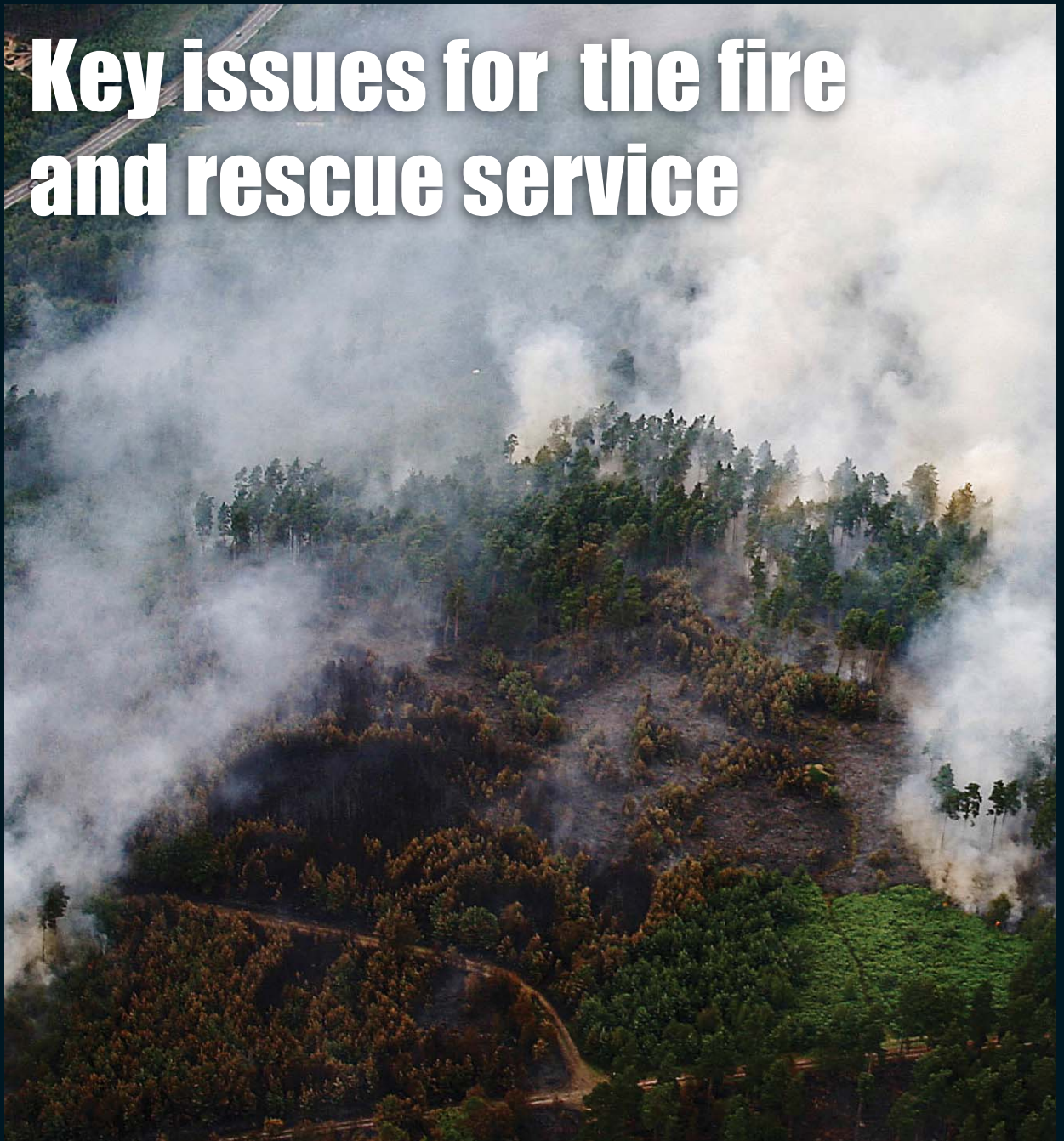


The Fire Brigades Union



Climate Change

**Key issues for the fire
and rescue service**



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Executive summary

Climate change is a critical issue for the fire and rescue service in the UK. It is the greatest environmental challenge facing humanity at present. But government policy in England, Scotland, Wales and Northern Ireland is also reshaping the political and industrial terrain around tackling climate change.

The FBU is committed to political and industrial campaigning on climate change. The union will campaign within the fire and rescue service and work with labour movement bodies and in the wider community to tackle one of the most fundamental questions of our age.

Scientists predict that the UK climate will become warmer, with high summer temperatures more frequent and very cold winters increasingly rare. Average summer temperatures are expected to rise between 3°C and 4°C by the 2080s. Winters are expected to be wetter and summers drier. Sea levels will rise around most of the UK and there may be more frequent storm surges. Climate change will affect all regions of the UK, though not to the same degree.

Climate change will increase the risk of grassland and forest fires. It will increase the risk of floods, including from surface water, rivers and from the sea. Climate change will affect the supply and availability of water and may give rise to more extreme weather events.

These hazards will have implications for the working conditions of firefighters. Climate change will require significant changes to appliances, to the equipment available to firefighters, to training, greater awareness of firefighters' health implications, to pumping capability and water use and increased call centre capacity.

The UK fire service is not yet prepared for the enormous implications of climate change. The service needs the staff, resources and equipment to tackle grassland fires, floods, drought and storms. There is no logic to job cuts and shutting fire stations when these risks are likely to increase in the years ahead. Firefighting is a green job and firefighters can play a vital role in helping society adapt to climate change.

Government policy on climate change and the fire and rescue service is inadequate. There is a pressing need for a statutory duty to respond to flooding events, backed by funding and resources. The increased risks from heat waves, including wild fires need to be fully understood and acted upon. The fire and rescue service should be included in government initiatives on climate change, rather than excluded or forgotten as it appears at present.

FBU reps believe that the fire and rescue service can do much more to reduce its carbon footprint. Fire and rescue authorities are not doing enough on energy efficiency, transport and recycling. Much more can be done to adapt to and prepare for extreme weather. But cuts, penny-pinching and a lack of training are holding back firefighters from tackling these issues.

FBU reps need time off and facilities to act on climate change. The trade union movement is campaigning for legal rights for union environment reps. More could be achieved through national and local agreements, brigade committees, inspections and green events. The fire and rescue service should actively encourage firefighters to participate in the process of tackling climate change.

Introduction

Firefighters have always rescued people during extreme weather events, such as storms and floods. Fire crews have always had to tackle wild and grassland fires during heat waves. But firefighters now face a more comprehensive challenge, which will have a profound and increasing effect on the service now and in the years to come.

Climate change is already happening today and will in all likelihood continue to impact on society and on the natural environment for decades to come. The science is now much clearer about causes and effects of global warming, though many uncertainties about future impacts remain. Climate change is also a major and growing area of politics, with the government, councils and employers taking up the issue in their own way.



The fire and rescue service should be right at the centre of climate change policy. It is the first port of call during extreme weather events – as the 2007 floods demonstrated. The environment and safety are concerns both for the public and for firefighters. The FBU wants a fire service fit for purpose to respond to climate emergencies. This means playing its part in reducing emissions as well as assisting with adaptation to climate change.

To make the fire and rescue service ready to tackle whatever the climate produces, it needs to be properly resourced, with sufficient staff to deal with more frequent emergencies and the best equipment to deal with the hazards.

This means that we need to see a reversal of the cuts agenda we currently face. Continuing to slash firefighter jobs is a sure way to guarantee that our service does not meet the challenges posted by climate change. However, with adequate investment and sufficient resources, firefighters can play a key role in the adaptation strategies required.

Firefighters are professionals willing and able to meet the climate challenge. This report outlines the FBU's views on climate change policy within the service. We do not have all the answers but we believe we are part of the solution.

A handwritten signature in black ink that reads "M. Wrack". The signature is written in a cursive, slightly slanted style.

Matt Wrack
General Secretary

Acknowledgements

The FBU would like to thank the Labour Research Department (LRD) for its assistance in producing this report, including results from a TUC survey on climate change, carried out in 2009. The union is also grateful for the valuable scientific advice and support provided by the UK Climate Impacts Programme (UKCIP).

1. Why climate change matters

Climate change is one of the defining issues of our time. It is much more than the long term weather forecast. It is not just an environmental problem. It is the frame around which the economic, industrial, political, cultural and technological aspects of our age will be redefined.

Climate change is a matter for today across the globe. It matters today in the UK.

In June 2009 the United Kingdom Climate Projections (UKCP) were published, setting out a range of possible climate futures over the next century.

Scientists predict that the UK climate will become warmer, with high summer temperatures more frequent and very cold winters increasingly rare. Average summer temperatures are expected to rise between 3°C and 4°C by the 2080s. Winters are expected to be wetter and summers drier – with heavy downpours in the autumn and winter more frequent. Sea levels will rise around most of the UK and there will be more frequent storm surges. Climate change will affect all regions of the UK, though not to the same degree. (See the appendix for more information on the predictions).

Richard Betts, head of climate impacts at the Met Office Hadley Centre warned recently that a catastrophic global 4°C rise in temperature by 2060, with the Arctic and Southern Africa increasing by 10°C. He said: "People alive today could live to see a 4°C rise. People will say it's an extreme scenario, and it is an extreme scenario, but it's also a plausible scenario." (*Guardian*, 28 September 2009)

1.1 Climate change and the fire and rescue service

Climate change, due to past and present emissions of greenhouse gases, will have an impact on every area of the fire and rescue service in the UK. Some major issues stand out:

Fires

Climate change will increase the risk of wild, grassland, heathland and forest fires. Past hot summers have seen a significant increase in the number of outdoor fires.

Floods

Climate change will increase the risk of floods, including from surface water, rivers and from the sea. Although this is more likely during the autumn and winter months, flash flooding at other times of the year cannot be ruled out.

Drought

Climate change will affect the supply and availability of water, with significant implications for fire and rescue services.

Storms

Climate change may give rise to more extreme weather events, with higher wind speeds and storms requiring the intervention of the emergency services.

These hazards will have implications for the health and safety of firefighters. Climate change will require significant changes to the service:

- The design and use of appliances;
- The equipment available to firefighters;
- The training provided;
- Greater awareness of the health implications for firefighters;
- The pumping capability and water use;
- Call centre capacity.

In 2006, the Department for Communities and Local Government (CLG) published a report, *Effects of Climate Change on Fire and Rescue Services in the UK*. It recommended that the service "begin to plan for climate change and to have an awareness of climate change when decisions are being made". It recognised that "for Fire and Rescue Services in the UK there is potential for increased workloads all year round". (CLG 2006)

The National Procurement Strategy for the Fire and Rescue Service 2008–2011 Consultation stated Fire and Rescue Authorities "have a crucial role to play in tackling climate change and helping society move towards more sustainable modes of development. They can shape their services and influence those of local partners to create solutions which are joined up,

integrating the economic, environmental, and social priorities of local areas to create sustainable communities". (CLG 2008d)

FBU view

Little progress has been made in developing a climate change strategy for the fire and rescue service. Paying lip-service to the issue is a long way from acting on it. The FBU wants a serious discussion within the fire and rescue service on the implications of climate change and how the service will be resourced and prepared to meet this challenge.

1.2 Climate change and trade unions

Climate change is more than an environmental problem. It has implications for the economy, for politics, for culture and for social life. Therefore trade unionists understand its importance for our members, the work we do and for wider society.

There are a number of reasons why the FBU believes climate change is a key trade union issue.

Science

The FBU recognises that work and work-related activities are responsible for at least half of all greenhouse gas emissions. It is not only the energy sector, manufacturing and transport that adds to emissions – every workplace and every community also contributes to the problem. Just as trade unionists have fought to improve health and safety within the workplace, so we should concern ourselves with the wider environment.

Society

The changing climate will affect the conditions our members work in, as well as the communities they live in and the places they serve. The FBU believes that climate change hits the poorest and most vulnerable sectors of the community hardest. It will be workers, both in the UK and across the globe that will bear the brunt of climate impacts. It is therefore a matter of solidarity and social justice for the labour movement to get involved in tackling the problem.

Politics

The government is implementing its own plans to tackle climate change, which directly affect all workers, including firefighters. It is changing the law, imposing new regulations, setting standards and making plans to deal with the risks. The FBU believes it is vital that the voices of working people are heard in policy discussions and that solutions are collective and democratically agreed.

Economics

Targets to reduce emissions have implications for employment, working practices, fuel bills and for the level of taxation. Adapting to climate change also carries costs for employers, for workplaces and for homes. The issue of who benefits and who pays for the transition to a low-carbon economy is a vital one for the renewal of the trade union movement.

Green jobs

The International Labour Organisation defines green jobs broadly as work that contributes "substantially to preserving or restoring environmental quality". Firefighting must count directly as a green job, because it involves stopping the spread of fires in the countryside and in cities and flood protection work. Making all jobs green is a vital part of tackling climate change and the FBU believes firefighters can also play their part in reducing emissions.

Ethics

Climate change is a global problem and a matter for many generations, not just our own. The FBU believes it is vital to represent the interests of future generations, as well as the millions who are excluded from representation in the present. It is matter of ethics and internationalism to tackle climate change.

2. Fires, heat waves and drought

It is clear from the science of climate change that increases in temperatures and extreme weather events will have a real impact on the work of firefighters. The mainstay of the job – tackling fires – as well as the impact of drought and heat waves, is the first area where the changing climate will impact on the service.

2.1 Increased risk of grassland fires

The CLG report, *Effects of Climate Change on Fire and Rescue Services in the UK* (2006) accepted that there is “a

clear and demonstrable link between hot dry summers and the number of fires”, particularly wild and forest fires. It based the correlation on data on higher average temperatures and increased secondary fires between 1973 and 2003. (CLG 2006)

The annual CLG *Fire Statistics* report contains figures for outdoor fires and their location (see Table 2.1). The report warns that the number of grassland and heathland fires is “very dependent on weather conditions”. The two recent highpoints in grassland fires coincide with the hot summers of 1995 and 2003.

Table 2.1: Grassland fires in the UK (1990-2007)

Year	Primary grassland fires	Secondary grassland fires	Grassland, etc (inc. intentional straw & stubble burning)	Total primary and secondary outdoor fires
1990	2,900	93,700	9,100	325,800
1991	2,000	53,700	58,000	289,800
1992	2,000	44,900	48,500	282,900
1993	1,400	44,900	47,600	307,900
1994	2,200	72,100	75,700	337,000
1995	3,400	168,500	174,600	462,100
1996	2,700	105,900	110,300	384,900
1997	2,000	65,500	68,700	330,000
1998	1,300	38,000	40,900	277,800
1999	1,500	59,500	62,500	336,600
2000	1,500	57,300	60,200	348,300
2001	1,200	70,600	73,000	417,900
2002	1,600	62,700	65,700	401,300
2003	2,500	148,400	152,700	503,800
2004	1,400	58,600	61,500	335,900
2005	4,300	65,600	72,400	327,600
2006	2,100	87,900	93,500	340,000
2007	0	56,600	57,900	291,600

Source: CLG, *Fire Statistics UK 2007* Table 5.1. p.50, Table 1c p.59. DTLR, *Fire Statistics UK 2000* Table 5.1 p.49, Table 1c p.58.

In 2007 grassland fires accounted for 20% of the total primary and secondary fires for that year. However in 2003 they accounted for 30% of these fires and in 1995, 38% of these fires. CLG's *Fire Statistics 2007* points out that "grassland fires in July were unusually low, this may be attributable to particularly high levels of rainfall for July in the UK in 2007".

The increased risk of wild fires has also been noted in recent government publications on climate change. The DEFRA report, *Adapting to climate change UK Climate Projections* (2009) states that "Fire risks on heathlands could increase as a result of higher summer temperatures and lower rainfall." It contains a short case study of wildfire risk management in the Peak District National Park. This includes:

- A fire plan;
- The use of compatible material by all partners, for example, the same fittings for pumps and hoses;
- Regular and appropriate training;
- An on-going programme of lectures and slide shows for Fire Services;
- A fire risk plan, produced by the Moors for the Future Partnership; and
- 'Firewatch' observations.

IRMP guidance

In 2008 CLG published guidance on risk assessment tools for Integrated Risk Management Planning (IRMP), which included specific sections on wildfires. The guidance (Fire Research Series 5/2008) highlighted a "growing interest in the assessment of wildfire for a number of reasons", including:

- Scotland has the potential for larger scale fires although lowland heath land type fires do present particular risks in England and Wales;
- A perception that more remote locations need better protection (prevention) because it is difficult for tenders to arrive in time to put out fires;
- Recognition that wildfires can have a significant impact, particularly where there are consequential impacts such as closure of motorways – a fire near the Thames crossing which closed the M25 is cited as an example of the consequential risk of wildfires;

- A view that wildfire does have an economic cost (farmer, consequential, nuisance concern) and an impact on fire fighters;
- The view that climate change will lead to longer and dryer summers (and hence more fires and larger fires); and
- The potential for increased cost of retained fire cover and demand for permanent fire cover in the event that climate change leads to more fires.

It noted that, "The potential for increased cost of fire cover, in the event of climate change leading to more fires, was said by FRS respondents to be prompting a shift of focus from response to prevention". The guidance stated that there were "a number of key decisions" that needed to be made in relation to wildfire, including:

- Better use of fire cover;
- Prevention; and
- Operational planning, especially with respect to availability of open water (to avoid water tanker shuttle runs). (CLG 2008b)

The document emphasises that fire and rescue services will have to engage in wild fire prevention work or be forced to increase fire cover. One passage makes this clear: "With climate change, the risk posed by wildfire was thought to be increasing and with it a potential increase in rural demand for fire cover. Therefore, there was a perceived need to develop better data and predictive techniques to support wildfire fire prevention work, rather than only looking at wildfire fire response resource needs." (CLG 2008b)

It quotes a University of Manchester study, (Climate change and the visitor economy' Technical report 3: Moorland Wild Fires in the Peak District National Park January 2006), which estimated that, "the maximum temperature in the Peak District is likely to increase by (between) 3°C to 5.5°C during the summer, and that the area is likely to receive 23-45 per cent less rainfall in summer by the 2080s. This will have significant consequences for wildfire risk". The report estimated the probability of fire on a spring bank holiday in Peak District. It suggested that a rise in temperature of 1°C (as suggested for the 2020's) would increase risk of fire from around 7% to around 9%, whilst a rise of up to 2°C by 2050 would increase fire risk to 10%. CLG argued that this model could provide long-term predictions of the frequency of outdoor fires.

The University of Manchester study quoted suggested that, "Speed of response of the fire service will become more important in limiting the fire spread, since the burn area is likely to increase with more intensive fires, and will result in further destruction of the landscape". (CLG 2008b)

The guidance also proposed exploring whether the UK Met Office's Fire Severity Index could be amended to provide longer term outdoor fire risk assessments. The Department of Health has also operated a National Heatwave Plan since 2004, in which a 'Heat-Health Watch' system operates in England during the summer months, with advice from the Met Office, with four levels of response and appropriate advice. (Kovats 2008)

CLG's IRMP Steering Group also published separate guidance on wildfires in 2008. The publication, *IRMP Steering Group Integrated Risk Management Planning: Policy Guidance Wildfire*, notes that, "Projected climate change highlights the urgency with which fire prevention planning for wildfires should be addressed" and that, "It must be recognised that new and previously unforeseen risks exist to both personnel and equipment". It added that, "Provision of firefighting resources should be an outcome of completed risk analysis and consultation". (CLG 2008c)

The guidance recommends that fire and rescue services undertake a review of local working arrangements between the service and the Environment Agency. It also argued that consideration be given to partnerships in the following areas:

- Training with equipment and water suppliers;
- Training on fire fighting strategy and tactics (in all environments); and
- Training on deployment of resources. (CLG 2008c).

Firefighters' concerns

The 2006 CLG report estimated an extra workload of up to 50% more incidents of grassland fires would, "stretch the resources of the Fire and Rescue Services". It acknowledged that, "Fire crews will be tired from attending more incidents, sickness and injury levels may rise due to fatigue, and equipment will be under more strain due to increased usage." The report estimated that the increase in workload will have "the largest impact on rural Fire and Rescue Services" and "on firefighters working on the retained duty system".

The document explained how more grassland fires have impacted on the service. It analysed those wild fires that were upgraded from secondary to primary fire status, indicating that either property or life was at risk, or that more than 4 appliances were used at the incident:

"Between 1994 and 2001 (not including 1995), there were approximately 70 serious grassland fires a year. In 1995 there were 267. This is almost a fourfold increase. Analysis of incident data from 684 primary grassland fires between 1994 and 2001 can be used to give an indication of the size of these fires, and the resources



needed to deal with them. It is important to be aware that this sample consists of the largest and most resource intensive grassland fires, and that almost all secondary fires will be much smaller than these.

"50% of the primary grassland fires were dealt with using 1 or 2 appliances, and in 50% of incidents, the appliances were back on station within 2 hours of receiving the call. The most resource intensive 25% of primary grassland fires took 5 hours or more to deal with, and involved 7 or more appliances.

"Using the historic increase in the numbers of serious grassland fires, and the estimates of the resources required for grassland fires, it can be estimated that another hot year like 1995 could see 200 additional primary grassland fires, with 100 of those lasting longer than 2 hours, and requiring more than 2 appliances, and 50 of them involving 7 or more appliances, and lasting over 5 hours." (CLG 2006)

Further analysis of this kind is needed. However it is clear from more recent figures that as well as an overall increase in grassland fires during particularly hot summers such as 2003, the number of primary grassland fires also spikes during these summers. In 2003 there were 2,500 primary grassland fires attended, while in 2005 some 4,300 were recorded.

FBU view

The FBU has additional concerns. These include firefighters suffering heat stress, injuries due to uneven terrain, smoke inhalation and flying brands. Large wildfires or heath fires can temporarily drain the fire cover of a large area, resulting in increased response times for primary fires and rescues. The union argues that UK is behind other European and American fire and rescue services in getting specialist firefighting appliances, water bowsers, portable dams, planes and helicopters that would assist with the rapid extinction of wild fires.

One fire authority – Norfolk – resorted in 2006 to raiding its pension fund 'pot' to pay for the increased demand on resources caused by "unseasonal" weather patterns which had brought major outdoor fires to significant areas of the county. Against a background of cuts, there are current insufficient resources available in the fire and rescue service to adequately tackle wild fires in peak years.

2.2 Drought

On drought, the latest government climate projections (UKCP09) estimate that summer rainfall may decrease by between 20% and 30% by 2080. The 2006 CLG report argued that water shortages would affect brigades' training and demonstrative capabilities. Water companies are expected to reduce the pressure in their mains supplies to minimise leakage, so firefighters may have to relay water across longer distances from alternative water sources and could expect changes in training, tactics, procedures, and equipment.

CLG listed the following examples of changes that may become necessary:

- Increased use of foam concentrate and wetting agents to make less water go further;
- However this could lead to incidents becoming increasingly complicated as efforts to ensure contaminants are kept out of streams and rivers will be required more frequently;
- Fire appliances with larger water carrying capacities;
- Purchase or make arrangements for loan of specialised water moving equipment such as water tankers or additional high volume pumping units;
- More efficient techniques / equipment for water application to fires;
- New techniques and equipment to allow long distance water relays to be carried out; and
- New techniques or equipment to allow water from smaller / shallower natural water sources to be used – watercourses are expected to be smaller in times of drought (CLG 2006).

2.3 The impact of heat waves on health

The DEFRA report, *Adapting to climate change UK Climate Projections* (2009), attempts to draw out the implications of heat waves. It states that there were about 35,000 premature deaths across Northern Europe in the intense heat wave in 2003 with around 2,000 premature deaths in the UK. The heat wave in 2003 occurred during a summer in which average summer temperatures were 2°C above the 1961-1990 average in the UK. The new research states that "such heat waves are expected to become more frequent in coming



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decades, as summers as warm as this will be 'normal' by the 2040s". This is because "past emissions mean that climatic changes for the next three decades cannot now be avoided". (DEFRA 2009d)

In a wider context, it states that "offices are more likely to overheat as a result of warmer summer temperatures. Methods of passive cooling, such as the use of blinds and external shading, will be needed".

Last year the Department of Health and the Health Protection Agency produced an updated report on the health effects of climate change in the UK. The report warned that, "heat waves still present a serious risk. Predicting severe heat waves and their effects is difficult, but there is a 1 in 40 chance that by 2012 South-East England will have experienced a severe heat wave that will cause perhaps 3,000 immediate heat-related deaths. In terms of conventional thinking about risks to health a risk of 1 in 40 is high". (Kovats 2008)

The Stern Review (2006) mentioned the Philadelphia heat health warning system, which included increased staffing for the emergency services, as an example of good adaptation practice with respect to heat waves.

FBU view

Heat waves have serious implications for firefighters. They affect the premises that firefighters work in – with offices and mess rooms too hot to work in. The FBU wants a trigger temperature of 27°C, after which management will implement special measures to ensure fire stations are fit to work in.

Heat waves also affect the conditions in which firefighters carry out rescues. Risk assessments on business and domestic premises need to account for more extreme temperatures. The fire and rescue service should investigate early warning systems to ensure the lessons are learned in the UK.

3. Floods and storms

The science of climate change also shows that increases in rainfall, particularly during the winter months will have a real impact on the work of firefighters. Greater risk of floods together with unpredictable storms is another area where the changing climate will impact on the service.

3.1 The risk of flooding

The Environment Agency warns that more than 5 million people live and work in flood risk areas in England and Wales. In England alone, some 2.4 million properties, including homes and workplaces, are at risk from rivers or the sea, while 2.8 million are currently at risk from flooding from surface water. The Rivers Agency estimates that some 60,000 properties in Northern Ireland are at risk from flooding. The Scottish Government estimates that over 170,000 residential and commercial properties in Scotland, 10-12% of the total, are thought to be at risk of flooding at present. However, it argues that "a much larger group will be at risk in the future with climate change likely to result in higher winter rainfall (especially in the west), more intense summer storms and rising sea levels". (Werritty 2007)

The Department of Health report, Health Effects of Climate Change in the UK 2008 produced a table on selected major floods and deaths in the UK this century. The results are in Table 3.1.



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Table 3.1: Selected major floods in the UK since January 2000 and associated deaths

Area	When	No of households flooded	Reported deaths (as a direct result of the floods)
Central and Southern England	New Year floods, 2002/03	1,029	1
Wales	February 2004	150	None
Boscastle, Cornwall	August 2004	60	None
Carlisle	January 2005	3,000	3
River Tyne	January/February 2005	100	None
Central and Southern England	June/July 2007	49,000	4

Source: Kovats 2008 p.25

3.2 Flooding and climate change

The Pitt Review into the 2007 floods across the UK also made the connection with climate change. Pitt concluded: "The scale of the problem is, as we know, likely to get worse. We are not sure whether last summer's events were a direct result of climate change, but we do know that events of this kind are expected to become more frequent." The scientific analysis commissioned for the Review showed that "climate change has the potential to cause even more extreme scenarios than were previously considered possible". It concluded that: "The country must adapt to increasing flood risk." (Pitt 2008a)

The Pitt Review commissioned work to update the *Foresight: Future Flooding Study*. Pitt concluded that, "The key message from the update is that the effects of climate change may be more extreme than had previously been estimated". In particular Pitt argued that the potential increases in rainfall volume and intensity, and temperature, are greater; and there is a greater risk of extreme sea level rise. The risk of flooding, including urban flood will increase. (Pitt 2008b)

Flooding is also highlighted in the DEFRA report, *Adapting to climate change UK Climate Projections* (2009). It states that "premises may be exposed to increased risk of flooding due to higher winter rainfall levels and an increased frequency of extreme weather". It adds that on transport, "Climate change is likely to affect UK ports in particular with extreme weather or rising sea levels resulting in flooding and possibly disrupting operations." The report includes a case study of flood risk management by Gloucestershire County Council since the flooding in 2007.

3.3 The fire and rescue service and flooding

CLG does not collect data on fire service call outs for flooding. On 20 March 2008, Labour MP John McDonnell asked the Fire Minister how many incidents involving flooding the Fire and Rescue Service attended in each year since 2000; and how many people the Fire and Rescue Service rescued from flooding in each such year. On 3 April 2008 he asked how many incidents on or near water were attended by the Fire Service in each year since 1994; and how many people were rescued by the Fire Service on or near water in each year. In both cases the reply was that "the information requested is not held centrally".

FBU view

It is remarkable that the government has no centrally held information regarding the operational and financial burden being placed on the fire and rescue service by water rescue incidents or by flooding. The FBU believes it allows them to avoid having to quantify the cost of training, equipment and costs, and to issue the appropriate guidance.

The CLG report, *Effects of Climate Change on Fire and Rescue Services in the UK* (2006) highlighted flooding in Cumbria in 2005, when heavy rain fell for 36 hours, flooded nearly 2,000 properties in Carlisle, affecting some 6,000 people. It divided the role of the fire and rescue services during flooding into three main areas:

- emergency response and rescue;
- damage mitigation; and
- when the floodwaters are subsiding, making flooded areas safe before residents are permitted to return to them.

The report said that if flooding becomes more frequent, "Fire and Rescue Services may have to consider adapting their capabilities to allow for a greater flood rescue response capability". It listed possible changes to:

- appliances;
- equipment;
- training, health implications;
- additional pumping capability; and
- greater call centre capacity.

The impact of flooding on the fire and rescue service was dramatically illustrated by the summer floods of 2007. Reports by the FBU, as well as government investigations by Michael Pitt and by the chief fire and Rescue adviser Ken Knight all highlighted impacts on the service.

The first recommendation of the final Pitt Review was that, "Given the predicted increase in the range of future extremes of weather, the Government should give priority to both adaptation and mitigation in its programmes to help society cope with climate change". Pitt was quite clear that this included the emergency services. (Pitt 2008a)

Statutory duty

The central conclusion from the 2007 floods for the fire service concerned its capability to tackle future extreme weather events. Pitt recommended that, "The Government should urgently put in place a fully funded national capability for flood rescue with Fire and Rescue Authorities playing a leading role, underpinned as necessary by a statutory duty". (Recommendation 39, Pitt 2008a)

The FBU agrees that this is crucial. Our submission to the review stated: "After the experience of the summer 2007 floods, the FBU believes that the case for imposing a statutory duty for major floods is overwhelming. The public expects fire service personnel to respond in an emergency situation and fire service personnel, with our training and expertise, expect to participate in rescue efforts. Imposing a duty, as long as it is backed by the necessary resources, will help the fire and rescue service prepare for the next floods." (Pitt 2008a)

In Scotland, where the legislative framework for flood rescue is different to England and Wales, fire and rescue authorities already have a duty to provide rescue in response to serious flooding events. The Pitt Review was advised by the Scottish Government that this duty had helped to clarify roles and set standards for training, kit and competency.

Instead the government has chosen to delay in England. In its response to the Pitt Review in December 2008, DEFRA stated, "The Government agrees the need for a properly funded national capability for flood rescue". It added: "The priority for the Government is to put in place a co-ordinated multi-agency flood rescue capability as soon as possible. In light of the findings of the project on a national capability for flood rescue, the Government will consider further how the role of the organisations involved might be clarified or enhanced, and whether there is a need for statutory underpinning for the role of any of the agencies involved." (2008b)

FBU view

The FBU is appalled that the government has not responded to Pitt's recommendation to make it the statutory duty of fire authorities to respond to flood events. In practice firefighters always turn out when requested, but this obligation should be formalised and resourced adequately. The government should take the earliest legislative opportunity – for example amending the Flood and Water Management Bill – to implement the duty.

Water rescue in Scotland

Water rescue has been dealt with more thoroughly in Scotland. In May 2009 the Scottish Government announced a review of the emergency services' ability to respond to all forms of water rescue, headed by Paddy Tomkins.

The review examined:

- The resources and capabilities of all agencies currently involved in water rescue emergencies, including flooding;
- Whether there is a need for changes in current operational arrangements between responders; and
- Whether there is a need for a change in the law covering the responders who cover water rescue.

The FBU in Scotland has been consulted and made its own written submission. The results of the review are expected in late 2009.

IRMPs

Preparation for flooding is very uneven across the fire and rescue service. Although some Integrated Risk Management Plans (IRMPs) have made provision for flooding, many IRMPs that were operative at the time of the 2007 floods did not explicitly prepare for major flooding events – include some in the most affected areas. The issue was summed up obliquely by Ken Knight in his interim report: “Some of these flooding events had historically been thought to be of such low frequency that it might be considered imprudent to allocate resources via IRMPs to conditions that may not occur more than once in thirty years.” (Knight 2007)

In his later *Facing the Challenge* report, Knight recognised the limitations of IRMPs in this respect. He wrote (§69): “Whilst some FRAs have included the provision of resources (boats, PPE and training) within the FRS as part of their Integrated Risk Management Planning process it is recognised that the provision is predominantly for localised water rescue, e.g. people reported falling into rivers, canals, as well as flood rescue.” (2008)

In other cases, fire and rescue services plan to make cuts in other areas in order to fund future flood capability. Humberside FRS announced cutbacks in 2008 using water rescue as an excuse. Its “Operational Resource Disposition: Benefits” argued that, “The current provision of training and equipment to deal with this risk is severely limited” and then concluded that job cuts were the only way to ensure firefighters have the right equipment and training for water rescue. The FBU rejects that view.

The CLG guidance on IRMPs published in 2008 (Fire Research Series 5/2008) also included material on floods. It reported that, “Several FRSs expressed concern regarding the provision of flooding and severe weather risk (real time alters) warnings by the Environment Agency and Met Office”. It argued that, “These agencies were not considered to be proactive in providing additional risk information beyond the public warnings that they issue, although they do provide additional information when requested”. Fire and rescue services “were looking for more informative real time warning systems that enable the FRS to judge what response they need to start enacting, such as advising FRSs that an impending flood may require evacuations rather than simply alerting FRS to the possibility of a flood”. (CLG 2008b)

The guidance recommended prioritising the further development and application of flood risk mapping

and assessment tools and “exploring the potential for improved real time flood risk assessment, such as by the utilisation of rainfall and water level gauges to alert FRSs to imminent flooding”. It argued for a more effective use of the Met Office’s Severe Weather Impacts Model (SWIM). (CLG 2008b)

Health

The Health Protection Agency has highlighted the risks to health from the contamination of flood waters with chemical waste, oil, diesel, pesticides, fertilisers, etc. It found that, “Flooding may lead to mobilisation of dangerous chemicals from storage or remobilisation of chemicals already in the environment, e.g. pesticides”. It added: “Hazards may be greater when industrial or agricultural land adjoining residential land is affected.” (Kovats 2008)

The FBU raised health concerns at the time of the 2007 floods. The union reported the case of a firefighter who rescued someone from a flooded ditch and went down with a virus, thought to have been contracted from contaminated water. He was in hospital for six days and off work for two weeks. The FBU South West Region issued advice to members at the time on the risks of zoonoses.

It is not clear that all FRSs have understood the risks of infection. FBU representatives have raised the issues of inoculation and of health surveillance with management during debriefings following the flooding, but have not met with a satisfactory response. For example Devon and Somerset FRS ceased the in-house hepatitis A and B inoculation programme, even though hepatitis A can be caught from contact with sewage.

Training

The Pitt Review concluded that, “in the event of another wide-area flooding emergency, those responding would still not necessarily have the right resources or training to respond safely.” (2008a) The FBU is aware that some IRMPs are now taking water rescue training into account. However the union believes that there is currently a lack of specifically designed training for dealing with incidents of floodwater. The union does not accept the assumption that current water safety training and water rescue training is equipping fire service personnel with the skills required for dealing with floodwater. There is also

variation in the training provided across different FRS which needs to be addressed.

These deficiencies require a national response. The guidance in the Fire Service Manual is outdated and should be revised to include the lessons from recent floods. There is also the need for consistent training to clear standards for working with water. The fire and rescue service was lucky in 2007 that no personnel were killed or seriously injured.

Equipment

Apart from High Volume Pumps, the other main equipment issue during the floods was the provision of suitable boats. Firefighters have told the FBU that there were not enough suitable FRS boats to undertake all the rescue work. Although some boats were provided by other agencies and organisations, they were not always fit for purpose. This was confirmed by the *Facing the Challenge* report, which noted that, "The outcome of a DEFRA survey into flood rescue capability, due to be carried out in the early part of 2008, is expected to indicate that there is a case for increased investment in boats and related equipment". (Knight 2008) The FBU believes that a range of equipment is needed, including standard inflatables, powered outboards, and other options that should also be seriously considered include jet-skis, amphibious vehicles, and even hovercraft.

PPE

A defining image of the 2007 floods was firefighters wading up to their chests in cold, contaminated water to rescue people. But few have asked why they didn't wear the right Personal Protective Equipment (PPE) for making such rescues safely. Ken Knight made this point in his final report: "The scale of the flooding incidents in 2007 meant that the majority of personnel were deployed simultaneously and for extended durations. This was not something for which most of the FRAs involved were well equipped. This led to firefighters being deployed in normal firefighting PPE which rapidly became wet, cold and contaminated by flood water. The use of firefighting PPE cannot be viewed as being appropriate since it is 'not fit for purpose', in the sense that it was not designed for such use and carries with it extra risks, e.g. restriction to the wearer's mobility, contamination etc."

This failing was also mentioned in the final Pitt Review. Firefighters pointed out at the time of the floods that kit designed to resist heat offered little water resistance and that they risked hypothermia if flooding takes place in winter. The FBU knows of testing by Grampian FRS on some PPE which turned out to have negative buoyancy – i.e. it sank.

A central recommendation made by Ken Knight was for national guidance for FRS staff working in major floods. (Knight 2008) However the CLG has still not issued guidance on the kind of equipment fire crews require to do this work; nor has it set standards for the kind of training fire crews need to have in order to rescue people without putting their own health and safety in jeopardy.

The FBU is aware of the government's progress report on the Pitt Review (DEFRA 2009f). For Recommendation 39, the response states:

"The Government and response organisations are working together to enhance our national flood rescue capability. An essential component of this is a new Flood Rescue National Operations Framework (including the devolved administrations). A fully developed draft of this Framework will be ready for consultation in December 2009. We have prepared an initial register of flood rescue assets that are held and available across all the main organisations involved in flood rescue. By November 2009 we will have nationally agreed standards for training and equipment so that we can effectively deploy flood rescue capabilities involving a range of operators. Funding will be targeted at bringing both training and assets across the organisations involved up to the national standards. The final milestone will be testing the capability during Exercise Watermark in March 2011." (2009 p.24-25)

FBU view

The FBU welcomes the commitment on national standards for training and equipment. We have argued that changes imposed on the fire and rescue service since 2003 have weakened national resilience to emergencies and put firefighters and the public at risk. Our report, *Lessons of the 2007 floods – the perspective of fire crews* recommended national standards for training and equipment.

However the union has not been consulted on the detail of the standards and therefore cannot judge whether they are sufficient to protect firefighters and others involved in flood rescue.



CREDIT: PA

Welfare

The FBU remains concerned about the wider welfare provision for fire crews during the floods. The union received reports of crews being mobilised from their usual fire station to incidents hundreds of miles away without any clear idea when they would be returning home. Fire crews put in huge long shifts, usually with little opportunity for a break, in order to rescue people or protect vital infrastructure. Many firefighters worked very long periods in physically demanding situations. Some faced prolonged periods away from home in sub standard accommodation.

Crews had to make their own arrangements for food and drink and in some cases, the places hosting them provided little or no refreshment. Some crews reported that no main meals were provided, with reliance instead on light refreshments or small microwave meals – no substitute for the nourishment needed for such intensive work. Some crews resorted to local fish and chip shops or supermarkets to get something to eat. Accommodation was also a problem, with crews being bunked in hotels often miles from the incidents, restricting rest time and leading to fatigue. Some rooms were used by other crews as duties were rotated, which was not satisfactory.

Call capacity

The issue of call handling and mobilising was a significant issue for all fire and rescue services (FRS) affected by the

floods. According to Ken Knight's interim report, "the service provider attempted to route 72,000 calls to the (Hereford and Worcester) HWFRS control in one twenty four hour period. Their control room was unable to manage this volume and calls were re-routed to other FRAs as far away as London. Many of these controls were themselves struggling to cope with the level of calls. At the peak of calls the emergencies tied up the 999 system at service provider level, which had a knock on effect on other emergency services".

Prior to the summer floods, John McDonnell MP asked the Secretary of State for Communities and Local Government what the typical or average maximum hourly call handling capacity is expected to be of each of the regional control centres proposed under the FiReControl project. (2 February 2007)

Fire minister at the time Angela Smith replied that "based on the current indicative staffing numbers and shift patterns", the call handling capacity nationwide would be 32,505 calls in a 24 hour period. This level of capacity was half the level needed by just one fire and rescue service (Hereford and Worcester) at the height of the floods just a few months later. Clearly the government has underestimated the capacity needed.

The FBU argues that control is one of those jobs where technology is no substitute for people. The union estimates that the new RCC scheme will cost £1 billion and will involve about 570 job losses – nearly a third of the total. If a third fewer staff had been available during the floods, then many more calls would have

gone unanswered. Another concern about the FiReControl project has become clearer as a result of the floods. The FBU has argued that local knowledge is crucial for dealing with calls quickly and efficiently, and that such expertise would be lost in the proposed new regional centres.

FBU view

The FBU believes getting resources for adaptation to flooding and other climate-related events is vital. Fire and rescue services that responded to the summer 2007 floods incurred additional costs, including for fuel and equipment, but mostly related to staffing, for example including accommodation and supplies for some firefighters. An Audit Commission report estimated the cost for fire and rescue services at over £2 million, the bulk of it for additional staff time. Although the most affected fire and rescue authorities were able to claim funds through the Bellwin arrangements, the Audit Commission report did not investigate the costs for FRs outside the five most affected areas. At least 35 FRs provided assistance outside their brigades during the floods, according to Ken Knight.

Flood defence work

The Pitt Review also referred to discussions in the fire and rescue service about taking on the role of erecting flood defences, for example in the East Midlands. The Review pointed to the example of Sweden, where local authorities have to identify the risks within the municipality and have action programmes for the Fire and Rescue Services (who are part of the authority).” (Pitt 2008a)

FBU view

The FBU recognises that with the appropriate training, resourcing and agreements on remuneration that firefighters could engage in a wider range of flood defence work.

3.4 Storms and the fire and rescue service

The increased risk of storms due to climate change is subject to large uncertainty. The new government climate projections (UKCP09) note that severe windstorms around the UK have become more frequent in the past few decades, although not above those seen in the 1920s. Researchers found a significant increase in the number of severe storms over the UK as a whole since the 1950s. However they warned that “there continues to be little evidence that the recent increase in storminess over the UK is related to man-made climate change”. (Jenkins et al 2008)

Similarly, a Department of Health report last year argued that, “The projected change in the annual highest maximum daily wind speed is relatively trivial over most of the UK”. However it warned that, “Most of the country is projected to experience slightly higher wind speeds in the most severe storms. The greatest increases in wind speeds are indicated over South-East England, Central Ireland, and Northern Scotland”. (Kovats 2008)

The Environment Agency does not collate deaths from windstorms. However press reports indicate that high winds can cause vehicle-related deaths, as well as the deaths of outdoor workers. The Department of Health report pointed to some examples, such as the four men who died in 1999 when they fell off a gantry while working on the Avonmouth Bridge in high winds, and the seven fatalities in January 2005, after a severe gale across Northern Ireland and North-West Scotland, with wind speeds in excess of 120mph.

Firefighters are often in the thick of the storms and are exposed to increased risks. On 16 October 1987, two firefighters were killed when a tree crushed the cab of their fire appliance in Dorset. The 2006 CLG report cited the 1987 storms as an example of what to expect in future. Firefighters would be expected to rescue people during similar events, as well as to removing fallen trees, which requires specialist equipment and training.

FBU view

The FBU recognises that predictions about extreme weather, particularly wind and storms are uncertain and not yet very concrete. However the union believes it is essential for the fire and rescue service to have the capacity to tackle such events, which means firefighters available to respond and the right equipment to do the job safely.

4. Government policy and the fire and rescue service

In the UK, climate change has become a significant part of mainstream politics in recent years. Since *The Stern Review* (2006) described climate change as “the greatest and widest-ranging market failure ever seen”, there has been a deluge of government policies, target setting, taxation, emissions trading and regulation. All these issues impact on FBU members and on other workers. They are important matters for trade unions to take a stance on.

Climate politics is usually divided into mitigation and adaptation. **Mitigation** means taking action to tackle the causes of climate change, that is reducing concentrations of greenhouse gases in the atmosphere. **Adaptation** means taking action to deal with the consequences of a changing climate, resulting from past and present greenhouse gas emissions. (DEFRA 2009d)

Both of these policy areas are relevant to the fire and rescue service. However the fire and rescue service is currently excluded from many government initiatives on climate change.

Mitigation

Mitigation in the UK has involved setting targets for emissions reductions and implementing taxation and other policies to bring these reductions about.

In 2008, the Climate Change Act committed the UK to cut emissions by 80% by 2050, created a carbon budgeting system to cap emissions over five year periods and established an expert body, the Committee on Climate Change. The Act made the UK the first country to make targets legally binding. The 2009 budget committed the government to cutting CO₂ emissions by 34% by 2020.

Adaptation

Adaptation policy is particularly important for the fire and rescue service. It is a devolved matter for governments. The new government climate projections (UKCP09) were developed with all administrations in the UK and showed that climate outcomes varied between different locations. (DEFRA 2009d)

In 2008 DEFRA launched its Adapting to Climate Change Programme, to adjust to climate change already underway because of past emissions. The Programme is divided into two phases.

The first phase (2008-2011) involves providing the evidence, raising awareness and helping others take action, ensuring and measuring progress, and embedding adaptation. Phase 2 will be called the National Adaptation Programme. This is a requirement of the Climate Change Act and will be based on the results of the National Climate Change Risk Assessment.

The DEFRA framework document, *Adapting to climate change in England* noted that for emergency planning and security, it expects an “increased risk of extreme weather events and more pressure on emergency services”. (2008a)

FBU view

The National Risk Assessment should involve all stakeholders, including the fire and rescue service and representatives from the trade union movement. Workers have a unique appreciation and experience of conditions at work and of the kind of areas that need to change. Failure to consult with workers will seriously undermine adaptation efforts.

Local government

There are also some important sectoral level arrangements relevant to the fire service. The Local Government White Paper, published in 2006 set out a new performance framework for councils. The national indicators replace all other existing sets of indicators and have been reported from April 2008.

One of the indicators, NI188 – Planning to Adapt to Climate Change, measures progress in assessing the risks and opportunities from climate change. The aim of the indicator is to ensure local authority preparedness to manage risks to service delivery, the public, local communities, local infrastructure, businesses and the natural environment from a changing climate, and to make the most of new opportunities.

Local authorities have to report the level of preparedness they have reached against the five levels of performance, graded 0 to 4.

- Level 0 Baseline (Authority has begun the process of assessing);
- Level 1 Public commitment and prioritised risk-based assessment;

- Level 2 Comprehensive risk-based assessment and prioritised action in some areas;
- Level 3 Comprehensive risk-based assessment and prioritised action in all priority areas; and
- Level 4 Implementation, monitoring and continuous review.

Local authorities will also come under the Carbon Reduction Commitment, a carbon trading scheme that will come into force in April 2010. This will have implications for some fire and rescue services (see Chapter 4.1).

NHS heat wave plan

A Heat-Health Watch system operates in England from 1 June to 15 September every year. During this period, the Met Office may forecast heat waves.

The Heat-Health Watch system comprises of four main levels – GREEN, AMBER, RED and RED Emergency. It is based on threshold day and night-time temperatures as defined by the Met Office. These vary from region to region, but the average threshold temperature is 30°C during the day and 15°C overnight.

FBU view

Although there are a range of important and relevant initiatives, the FBU believes that the government has not put the fire and rescue service at the centre of its plans to tackle climate change. In a number of cases, such as the Carbon Reduction Commitment, the Water and Flood Management Bill and the Adaptation reporting power – the fire and rescue service is partly or entirely excluded. The FBU believes this is a mistake and wants the service to play its full part in tackling the issue.

4.1 The Carbon Reduction Commitment

The Carbon Reduction Commitment (CRC) is a UK-wide scheme which will introduce mandatory emissions trading for large non-energy intensive commercial and public organisations from 2010. The CRC is likely to affect around 5,000 large commercial and public sector organisations including supermarkets, hotel chains, universities, water companies, local authorities and

government departments. It will cover organisations whose 2008 half-hourly metered electricity use is above 6,000 MWh – i.e. organisations with an electricity bill of roughly £500,000 per year. State-funded schools in Great Britain (not Northern Ireland) will be included in the scheme but not individually. School emissions will be included under the umbrella of their Local Authority. The scheme is due to start in April 2010. It is intended to be revenue neutral, with organisations that perform well rewarded financially.

The impact of the Carbon Reduction Commitment (CRC) on fire and rescue services is not entirely clear at present, but it is far from uniform. A DEFRA publication, *Carbon Reduction Commitment – Organisational Structures* set out the potential impact of the CRC. (DEFRA 2008)

DEFRA argued that the 16 county fire authorities in England “would participate in the scheme if the local authority of which they form part participates in the scheme”. This is because “it is the local authorities themselves which are legally designated as the fire authorities and have the responsibility of maintaining the local fire brigade”. Local authorities will participate individually in the CRC if they meet the 6,000MWh/year threshold. The relevant fire authorities listed were Cornwall, Cumbria, Gloucestershire, Hertfordshire, Isle of Wight, Isles of Scilly, Lincolnshire, Norfolk, Northamptonshire, Northumberland, Oxfordshire, Somerset, Suffolk, Surrey, Warwickshire and West Sussex. (It is unclear what happens with Somerset, since it merged with Devon in 2007).

Although DECC did not have a definitive list of organisations qualifying for the scheme at the time of writing, it expected that “most local authorities designated as county fire authorities will meet the CRC’s qualification criteria”. (Communication 15 June 2009)

However the other 24 Fire and Rescue Authorities, 6 Metropolitan Fire & Civil Defence Authorities and the London Fire & Emergency Planning Authority (LFEPA), despite having their own separate legal personality and being counterparties to the electricity supply contract, would not participate in the scheme. This is because none of them meet the inclusion threshold of 6,000MWh/year.

The LFEPA is the largest fire-fighting organisation in England and the third largest in the world. DEFRA calculated that the Brigade currently occupied nine sites with Mandatory half hourly (MHH) meters. Each

site has its own electrical supply and boilers. For 2006/07, electricity consumption totalled 4,596,998 kWh (4,597 MWh) for MHH meters and 10,993,831 kWh (10,993 MWh) for NHH meters. The LFEPA reduced to 6 sites in February 2008, as some buildings will be vacated.

FBU view

The FBU is critical of quasi-market mechanisms like the CRC. The union does not support the inclusion of the fire and rescue service in the scheme, even on a regional basis. It would be more appropriate for all fire authorities in England, Wales, Northern Ireland and Scotland to set targets to cut emissions and make direct plans for doing so. However the union does believe that any scheme introduced to cut carbon emissions should involve consultation with relevant union representatives.

4.2 The Draft Flood and Water Management Bill

The Flood and Water Management Bill, launched by the government in April 2009 covers a wide range of important issues with respect to flood management in England. The Welsh Assembly Government is also likely to adopt a similar range of measures.

Fire and rescue authorities are not specifically listed in the draft Flood and Water Management Bill. A number of county councils in England – Cornwall, Cumbria, Gloucestershire, Hertfordshire, Isle of Wight, Isles of Scilly, Lincolnshire, Norfolk, Northamptonshire, Northumberland, Oxfordshire, Suffolk, Surrey, Warwickshire and West Sussex – are legally designated as the fire authorities and have the responsibility of maintaining the local fire brigade. They would be regarded as authorities and therefore appear to come



under the general duty to develop, maintain and apply a strategy for flood risk management in their area. However other fire and rescue authorities are not covered.

The proposals in the draft Flood and Water Management Bill did not specify a role for the remaining two-thirds of fire and rescue authorities in England. This could allow a dangerous postcode lottery to develop between different fire authorities and undermine national resilience. (DEFRA 2009c)

FBU view

The FBU believes it is appropriate to add all fire and rescue authorities explicitly to the list of relevant authorities responsible for flood and water management.

4.3 Adaptation Reporting Power

The Climate Change Act 2008 gave the government the power to ask public sector organisations, and statutory undertakers such as energy and water companies to report on the current and future predicted impacts of climate change on their organisation and proposals for adapting to climate change.

These reports would contain:

- a summary of the statutory and other functions of the reporting authority – to ensure that they are taking into account the risks presented to all their functions;
- an assessment of the current and predicted risks to that organisation, or its functions, presented by climate change; and
- a programme of measures to address the risks highlighted above, including any policies or practices that are already being implemented.

The government consulted on the issue in 2009. It published *Adapting to Climate Change: ensuring progress in key sectors*, which contained a criteria for which authorities would be included in the scheme:

- a. those responsible for national infrastructure, and therefore daily functioning of the UK;
- b. those authorities that are vulnerable to the projected impacts of climate change;

- c. those authorities that have a limited or no current regulatory framework that requires them to look long term at, and report on, the need for adaptation of its functions, assets and business; and
- d. targeting reporting authorities proportionately. (DEFRA 2009d)

The government said that the fire sector and the police met "all the criteria" for inclusion. However it argued that, "these authorities are mainly involved in working with communities and partners on prevention and emergency response and so asking individual organisations to report could be considered disproportionate".

Instead it argued that in the absence of an appropriate regulator in the fire and rescue service (as HMI Constabulary is in the police) that the CLG and the Audit Commission, would "ensure that adapting to climate change is included adequately in the Fire and Rescue National Framework". It said: "This will help ensure that climate change risk is incorporated appropriately into Integrated Risk Management Plans, long term strategic assessments and in future Organisational Assessments of the Fire sector carried out under the Comprehensive Area Assessment".

FBU view

The FBU believes the remedy is to give an overarching body within the fire and rescue service the responsibility for reporting on adaptation, as it is intended for HMI Constabulary. In the absence of HMI Fire and Rescue Services, we believe this responsibility could be taken by the Fire and Rescue Advisors which are now in place in each of the UK administrations responsible for Fire and Resue policy. As this would impose an administrative burden on fire and rescue authorities, and require more significant input from the Chief Advisors, the FBU believes that additional funding should be provided from central government to ensure that the statutory requirements are met.

5. What FBU reps think about climate change

Firefighters are already an irreplaceable force for tackling extreme weather. Firefighters have the skills, training and experience to make a huge contribution to tackling climate change.

Many firefighters want to become climate champions - fire and rescue workers who can help their communities adapt to and cope with higher temperatures, floods and storms.

FBU representatives took part in a Labour Research Department (LRD) survey for the TUC earlier this year. Some 50 FBU reps from 31 different fire and rescue services across the UK (including responses from four brigades in Scotland, two in Wales and from Northern Ireland) gave detailed responses to a lengthy online questionnaire.

Their answers provide an expert evaluation of the current readiness of the fire and rescue service to tackle climate change. They also indicate the tremendous role firefighters could play in developing a national response.

5.1 Climate change within the fire and rescue service

Firefighters believe that most of their employers are failing to engage with the issue adequately and that their employers could do much better in their efforts to tackle climate change.

One of the main focuses of the survey was on the mitigation measures implemented in workplaces, in other words activities that prevent, limit and reduce greenhouse gas emissions. The survey asked union reps about three broad areas: energy efficiency; transport; and general environmental measures to reduce emissions.

Energy efficiency and climate change

The LRD survey asked FBU reps about the energy efficiency measures that had been implemented in their workplaces, which could help reduce greenhouse gas emissions. Their verdict was that employers have enormous room for improvement. The overall figures are contained in Table 5.1.

Table 5.1: Employer action on energy efficiency and climate change

	No action	Some measures	Comprehensive scheme
Computer standby/switched off when not in use	52%	46%	2%
Electric machinery switched off when not in use	42%	56%	2%
Replacing VDU screens	58%	28%	12%
Lighting controls	36%	52%	10%
Cutting night time and weekend electricity consumption	44%	50%	6%
New boilers/heating system	52%	36%	12%
Insulation and glazing	34%	52%	14%
Ventilation/air conditioning changes	66%	30%	4%
Switching to a renewable energy supplier	78%	16%	2%
Installing renewable energy sources e.g. turbines	88%	8%	2%

Source: LRD survey 2009. Figures are as a percentage of the total responses. A small number of reps did not answer every question.

The survey showed:

- Only 2% of employers have taken comprehensive action to install **renewable energy** sources such as wind turbines and solar panels, and (88%) have taken no action on this issue;
- Only 4% of employers have taken comprehensive action to improve their **ventilation** and air conditioning systems, with two-thirds (66%) taking no action; and
- Just 12% of employers have comprehensively upgraded their **heating** systems to make them more energy efficient, whilst over half (52%) have taken no action.

- A very disappointing 14% of employers have taken comprehensive measures to **insulate** and glaze their premises – with a third (34%) taking no action on what is one of the easiest and most cost-effective ways to reduce emissions.

There has been little progress with respect to **IT equipment** or with **lighting** control systems.

Transport and climate change

The survey findings on transport and climate change showed that employers were little better at implementing transport measures to reduce emissions. The overall figures are contained in Table 5.2.

Table 5.2: Employers actions on transport and climate change

	No action	Some measures	Comprehensive scheme
Loans for cycling equipment	26%	26%	48%
Subsidies for cycling equipment	32%	32%	34%
Secure cycle storage, lockers, showers	18%	68%	14%
Loans for public transport passes	92%	6%	2%
Subsidies for public transport use	86%	14%	0%
Green travel plans	84%	14%	2%
Car pool/car sharing scheme	76%	22%	0%
Purchasing hybrid, dual fuel vehicles for fleet	74%	20%	4%
Training in eco-driving techniques	86%	14%	0%
Company transport (e.g. bus)	80%	20%	0%
Tele/video conferencing	72%	26%	0%
Working from home as a green initiative	82%	18%	0%

Source: LRD survey 2009. Figures are as a percentage of the total responses. A small number of reps did not answer every question.

Green travel plans – promoted by the government and unions for over a decade – have not been widely implemented in workplaces. Only a few fire services (2%) have comprehensive green travel plans, while most (84%) of employers have taken no action to develop a green travel plan.

None of the fire services have implemented a comprehensive car pool sharing scheme, with almost three-quarters (74%) taking no action on this simple measure.

Employers have been remiss in providing sustainable alternatives to car use for work. None provide substantial subsidies for public transport use, whilst most (86%) have offered no financial incentives to use public transport.

Encouraging cycling is one of the simplest ways for employers to help cut carbon emissions, with important spin offs for congestion, car parking and

importantly to improve workers' health. Yet only less than one in seven employers (14%) provide comprehensive facilities for secure cycle storage, lockers and showers to support cycling to work. Around a third (34%) offer substantial subsidies for cycling equipment. Nearly half (48%) offer loans for cycling equipment, but a quarter (26%) offer no financial incentives.

Reuse, reduce and recycle

FBU reps also reported on other measures implemented in their workplace which can reduce emissions, cut waste and reduce the ecological footprint of their work. These measures were more widely used in the fire service, although even here, there is much room for improvement. The overall results are contained in Table 5.3.

Table 5.3: Other workplace green actions to prevent climate change

	No action	Some measures	Comprehensive scheme
Recycling paper/card	4%	66%	28%
Recycling other items (metals, plastics, equipment, food)	18%	58%	24%
Reduced waste to landfill	40%	48%	12%
Water conservation	68%	30%	2%
Toilet water controls	56%	40%	4%
Purchasing recycled paper	42%	50%	6%
Green purchasing (e.g. fair trade products)	78%	22%	0%

Source: LRD survey 2009. Figures are as a percentage of the total responses. A small number of reps did not answer every question.

The significant findings from the LRD survey were:

Less than a third of fire and rescue services (28%) have comprehensive paper recycling in place, although over 90% have some measures in place. Around a quarter (24%) also recycle other items such as metals, plastics, equipment and food. Over half (56%) purchase recycled paper, though a substantial minority appear not to do so.

Emissions from landfill are also a significant area that employers could contribute to. However only one in eight (12%) have substantially reduced their waste to landfill, whilst a similar proportion (40%) have taken no action, despite government pressure.

Water use remains a significant area for improvement. Only a handful of fire and rescue services (2%) has comprehensive water conservation measures, and only a few (4%) has substantial toilet control measures. Over half of employers have taken no action on water use.

Although almost a quarter of employers (22%) purchase some fair trade products, over three-quarters (78%) do not, indicating that more could be done on green purchasing.

Adaptation

LRD asked FBU reps whether their employer had taken any measures to adapt to climate changes and extreme weather events that have already taken place, such as warmer summers, drought, flooding and storms. The survey revealed that most employers had failed to take the measures necessary.

The significant findings from the LRD survey were:

Employers are not acting when temperatures soar during the hot weather. Only 4% have a temperature trigger when workplaces get overheated, and over three-quarters (76%) have taken no action to reduce workplace temperatures.

Most employers have not even taken small steps to cope with high temperatures, with only 6% having a comprehensive scheme to change the dress code in the summer and two-thirds (68%) taking no action on workers' clothing.

Despite their pivotal role, fire and rescue services are not sufficiently prepared for severe weather events such as floods and storms, FBU reps said. Only a quarter (26%) have comprehensive contingencies in place to cope with extreme weather, though most have some measures in place.

Table 5.4: Employers adaptation to climate change and severe weather

	No action	Some measures	Comprehensive scheme
Planning for floods and storms	16%	58%	26%
A trigger "maximum" indoor temperature	76%	20%	4%
Changing equipment	78%	22%	0%
Changing clothing during hot weather	68%	26%	6%

Source: LRD survey 2009. Figures are as a percentage of the total responses. A small number of reps did not answer every question.

5.2 Union initiatives

Unions are sometimes derided for having a narrow focus. Some commentators predicted that the economic downturn would see union interest in climate change dissipate. The LRD survey has comprehensively refuted these assertions. Reps were specifically asked about their concern for climate change in the current economic situation. A very high proportion (36%) of FBU reps said they were **more concerned** this year compared with a year ago, while more than half (60%) said their concern was about the same. Similar figures were found across the trade union movement. The **sustained interest** of union reps in tackling climate change is one of the most striking findings of the survey.

Many union reps said they had become strong promoters of climate measures. For example FBU reps in Suffolk fire and rescue service said they had “introduced recycling, composting and energy efficiency measures” into their workplace, as well as a wildlife area that had been commended by many people.

Cleveland FBU reps said they backed attempts to reduce printing of paper copies of minutes of meetings as well as the recycling of cardboard, plastic, tin cans, turning off lights that are not needed and other measures. FBU reps in the Northern Ireland fire and rescue service had supported recycling of cardboard and toner cartridges, and the introduction of a cycle to work scheme.

FBU reps have backed the installation of automatic lighting controls in the London Fire and Emergency Planning Authority. FBU reps in Tyne and Wear fire and rescue service said they supported the installation of energy management systems, the reduction of unnecessary vehicle movements and a cycle to work scheme.

Dorset FBU reps said they supported a salary sacrifice scheme to purchase bicycles, while Fife fire and rescue service also has a cycle purchase scheme.

Similarly, FBU reps in Tayside fire and rescue service have welcomed the extra pumping equipment available to deal with flooding.

Why are union reps so effective?

Academic and government studies have shown that the involvement of union reps makes a significant difference in workplaces – for example by making workplaces as much as 50% safer.

These studies have identified the mechanisms through which unions and their representatives are so effective: negotiated agreements; participation in committees; high quality union training; carrying out audits and inspections; and union-organised campaigns, events and other efforts. The survey found some evidence of all of these activities within the fire service – suggesting a foundation on which further progress can be developed.

One of the most effective ways in which unions contribute to tackling climate change is through workplace committees. Nearly one in five FBU reps (18%) said their health and safety committee had discussed the issue. For example it is standing agenda item on the Northumberland Fire and Rescue Service Joint Health and Safety Committee. Another 10% had been involved in either a joint management-union environment committee or working party to look at the issue. Sadly, 8% reported that a management-only body had been set up.



Some FBU reps have been able to use their facility time to participate in climate change activities. In Humberside Fire and Rescue Service, reps have been given time to attend environmental meetings with management. In London Fire and Emergency Planning Authority reps have had up to half day a month, whereas in Suffolk it is included in the normal union reps time. In the West Midlands fire and rescue service, FBU reps have taken part in the Environmental Champions scheme. Devon and Somerset fire and rescue is "moving towards green awareness courses".

Almost a quarter of reps (24%) said they had engaged in some independent campaigning on climate change in the workplace. Around 10% of reps said they had been involved in some sort of environmental survey or audit, while others (4%) had attended a DVD showing on climate change.

5.3 Union complaints

FBU reps have a number of concerns about how climate change is being tackled in the fire and rescue service. Clearly from the figures, they believe much more could be done to "green" the service.

As one rep put it: "Management not interested in ideas." Another expressed the top-down approach adopted by many employers: "Standard response is that the Fire Authority is dealing with issues."

Not enough being done: FBU reps said their fire service has "a very good attitude to being green, but falls short of making a major contribution due to funding shortages". Stations undergoing refurbishment don't include basic energy efficiency measures like insulation and double glazing. FBU reps in a Scottish brigade complained that automatically lighting presented a safety hazard and had led to two accidents.

Financial constraints: FBU reps in one fire and rescue service have been told that although new stations have recycling bins, it is "too expensive" to provide them for other stations! FBU reps in one Scottish brigade said a clothing purchase was cancelled due to budget restrictions.

Jobs: None of the FBU reps reported that new green jobs were being created in their fire and rescue service, despite the vital role firefighters play in adapting to climate change. Although few employers have used green arguments to justify job losses, some reps did

report that jobs were being cut despite the irreplaceable role firefighters play in tackling floods, storms and grassland fires. For example one fire service had cut 28 jobs despite flood and wildfire risks.

Skills: similarly, few employers (10%) had offered firefighters opportunities to reskill or upskill in relation to climate change. Three in five (60%) were sure no such opportunities had been made available.

Reporting: Only a tiny number of reps (6%) said their fire and rescue service published environmental information annually, including their carbon footprint – with half sure that such information was not made available systematically.

Agreements: Although some FBU reps have negotiated agreements with local management on climate change (8%), almost three-quarters (70%) do not have a formal arrangement in place. Similarly, 10% had been allowed time off as part of their union duties to engage with climate issues – but three-quarters (76%) had not had time off for these matters.

Training: Some FBU reps (10%) said they had attended training courses on environmental issues and climate change, although the vast majority had not. A small number (4%) had been refused time off to attend such training.

Overall the survey indicates the real commitment FBU reps have towards tackling climate change. However it also expresses their frustration that so much more is possible, if only employers would consult with the union and give FBU reps the time and resources to take part fully.

5.4 FBU campaigning

Firefighters are a highly-committed and adaptable workforce with the potential to play a vital role in combating climate change. The technical knowledge for doing the job, combined with a strong union gives firefighters enormous strength and resources to bring to union-led campaigns to influence governments and employers. FBU conference 2009 passed an important resolution on climate change. Firefighters can take action on a number of levels, especially through political campaigning nationally and at brigade level as workplace environment reps.

Political campaigning – just transition

The FBU has always put a strong emphasis on political education, to prepare our reps for organising inside and outside the workplace. Firefighters are important members of communities and have made alliances with campaigners around common objectives in many areas. The trade union approach is often expressed in terms of the demand for a "Just Transition".

Unions recognise that the transition to a low carbon economy is **necessary** to tackle climate change. Such a change may also be **inevitable**: governments and employers have decided on a major turn in the world economy and are already heading in that direction. The FBU believes that the transition may also be **desirable**, bringing win-win and no-regrets benefits. However there are certain conditions to make this sort of grand social and economic transformation fair – in other words a Just Transition.

The concept of Just Transition recognises that major changes in the industrial landscape will affect employment. Although a low carbon economy is expected to bring new jobs, there will also be job crush in some fossil-fuel intensive sectors. The TUC argues that the heart of the Just Transition "is a recognition that ensuring social justice in the transition to a low carbon economy cannot be based on the vain hope that the market alone will provide". (TUC 2008)

The idea of Just Transition originated with Tony Mazzocchi, a leader of the Oil, Chemical and Atomic Workers (OCAW) union as a response to the closure of unsafe and polluting plants in the United States. Just Transition was defined as "a way that workers can support the environmental cleanup without the worry of job loss... Just transition forces employers to take responsibility for workers and keep communities intact".

The aim was for workers to receive compensation and educational payments to reskill and re-equip them for decent, well paid union jobs when their old firms closed or downsized. The closest historical precedent was the United States' Servicemen's Readjustment Act of 1944, known as the GI Bill, a government-funded scheme to help World War Two veterans make the transition back into civilian life. Over 15 million received a living wage, tuition grants and other housing and medical benefits for up to four years. The costs were more than recouped from later tax and spending returns

The TUC argues that Just Transition must be about

ensuring that "green jobs" are decent jobs. In the fire and rescue service, this means more jobs to tackle climate change. It means that "work is productive and safe, delivers a fair income, provides security and equal opportunity in the workplace, provides social protection for families, and better prospects for personal development". In emerging sectors of the economy, high quality, skilled employment is accompanied by good working conditions supported by union agreements. However, there are other growing sectors such as waste and recycling where occupational health risks and job insecurity are widespread.

The concept of Just Transition also has wider applicability. The TUC argued that it ought to be applied to **green taxes**, which are often the preferred strategy for environmental protection. It is argued that "concerns have been voiced that they may impact excessively on lower income groups. It is a well-established fact that indirect taxes take a higher proportion of income from those lower down the income scale. In effect, indirect taxation is a regressive tax system that requires a progressive direct tax system running alongside it to ensure that the poorest do not contribute disproportionately to public funds".

Legal rights for environment reps

There is very widespread support for legal rights for trade union environment reps across the labour movement. In 2007 FBU annual conference backed a motion calling for trade union environment reps to have similar rights to those of safety reps. The motion reiterated a policy passed as long ago as 1991 by the union, when the alarm was sounded about global warming.

In 2006, John McDonnell MP, who coordinates the FBU's parliamentary work proposed an Early Day Motion (EDM), which called for facilities and facilities time for trade union environmental representatives. A further EDM was tabled by Martin Salter MP in 2007 on the same issue.

McDonnell also moved an amendment to the Employment Bill in October 2008 to provide for time off for training and carrying out activities along similar lines to those accorded to union learning reps. The amendment would allow workplace environmental representatives from independent trade unions to take reasonable time off during working hours for any of the following purposes:

- promoting environmentally sustainable workplace initiatives and practices;
- carrying out environmental audits;
- being consulted on workplace environmental policies, practices and management systems; and
- carrying out environmental risk assessments.

The amendment also covered time off for training and for revisions to the ACAS code of practice. Although it was tabled and debated, the proposal was talked out of time.

ACAS code of practice

In the ACAS Code of Practice on *Time off for trade union duties and activities*, neither the entitlements in sections 7 to 10 nor the examples of trade union duties in section 11 reflect environmental issues or climate

change. At present, the Code allows for consultations on “the working environment”, which means health and safety at work, and does not mention other environmental issues.

The TUC and its affiliates want the ACAS Code of Practice to be amended to recognise the role of unions in formal consultations with the employer on “sustainable production and consumption”. This would give union reps and members a voice at work on energy efficiency, recycling, green travel plans and sourcing renewable energy – and then to use cost savings to create better jobs and greener ways to work.

Environment reps would get a minimum 10 days of accredited training in the 12 months immediately following their election/appointment. Reps would have the right to reasonable paid time off to carry out their functions and to get information from their employer to assist with these duties. Employers would be required to grant facilities such as room space, phone and computer use to enable environment reps to fulfil these duties.



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Appendix: Climate change in the UK

The United Nations' Intergovernmental Panel on Climate Change (IPCC) summarises the scientific consensus on climate change. The IPCC's Fourth Assessment Report (2007) showed that climate change is a real and growing threat to human society.

The IPCC report argued that, "warming of the climate system is unequivocal", based on direct observation. For example, eleven of the previous twelve years (1995-2006) ranked among the 12 warmest years in global temperature since 1850. Global average temperature rose by 0.74°C between 1906 and 2005. Temperatures have risen more rapidly in recent years, by about 0.2°C per decade over the past 25 years. The IPCC also predicted that if the world economy continues to expand at current rates, average global temperatures will rise by at least 1.1°C and perhaps by as much as 6.4°C by 2100.

The increases in temperature are attributed to the increased stock of greenhouse gases in the atmosphere. The IPCC said that increases in temperature are "very likely" due to increased greenhouse gas concentrations resulting from human activity. It added that during the past 50 years, natural variability such as volcanic eruptions and solar variations alone would probably have produced cooling.

Since the IPCC report, scientists have warned that the rapid rise in global emissions, together with feedback effects and fewer sinks mean that a global increase of 4°C in the second half of this century is now quite plausible.

UK climate change has already begun

The Met Office's Hadley Centre report, *The climate of the United Kingdom and recent trends*, revealed that:

- Central England Temperature has risen by about a degree Celsius since the 1970s, with 2006 being the warmest on record. It said "it is likely that there has been a significant influence from human activity on the recent warming";
- Severe windstorms around the UK have become more frequent in the past few decades, though not above those seen in the 1920s;
- Sea-surface temperatures around the UK coast have risen over the past three decades by about 0.7°C; and

- Sea level around the UK rose by about 1mm per year in the 20th century, corrected for land movement. The rate for the 1990s and 2000s has been higher than this.

The Central England Temperature (CET) monthly series, beginning in 1659, is the longest continuous temperature record in existence. The fifteen warmest calendar years in the series are, in order: 2006, 1990/1999, 1949, 2002, 1997, 1995, 1989/2003, 1959/2004, 1733/1834/1921 and 2005. In terms of record warm individual days, 10 August 2003 saw the hottest ever maximum temperature in the UK – 38.5°C at Faversham, Kent, exceeding the previous record in 1990 by 1.4°C. Temperatures in Scotland and Northern Ireland have risen by about 0.8 °C since about 1980, but this rise has not been attributed to specific causes.

Met Office figures indicate that annual average precipitation (rain and snow) over England and Wales has not changed significantly since records began in 1766. Seasonal rainfall is highly variable, but appears to have decreased in summer and increased in winter, although with little change in the latter over the last 50 years. All regions of the UK have experienced an increase in the contribution to winter rainfall from heavy precipitation events. In summer all regions except North East England and Northern Scotland show decreases.

Severe windstorms around the UK have become more frequent in the past few decades, although not above that seen in the 1920s. Researchers found a significant increase in the number of severe storms over the UK as a whole since the 1950s. However they warned that, "there continues to be little evidence that the recent increase in storminess over the UK is related to man-made climate change". (Jenkins et al 2008)

Future projections

The UK *Climate Projections Science Report: Climate change projections*, published in June 2009 contain comprehensive new estimates of changes in temperature, rainfall, sea level rise and other climate variables. (Murphy et al 2009) These are summarised in a shorter *Briefing Report*. (Jenkins et al 2009) The projections provide data for three different future scenarios, depending on greenhouse gases emissions (low, medium and high). The medium scenario is considered the most consistent with current levels of global emissions. However other scenarios are possible

– for example depending on whether an agreement is reached at climate talks later this year.

The projections are made over three overlapping periods: 2010-2039 (known as the 2020s), 2030-2059 (2040s) and 2070-2099 (2080s). All changes are measured relative to a 1961-1990 baseline – so the changes described are not strictly compared with today's climate.

An additional feature of these projections, which make them more valid than previous UKCIP publications (e.g. Hulme et al 2002) is that they ascribe probabilities to the estimates. This allows for uncertainties like natural variability (such as volcanic activity, solar variations and El Niño effects), incomplete knowledge and imperfections in models to be accounted for.

UK estimates

Using the medium emissions scenario, some striking estimates stand out:

- By the 2050s average summer temperatures (i.e. June, July, August) in all UK regions are likely to have risen by at least 2°C;
- Across the UK, average summer temperatures are expected to rise between 3°C and 4°C by the 2080s;

- Across the UK, average summer rainfall is expected to fall between 17% and 23% by the 2080s;
- By contrast winter rainfall is predicted to increase. Across the UK, average winter rainfall is projected to increase between 14% (North East of England) and 23% (South West), by the 2080s; and
- Taking into account land movement, sea level in London is projected to rise by 18cm by 2040 and 36cm by 2080.

Regional key findings

There are wide regional differences in the projections that deserve careful attention and also important regional estimates over time. For example:

- In the South East of England average summer temperatures are expected to increase by 1.6°C during the 2020s, 2.3°C by the 2040s and 3.9°C by the 2080s;
- Average summer rainfall in the South West of England is expected to fall by 7% during the 2020s, 13% by the 2040s and 23% by the 2080s; and
- Average winter rainfall in the North West of England is projected to increase by 6% during the 2020s, 10% by the 2040s and 16% by the 2080s.



Probabilities

There are also a range of possibilities within the medium emissions scenario. For example by the 2050s, average summer temperatures in London, the South East and South West of England are very likely to increase by at least 1.3°C, but are unlikely to rise by more than 4.6°C. By the 2080s, average summer temperatures in these regions are very likely to increase by at least 2°C, but are unlikely to rise by more than 6.4°C, according to the projections.

Extreme weather

There are other extremes that have to be accounted for. In the medium emissions scenario, the average daily maximum temperature by the 2080s is expected to rise by at least 2.8°C in the UK, and may rise by as much as 5.4°C in parts of the UK. Comparisons between today and 2050 for the average warmest summer day, using Met Office figures and expressed as absolute figures are given in Figure A1.1 and on the map.

Changes in temperatures and rainfall will also be greater, if carbon emissions continue to rise. The central projections in the high emissions scenario make disturbing reading.

The North West of England could be 3.0°C warmer and the South West of England 3.1°C by the 2050s. By the 2080s London might be 4.9°C warmer, Wales 4.5°C warmer, most of Scotland 4.3°C warmer and Northern Ireland 4.0°C warmer than the baseline period 1961-1990.

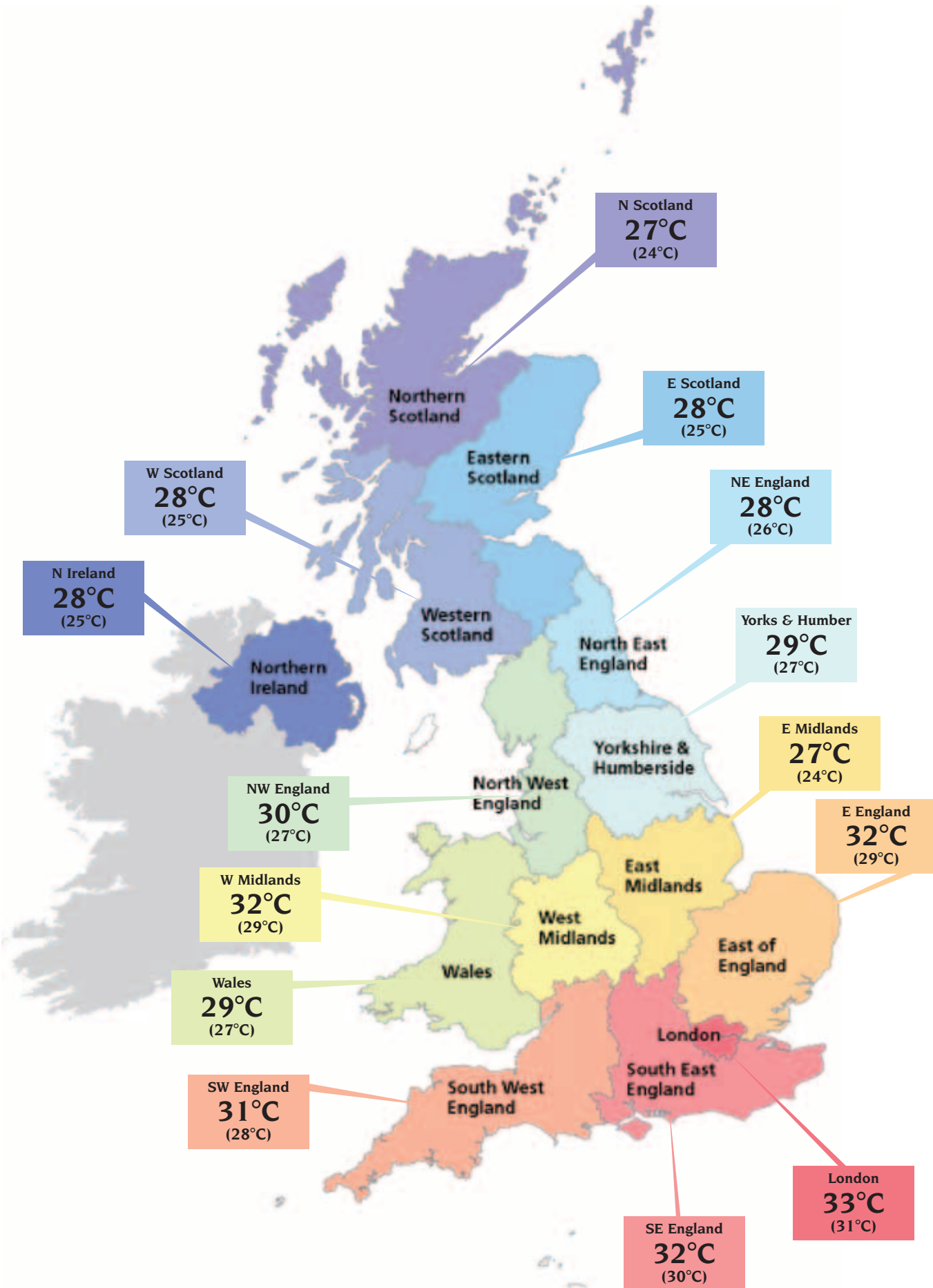
In the summertime, rainfall would decrease significantly if global emissions continue to increase. By the 2080s, parts of the UK may get a quarter less rainfall than the baseline, particularly the South West of England (29% less), Yorkshire and Humberside, the North West of England, London (all 27% less), the East of England (26%), Wales and the West Midlands (both 25%).

By contrast rainfall in the winter would increase significantly. By the 2080s, the South West of England could get 31% more rain, with London (27%), East of England, North West England and Wales (all 26%), East Midlands (25%) as well as Scotland North and the West Midlands (24%) also experiencing substantial increases.

Figure A1.1: Average warmest summer day

Region	Today	2050
North Scotland	24°C	27°C
West Scotland	25°C	28°C
East Scotland	25°C	28°C
Northern Ireland	25°C	28°C
North West of England	27°C	30°C
North East of England	26°C	28°C
Yorkshire and Humber	27°C	29°C
Wales	27°C	29°C
West Midlands	29°C	32°C
East Midlands	29°C	31°C
East of England	29°C	32°C
South West of England	28°C	31°C
South East of England	30°C	32°C
London	31°C	33°C

Source: Met Office, central estimate. Note: Today is the average 1971-2000, which is a different baseline from the new UKCP figures. <http://www.metoffice.gov.uk/climatechange/guide/ukcp/map/>



Impacts and vulnerability

The new climate projections do not directly outline the impacts of climate change, such as flooding and droughts, as these will vary according to local conditions and vulnerability.

However the DEFRA report, *Adapting to climate change UK Climate Projections*, does attempt to draw out some of these implications. With regard to summer

temperatures, the report states that there were about 35,000 premature deaths across Northern Europe in the intense heat wave in 2003 with around 2000 premature deaths in the UK. The heat wave in 2003 occurred during a summer in which average summer temperatures were 2°C above the 1961-1990 average in the UK. The new research states that "such heat waves are expected to become more frequent in coming decades, as summers as warm as this will be 'normal' by the 2040s". This is because "past emissions mean



that climatic changes for the next three decades cannot now be avoided". (DEFRA 2009d)

The report states that "Fire risks on heathlands could increase as a result of higher summer temperatures and lower rainfall." It contains a short case study of wildfire risk management in the Peak District National Park. In a wider context, it states that "offices are more likely to overheat as a result of warmer summer temperatures. Methods of passive cooling, such as the use of blinds and external shading, will be needed".

Flooding is also highlighted. The report states that "premises may be exposed to increased risk of flooding due to higher winter rainfall levels and an increased frequency of extreme weather". It adds that on transport, "Climate change is likely to affect UK ports in particular with extreme weather or rising sea levels resulting in flooding and possibly disrupting operations." It includes a case study of flood risk management by Gloucestershire Country Council since the flooding in 2007.

Of course the scenarios may not work out precisely as expected. There are also some underlying assumptions that trade unionists should be wary of. For example the DEFRA report states that the "rapid introduction of new and efficient technologies driven by *market forces* is assumed". However the research represents the most comprehensive assessment of the impacts of climate change, and should become the basis for immediate discussions in the fire and rescue service on global warming. (DEFRA 2009d)

The significance of the projections

The projections are meant to be used by organisations to plan for the future – including the fire and rescue service. The DEFRA report, *Adapting to climate change UK Climate Projections*, is quite explicit about this. It states that. "Those providing support in emergencies and for vulnerable groups also need to consider how a changing climate affects existing risks". It also states that the government is providing specific guidance to all local planning authorities on how to use and interpret the new projections. (DEFRA 2009d)

DEFRA proposes the following checklist. It states that "If any of these are relevant then they will want to consider the Projections as a potential tool to help them plan a strategy for adapting to a changing climate."

The key questions are:

- Is your organisation affected by the weather and climate in terms of changes in the average climate (hotter drier summers, warmer wetter winters) as well as extremes such as floods or droughts? This might include possible disruption to movement of people or goods, or the reliability of equipment at higher temperatures;
- Does your organisation take decisions or make investments which have long life times? These might include construction work, investing in high value equipment with a long life span or deciding where to locate services;
- Does your organisation make significant investment or have high values at stake, such as protection of life or natural environment?
- Does your organisation provide or support (critical) national infrastructure such as power supply?
- Is your organisation taking decisions with significant impacts, for example a decision made now to enter a contract or use a particular standard of technology that cannot be changed for over a decade?

FBU view

The FBU welcomes the publication of the climate projections and the clarity they bring to political and industrial decision-making. The projections confirm the need to reduce greenhouse gas emissions as well as to adapt to climate changes already underway. However the projections alone do not tell us how to proceed. This depends on national and local political decisions and on negotiation between all stakeholders. The FBU is ready to play a full role in these activities.



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