THE REGIONAL IMPROVEMENT AND EFFICIENCY PARTNERSHIP (RIEP)

# CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B

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## Introduction

The Regional Improvement and Efficiency Partnership (RIEP) provided funding for Yorkshire and the Humber to carry out work into climate change adaptation.

In 2010, an LCLIP (Local Climate Impacts Profile) was completed for all of the Local Authorities in the North Yorkshire region. Phase 1 of this Climate Change Adaptation project involved a comprehensive risk assessment of adaptation being completed. This project completes phase 2 of the project.

The aim of this project was to liaise with a wide range of organisations to determine how they have been impacted by extreme weather events in the past, what is being done to adapt to current weather extremes and what plans are being put in place to adapt to current weather extremes and projected climate change. Opportunities for partnership working between the organisations were also identified.

## Explanation of Acronyms

AONB – Area of Outstanding Natural Beauty

DEFRA - Department for Environment, Food and Rural Affairs

EA – Environment Agency

ENA – Energy Networks Association

ESCO – Energy Service Company

GP – General Practitioner (doctor)

GSHP – Ground Source Heat Pump

LCLIP – Local Climate Impacts Profile

NHS – National Health Service

NYCC – North Yorkshire County Council

OFGEM - Office of the Gas and Electricity Markets

PCT – Primary Care Trust

PPE – Personal Protective Equipment

PTS – Patient Transport Services

RAF – Royal Air Force

RIEP – Regional Improvement and Efficiency Partnership

SME's – Small and Medium Enterprises

UKCIP – United Kingdom Climate Impacts Programme

WRAP – Waste and Resources Action Programme

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | Chamber of Commerce |
|---|---|
| **Brief Description of the role of the organisation**: The Chamber of Commerce represents their member businesses in all the core policy and decision making groups across the York and North Yorkshire region. It aims to provide a channel of information for businesses to both contribute to and access and helps businesses to enhance their contact and knowledge bases. It also provides marketing and money saving opportunities for business. | |

**Summary Points**

- Extreme weather events have impacted upon the Chamber of Commerce and the businesses that it represents, especially the extreme cold and snow of the last two winters

- Many businesses have the attitude that "it won't happen to me" and although some businesses are aware of climate change and the need to adapt, the vast majority are not prepared and think it won't affect them

- The Chamber of Commerce have a policy in place that relates to extreme weather events but is not specific to climate change, however they are considering this for the future.

## DETAILED REPORT

**The Past**

Flooding, especially flash floods, have affected businesses across the region and the Chamber is of the opinion that this has made some businesses more aware that procedures need to be in place in case of flooding. The Chamber has arranged some seminars on the subject of extreme weather in the form of Emergency Planning seminars.

The winters of 09/10 and 10/11 have had an impact on the businesses that the Chamber represents but also on the organisation, many events had to be cancelled including a lunch for 350 people which caused a large financial loss. In terms of businesses, staff and goods were not able to be moved around and so trade was affected. Many businesses, even in

urban city centres, sent staff home and so normal daily business was affected severely. Many economic losses were reported.

Excessive heat does not particularly affect businesses, but public transport disruptions can be a problem, train travel without air con can also be uncomfortable. Drought and water shortages may impact on businesses due to the lack of a very important resource, but the Chamber is not aware of a situation when this has been a problem.

High winds and/ or storms tend to be quite localised and so impact upon individual businesses, such as damage to premises. It can also pose a problem is electricity is cut off, a large proportion of people in the rural areas of North Yorkshire region work from home and so not being able to use electrical equipment such as computers would impact upon their business and productivity.

**The Present**

The Chamber of Commerce currently has a policy in place for extreme weather events. The two most recent bad winters in 09/10 and 10/11 have prompted a policy for snow and extreme cold, especially focussing on staff not being able to get to work. At the present time, the Chamber feels that it is facing the consequences of extreme weather events when they occur but are beginning to think about planning to adapt and will be encouraging their members to do the same.

In terms of the businesses that the Chamber represents, some have plans in place for emergency or extreme weather events, but most are not prepared. Many have the attitude that “it won’t happen to me”, however the recent winters and flash flood events has brought a changing climate into focus for a minority. In the York and North Yorkshire region, the vast majority of businesses are small, with less than 10 employees, and so seem to focus on day to day business rather than adaptation and don’t consider it to be as important as it is, especially if the frequency and intensity of extreme weather events increase as predicted.

The Chamber of Commerce has no direct assets of its own and therefore needs no plans in place to protect these. The businesses that they represent would have insurance that would be claimed upon if damage occurred during an extreme weather event.

**The Future**

The Chamber of Commerce considers that it is at the beginning of the process of considering extreme weather events and adaptation. Their aim in the near future and beyond is to make their member businesses more aware of the impacts that climate change may have on them and help them to plan.

**Opportunities for Partnership Working**

The Chamber of Commerce does not yet have climate change adaptation plans in place and so does not work with other organisations on this subject but would be willing to do so. Obviously the main priority for them is to work closely with their member businesses to make them more aware of the impacts that climate change could have and how important adaptation issues are.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | CO2Sense |
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| **Brief Description of the role of the organisation**: CO2Sense is a not-for-profit low-carbon expert company that helps organisations to cut their costs and to improve their environmental performance. It offers no-nonsense, clear help and capital investment to cut the cost of energy, water and waste, and to generate clean energy. It offers business development help to green companies. They are currently a subsidiary company of the Regional Development Agency, Yorkshire Forward, but they starting a two year transition in order to become a private, not for profit company. | |

**Summary Points**

- As a business, CO2Sense has been affected by extreme weather events in the past and is in a potential position to be impacted in the future.
- CO2Sense is trying to lead other business by example with matters surrounding climate change adaptation and extreme weather events. They are assessing the possible risks that the business faces with regards to extreme weather events and ensuring that business continuity plans are in place accordingly.
- CO2Sense are hoping to expand further into helping SME's to adapt to future climate change risks and have an interest in working more closely with all of the local authorities in the Yorkshire region on this topic.

## DETAILED REPORT

**The Past**

CO2Sense has been impacted by the two extreme winters in 09/10 and 10/11. During November and December 2010, the office was closed completely for one day and many staff were unable to get to work, for which policies are in place. During this time, Yorkshire Forward had an emergency phone line in place for staff to call to check if the offices were open.

The building that CO2Sense occupies has been shown by the Environment Agency Flood Mapping to be in a flood risk area. Although a flood event has not yet impacted upon the organisation, there is the potential for this to be an issue.

The office that CO2Sense occupies is air conditioned and so reduces the impacts of extreme heat on members of staff.

**The Present**

During extreme weather events in the past, staff had been able to call the Yorkshire Forward emergency phone line to find out whether the offices were open and what the working arrangements were during extreme weather events. However, because CO2Sense will become a company independent from Yorkshire Forward, they are in the process of setting up their own emergency phone line. CO2Sense has plans and policies in place for staff working arrangements in the event of extreme weather, staff are able to work remotely from home. Although these facilities are in place, being prepared and assessing whether everybody has the information needed to access remote working during weather extremes needs to be investigated.

CO2Sense will become a private, independent company within the next two years and to prepare for this, it is starting to put policies in place and is in the process of writing its Business Continuity Plan. This plan will cover any event that will impact upon the capability of the organisation to carry out its day to day work, and it will include extreme weather events. If staff are unable able to get to work for any reason, including extreme weather events, paid contracts with tight deadlines may not be completed on time, which can be detrimental for business and the reputation of the company.

CO2Sense has a role in advising small and medium sized businesses (SME's) about the risks that they may face in a changing climate, business continuity plans, how they can adapt to climate change and any mitigation measures that can be introduced. It is therefore important that they are considering all of these options themselves as a business in order to set a good example to others, going through the process themselves also helps when helping and advising other businesses.

CO2Sense has a role in helping other businesses put procedures in place to help with business continuity and climate change adaption, they believe that the language used when speaking to businesses about these matters is very important. Businesses believe that words such as climate change and green issues take time and effort away from their daily job of keeping their business running and making money. However, using words such as the risks they face from extreme weather events and business continuity may encourage them to act. As well as negative impacts of climate change, identifying the positive opportunities for businesses that a change in climate may bring, such as an increase in tourism is important.

CO2Sense has invested heavily in many projects, some of which are linked to climate change mitigation, such as a pellet mill near Selby that produces wood pellets for biomass boilers, the business is unsure as to how this asset is protected from the impacts of extreme weather events and climate change.

When preparing reports or speaking to businesses, CO2Sense try to use specific climate change projections which relate to the Yorkshire and Humber area, in which their work is focussed. CO2Sense is using the Yorkshire and Humber specific projections within their project which is helping 5 small businesses prepare for climate change.

**The Future**

The organisation is looking into changing the location of its office space, although a city centre location is necessary, it is hoped that the proximity of the new premises to a flood zone and the level of flood risk will be taken into consideration.

With regard to the customers and businesses that use CO2Sense, advising on the risks posed by climate change and mitigation and adaption strategies is an area of work that the business is trying to move into and expand.

**Opportunities for Partnership Working**

CO2Sense already works with many local authorities across the Yorkshire region and would like to work more closely with more of them in the future. They have a close relationship with Welcome to Yorkshire, which represent tourism businesses, as well as working relationships with WRAP (Waste and Resources Action Programme) and the Carbon Trust. They fund sub-regional Green Business Clubs and have the capacity to target information related to climate change adaptation to businesses via workshops and information sessions. They are particularly interested in working more closely with local authorities on the subject of risks and business continuity plans with regard to climate change, as well as adaptation strategies.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | The Environment Agency (EA) |
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| **Brief Description of the role of the organisation**:<br>The aim of the EA is to protect and improve the environment for people and wildlife and to contribute to sustainable development. They play a central role in delivering the environmental priorities of central government. | |

**Summary Points**

- The work that the Environment Agency (EA) carries out is impacted by extremes of weather, particularly flooding. The organisation is responsible for flood risk from rivers and the sea and supporting local authorities in their flood risk responsibilities.

- Preparing for and adapting to climate change is a priority for the Environment Agency and they believe it needs to be considered in any decisions and ensure they plan and take action for the future impacts of climate change.

- The Environment Agency has climate change adaptation plans key areas of its organisation. It is using UK Climate Projections and evidence to continually review and update these plans.

## DETAILED REPORT

**The Past**

Weather conditions are already part of the EA considerations and a changing climate represents a major challenge to the environment and their work.

The main impact on the EA's work in North Yorkshire has been from flood events, primarily because they have a strategic overview of flooding. They are responsible for flood risk from rivers and the sea and support local authorities in their responsibilities for coastal erosion and flooding from other sources including surface water. Recent flooding events such as those in 2007 demonstrate the impact extreme weather events can have.

Prolonged periods of dry weather also impact upon the EA's work. They are responsible for regulating the use of water from watercourses and its quality. A reduction in river flow impacts upon the biodiversity and water quality. High temperatures increase evaporation and water demand adding to the impacts of low rainfall.

The most recent temperature extreme, a persistent spell of extreme cold in December 2010, affected a number remote telemetry stations which monitor river flows with staff not being able to visit the sites. This had the potential to affect the EA being able to record river levels and to predict flooding. The ability of equipment to withstand extremes of weather is vital and solutions have now been found to prevent this happening in future

Inland, extreme windy conditions probably impact upon the work of the EA the least, although high winds and storminess increase the impact on the coast and coastal erosion.

It is of paramount importance for the EA to ensure the safety of its staff and to consider how extreme weather events and future climate change may affect them. They have resilience and contingency plans which take account of these issues. For example staff have a contact telephone number to find out if offices are open during extreme weather conditions, such as the snow.

Individual weather events impact on the work of the EA but they are not mutually exclusive. For example, storm events not only bring a risk of flooding but high winds can result in increase debris in rivers which can cause blockages and an increased flood risk. Many events and impacts are interlinked.

**The Present**

The EA is most concerned about the impacts arising from changes to rainfall, sea-levels and temperature. Their priorities are to address the risks that climate change poses to our work on flooding, coastal erosion, water resources, water quality, wildlife and habitats.

Preparing for and adapting to climate change has been a priority for the organisation for a number of years and the EA believes that it is essential to make climate change part of their decisions and to plan for any future impacts . They first published our first adaptation plan in 2005 and updated it in 2008

The Climate Change Act 2008 gives the Government the power to request that organisations report on how they will address their climate change risks, known as Adaptation Reporting Power. The EA is one of 91 organisations that have been asked to submit an adaptation report and their “Managing the environment in a changing climate” report was submitted to DEFRA in November 2010. This document is being used to ensure climate change is embedded into all parts of the organisation.

Climate change is already a consideration in many areas of the EA’s work their long-term investment strategy sets out the scale of the investment needed to meet the challenge from the predicted increases in flooding and coastal erosion over the next 25 years. Their Catchment Flood Management Plans take into account climate change by adding a sensitivity allowance to peak river flows, in accordance with Defra policy.

The EA are using the UK Climate Impacts Programme combined with their own evidence to understand climate change and the impacts. They have already used this in their Water Resources Strategy and Biodiversity plans. They are ensuring this the appraisal process for River Basin Management Plans under the Water Framework Directive includes consideration of climate change.

The EA are also enhancing their adaptive capacity by increasing the knowledge and skills of their staff with regard to climate change making sure its part of all their work.

**The Future**

The EA is addressing climate change through its policies and plans. It recognises there is more to do. At a national level they are working with Defra to use UKCP09 Projections to inform updated guidance on the climate change allowances for flood risk planning. This guidance will be used to inform their plans at a local level.

The EA is also working to protect and improve the health of aquatic habitats through a programme of habitat creation including wetlands. Well functioning and well connected habitats are more likely to be able to withstand extreme weather and be resilient to a change in climate. Managing the current environment helps to be able to plan for the future.

From 1 October 2011, the Environment Agency will take on a new role as the Government's delivery body in England for climate change adaptation. This role will build on the excellent work previously delivered by the UK Climate Impacts Programme (UKCIP). This new programme complements the existing roles and responsibilities of the EA and will help build resilience to the impacts of climate change in key sectors; natural environment, built environment, infrastructure, health and well being, business and the economy, local government

**Opportunities for Partnership Working**

The EA understands that partnership working is key to tackling climate change. One organisation cannot deliver all the adaptation actions needed and partnership working with other organisations and communities essential. Through the EA's new role they will be working in partnership with organisations in the key sectors both nationally and locally to help improve the nation's resilience to climate change. At a local level the EA already works with our partners to address climate change and deliver adaptation.

For further information on the Environment Agency's role, please use the links below:

The EA's new Adaptation Role - http://www.environment-agency.gov.uk/research/132904.aspx

The EA's Adaptation Report to DEFRA - http://www.environmentagency.gov.uk/research/library/publications/130528.aspx

The EA's roles and responsibilities for climate change - http://www.environmentagency.gov.uk/business/topics/115167.aspx

Adaptation Reporting Power - http://www.environment-agency.gov.uk/research/planning/116480.aspx

Catchment Flood Management Plans - http://www.environmentagency.gov.uk/research/planning/33586.aspx

Water Resources Strategy - http://www.environmentagency.gov.uk/research/library/publications/40731.aspx

River Basin Planning - http://www.environment-agency.gov.uk/research/planning/33106.aspx

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | Fire and Rescue Service |
|---|---|
| **Brief Description of the role of the organisation**: The North Yorkshire Fire and Rescue Service provide York and North Yorkshire with a fire and rescue service. Their role is to respond to fire and other emergency calls such as road traffic accidents. Incident prevention and fire safety is also an aspect of their work. | |

**Summary Points**

- The Fire and Rescue Service has seen an increase in the severity of weather related incidents that it attends and is trying to adapt for this by increasing training, resources and equipment

- Fire prevention is an important area of work for the service as this not only protects people and communities from the risk of harm, it helps to mitigate against climate change. Fires, especially those on peat moorland, release carbon dioxide into the atmosphere, one of the main gases that contribute towards climate change.

- The Fire and Rescue Service has a Sustainability Strategy and extreme weather event adaptation is included in this. Increasing energy efficiency is a key focus for the Service.

## DETAILED REPORT

**The Past**

On the whole, the Fire and Rescue Service think that they have seen a pattern of increased weather related incidents.

The fire and rescue service have no statutory duty to attend flooding or other extreme weather events and therefore receive no direct funding to do so, however it is an expectation that they would assist during such events. Incidents of flash flooding seem to be increasing, where the impacts are both localised and severe but difficult to predict. Floods in the Ryedale area in 2000 were particularly severe for the service.

During the cold winters of 09/10 and 10/11, there was an increase in requests for the Fire and Rescue Service to attend Road Traffic Accidents (RTA's) due to snow and ice making

driving conditions hazardous. The Fire and Rescue Service has partnerships with other agencies and during periods of extreme cold, identifying vulnerable people is important.

However, the extreme weather event that impacts upon the service the most is moorland fires. They use a lot of resources, both financially but also in terms of the extra staff time required. For this reason, a lot of work and effort is put into moorland fire prevention. In order to manage moorland fires, water availability is key and in a drought these supplies may be limited making the problem of moorland fires worse.

Moorland fires are not only a consequence of extreme weather in the form of extreme heat and drought but also contribute towards climate change. Peat, which lies beneath the moorland vegetation, is a large carbon sink, burning this peat releases the Carbon Dioxide which is stored in the peat into the atmosphere, contributing further to climate change.

**The Present**

The Fire and Rescue Service does see a benefit from planning to adapt to climate change and has a Sustainability Strategy that takes both the environment and finances into account. Cost reduction is important and so energy efficiency is becoming increasingly important.

Policies are in place for extremes of snow when members of staff are unable to get to work and they are expected to make up the hours or work from the nearest station to their home.

At present, the pumps that are fitted to fire engines are designed to pump clean water, however if these are required more often in the future to pump flood water rather than clear water, the Fire and Rescue Service is of the opinion that investment to acquire this equipment may be needed. The Service is supported in its view of this by Government as part of a National approach which has commissioned high volume pumping appliances, 2 of which are now located in North Yorkshire.

Energy efficiency is also a priority for the Service, the Fire Service had produced “Fire Station Checklists” which are similar to building audits and are helping to increase the energy efficiency of stations. Keeping costs to a minimum and maximising the resources available is central. Fuel is a important resource for the Service, last year in York and North Yorkshire the Service’s fire engines travelled 1, 051, 000 miles which cost approximately £250, 000 in fuel. This figure does not include the standing time of the vehicles, when the vehicles are at a standstill but the engines are still running in order to power the pumps.

**The Future**

The organisation has already put some measures in place to minimise the impacts of extreme flooding events in the future. The Service have upgraded the rescue boat in York and have increased their flood water rescue capability, both in terms of staff training and

levels of equipment. More weather resistant transport such as 4x4 vehicles are also being considered.

The Service has planned for the secondary impacts of climate change, such as loss of power within its Business Continuity Plans. The Fire and Rescue Service is a Category 1 responder, along with other agencies such as the police, it has access to emergency fuel supplies. Availability of water during extreme heat or drought events is an important consideration, especially if these are to become more frequent.

In terms of planning to adapt to climate change, plans are being put in place at both a national and local level. However, it is important that these plans are flexible and can be adapted as changes occur, therefore general climate change projection trends will be used rather than specific projection statistics.

Working on preventing fires from starting initially is an important role for the Fire Service. Not only does this reduce the impacts that fires have on people and communities, reducing incidents of fires, especially fires on peat moorlands, and helps to contribute towards the mitigation of climate change.

**Opportunities for Partnership Working**

The University of Central Lancashire is currently undertaking research into “The Carbon Footprint of Fires” which the Fire and Rescue Service is keen to understand. It is also working with other agencies in order to prevent and manage the occurrence of events, such as moorland fires. However, on the whole, the Fire and Rescue service is working independently on its own internal Sustainability Strategy and energy efficiency.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | Forestry Commission (FC) |
|---|---|
| **Brief Description of the role of the organisation**: The Forestry Commission (FC) is the Government Department responsible for protecting, expanding and promoting the sustainable management of woodlands and increasing their value to society and the environment. | |

**Summary Points**

- Storms, high winds and localised flooding are the weather extremes that impact upon the Forestry Commission the most. However, the spread of pests and diseases, which could be attributed to a changing climate, are having the most severe impact.

- The 'Read Report,' published in November 2009 concluded that wood fuel could be one of the most cost effective methods of reducing our carbon footprint as a country and the FC is putting much time and resources into wood fuel

- Woodland can play a key role in the future of mitigating the impacts of climate change, in terms of carbon absorption and helping adaptation by reducing the impacts of flooding through targeted woodland creation.

## DETAILED REPORT

**The Past**

Storms and high winds are the extreme weather events that impact upon the FC the most and can cause serious damage to forests and woodlands. Damage can also occur from localised flooding incidents.

Frost and snow damage is not as much a major issue as it has been in the past due to the milder and wetter winters that the UK has been experiencing over the last few decades. However, if the extreme winters experienced in 09/10 and 10/11 continue then this may become more significant. Some vegetation species have begun to grow earlier into the spring, this has been attributed to climate change and if this pattern continues, the effects of harsh, late frost can have an impact.

Drought can have an impact on the FC in the form of fires, something that was a particular issue in the South of England during the summer of 2011.

The biggest threat to the FC and its work during recent years has been the spread of pests and diseases, especially the recent outbreak of Phytophthera ramorum in the South West of England. This has been attributed to the milder, wetter winters that climate change causes, even though the winters of 09/10 and 10/11 have been deemed to be of extreme cold, they have not been extreme in a historical context.

**The Present**

91 organisations are required to submit adaptation plans under the Climate Change Act, 2008. The FC is not one of these organisations but has been asked by DEFRA to submit an adaptation report on a voluntary basis.

The 'Read Report,' which was published in November 2009, is an independent report looking at the role that UK forests could play in combating climate change. It concluded that, in a cost benefit analysis, wood fuel could one of the most cost effective methods of reducing our carbon footprint and although the contribution would be small, it would not be insignificant. This report is informing Government opinion with regard to this.

There is a lot of data and much is known about how different tree species cope in different climates and different geographical locations. Therefore, advice from the FC at this time in relation to woodland creation and management is to build resilience through the creation of structurally diverse woodlands using a broad mix of species, and by favouring seed sources from areas that already experience the sort of climate that the UK is predicted to have in the future. The planting of monocultures, which have been common in the UK in the past, is now recognised to be a high risk approach if, for instance, the particular species used becomes vulnerable to new pests and diseases. However, a diverse population means that risk is reduced.

The organisation currently has flexible working arrangements and many employees already work from home as part of their normal working week and so are not impacted severely if extreme weather prevents them from getting to the office.

The FC is currently looking at how woodlands and forestry can help to mitigate climate change in many different ways, including absorption of carbon, woodland creation to reduce flood risk and the role of woodland in helping to strengthen and expand habitat networks.

**The Future**

The nature of forestry means that it is a long term phenomenon. As a minimum, the lifespan of species planted for commercial purposes is between 45 and 50 years, whereas species such as oak, ash and beech can be planted for upwards of 120 to 150 years. Therefore,

adapting to climate change could be problematic as the lifespan of woodlands and forests can be up to twice the length of the best climate change projections available at the present time. For this reason, the FC takes a cautious approach to giving advice about how climate change will impact upon different species.

The FC is putting a lot of time and resources into the role that wood can play within the future, both in terms of wood fuel and renewable technologies but also in terms of mitigating climate change. Half of the woodland in the UK is not managed and so a priority for the FC is to encourage landowners to bring this woodland into management.

**Opportunities for Partnership Working**

As a Government department, the FC currently works closely with the Environment Agency (EA) and Natural England to share knowledge and expertise. The FC and the EA are currently working together to mitigate the impacts of climate change, the EA is identifying areas of flood risk and the FC is then targeting grants in these areas to encourage woodland creation, which helps to reduce the impacts of flooding. The FC are also working with Natural England to make habitats increasingly diverse and interconnected, as the climate changes, species will be able to adapt more successfully if there are opportunities for wildlife to migrate and expand their habitat area. Therefore, the health and area of habitats is important for them to be resilient to a changing climate.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | HM Maritime and Coastguard Agency |
|---|---|
| **Brief Description of the role of the organisation**: The Maritime and Coastguard Agency (MCA) is responsible for preventing loss of life on the coast and at sea, improving maritime safety and protecting the marine environment**.** They provide a 24-hour maritime search and rescue service around the UK coast. | |

**Summary Points**

- The Maritime and Coastguard Agency (MCA) has been involved in numerous inland extreme weather events in the past, flooding has been the most frequent extreme weather event as well as snow and ice incidents.

- The MCA has voluntarily submitted an 'Adaptation to Climate Change Report' to DEFRA. The UKCP09 projections identified that increased rainfall, increases in extreme weather events and rising sea levels could pose the biggest risks to the MCA.

- The MCA have put Business Continuity plans, sustainable development plans, estate management plans and carbon emissions plans in place and these policies already consider climate change.

## DETAILED REPORT

**The Past**

The day to day service that Humber coastguard provides has not really been impacted by extreme weather events in the past. However, during the extreme winters of 09/10 and 10/11, some staff were not able to get to work due to public transport not being available and some areas being inaccessible vehicles, other than 4X4's.

The MCA has been involved in numerous inland extreme weather events in the past, and along with the Coastguard Search and Rescue Helicopters provided practical support for other Government Departments/Search and Rescue organisations during these events. Examples include the 2005 Carlisle floods, the 2007 Gloucester floods, the 2009 Cumbria floods, and the 2010 and 2011 snow and ice incidents. Due to these extreme events, the

MCA has recognised the potential for increasing demands on the volunteer Coastguard Rescue Service (CRS) at inland incidents.

**The Present**

Due to a range of major incidents, including fuel crises, foot and mouth disease and the major flood events in autumn and winter 2000, a review of emergency planning arrangements was sought. The Maritime and Coastguard Agency is designated as a Category 1 responder and so will assist other emergency responders inland, in keeping with the ethos of UK Search and Rescue and of the Civil Contingencies Act 2004. However, if there is a clash of resource requirements, the MCA's primary responsibilities will take precedence, both in terms of planning and in response.

The MCA has submitted a voluntary report to DEFRA on Adaptation to Climate Change. Using UKCP09 data, the key climate change factors the MCA need to manage are increased rainfall, increase in extreme weather events and rising sea levels.

The MCA's preparedness for, and response to climate change, involves the functions of business planning, resilience, Business Continuity Planning, sustainable development and estates management. The MCA's policies already consider climate change and all business continuity plans and all business plans take account of adaptation needs.

The organisation has a target to reduce its carbon emissions by 10% immediately as of May 2010 and also managing and reducing their energy consumption. They are starting to do this by using Automated Meter Reading Equipment (AMR) which has been installed at most sites and allows full visibility of electricity use

**The Future**

The MCA has introduced a Sustainable Development Action Plan (SDAP) to help protect the environment and integrate sustainability into their day to day activities. Climate change and energy is one of the four major priorities outlined in this plan and these are aimed at four major areas, normal daily activities, management of estate, procurement processes and mechanisms as well as protecting the people and communities with which they work. All estate requirements for the future organisation of the Coastguard will also take account of climate change.

**Opportunities for Partnership Working**

Her Majesty's Coastguard already works with other organisations during extreme weather events. For example, it assists with transporting doctors and nurses to patients in areas that may otherwise be inaccessible to none 4x4 vehicles.

The MCA is an executive Agency of the Department for Transport and so works closely with their partners (e.g. The UK Government and other Government Departments/Agencies, Search and Rescue associated Agencies, the general public etc). The MCA consult with their partners/stakeholders and adapt their plans as necessary in order to ensure that they continue to deliver their statutory obligations, their main obligation being to support economic growth and minimise environmental impact through the development and implementation of the Government's maritime safety and environmental strategy.

The MCA took part in Exercise Watermark from 4 - 11 March 2011, which was a demonstration to test emergency response to a flooding scenario. It was one of the largest emergency exercises ever undertaken in the UK, and was designed to test the country's preparedness to respond to severe, wide area flooding. The country's response was tested at all levels from local communities to government's highest crisis response committee - COBR – which is chaired by the Prime Minister or a Cabinet Minister.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

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|---|---|
| **Organisation:** | Mountain Rescue (Swaledale Mountain Rescue Team (SMRT)) |
| **Brief Description of the role of the organisation**: SMRT is a registered charity which provides Mountain Rescue within the Swaledale and Wensleydale areas of North Yorkshire. The team is made up of highly trained volunteers who are available to be called out for land based search and rescue operations 24 hours a day, 365 days a year. | |

**Summary Points**

- Extreme weather events impact significantly on the work that Mountain Rescue Teams carry out. Many of their call outs are directly related to weather extremes
- The SMRT has carried out additional training and purchased additional equipment to coincide with the pattern they are seeing in the occurrence of extreme weather events i.e. an increase in flooding events and extreme cold in recent winters
- Partnership working is essential to the work that Mountain Rescue teams carry out and this will continue to be essential in a changing climate

## DETAILED REPORT

**The Past**

On the whole, Mountain Rescue Teams are very aware of the weather and weather patterns as many of their call outs are related to weather extremes. SMRT have noticed an increase in incidents of flooding and are increasing their levels of training and equipment accordingly. They have also been affected by two bad winters in 09/10 and 10/11 and are therefore looking at their extreme winter weather capabilities.

Of all the severe weather events, flooding is the one that has the most impact on the SMRT area. SMRT has 4x4 vehicles at their disposal and so in flood situations, Mountain Rescue Teams are often on standby for the ambulance service if they are unable to reach flood affected locations in their normal vehicles.

Due to the increase in flood incidents, the SMRT has enhanced its training and levels of equipment and has 18 team members trained as Swift and Floodwater Rescue Technicians. SMRT is on DEFRA's Asset Register for resources available in flood emergencies.

The other weather extreme that creates a large number of callouts is extreme cold, ice and snow. Team members of the SMRT saw a pattern of improving winter conditions and less incidents of extreme cold, however long periods of cold weather in early 2010 and December 2010 saw an increase in the number of incidents. In a similar way to flood events, the SMRT has 4x4 vehicles on standby for the emergency services if they are unable to reach severely affected or cut off locations in none 4x4 vehicles.

The SMRT is least affected by droughts and extremes of heat, however they are often in attendance at events etc such as the Swaledale Marathon. They provide assistance in cases of heat exhaustion but the occurrence of this is usually dependent on the weather on the day rather than the climate.

**The Present**

It is important for the organisation to plan to adapt to climate change and be aware that an increase in weather extremes is predicted. However, it is not really possible to reduce the impacts that this increase will have on members of the public and the people that use the service as these situations are unpredictable in their nature.

**The Future**

The SMRT has looked in detail at the climate change projections for the North Yorkshire and Humber region and have in fact tried to get more detailed data than is available for how flooding will impact on the area as this is the extreme weather event that has the most impact on the team.

Access to 4x4 vehicles is an important element of the work of the SMRT, they need to be able to access areas that may be otherwise inaccessible to others none 4x4 vehicles. An issue related to this, although not related directly to climate change, which may impact upon the team in the future is the rise in vehicle fuel costs. The team is made up of volunteers that cover a wide, rural geographical area who pay their own travel expenses; a continued increase in fuel costs may mean that in the future the team has to consider covering individuals' fuel costs which would mean more fund raising.

**Opportunities for Partnership Working**

The nature of mountain rescue involves partnership working as they work routinely with the police, fire service, ambulance, air ambulance and the RAF, these services then work together closely during incidents.

Several mountain rescue teams can be called upon together to pool resources and equipment, provide a greater amount of training and experience and cover a wider geographical area. Best practise is shared amongst teams both formally and informally.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | Northern Powergrid (formerly CE Electric) |
|---|---|
| **Brief Description of the role of the organisation**: Northern Powergrid is an electricity distribution business responsible for delivering electricity safely and reliably on behalf of suppliers from the national transmission system to 3.8 million business and domestic customers across NE England, Yorkshire and N Lincolnshire. It operates through its subsidiary companies Northern Powergrid (Yorkshire) and Northern Powergrid (Northeast) which are electricity distribution network operators (DNOs) and hold two of the 14 regional distribution licenses in the UK. The network consists of more than 31,000 substations and around 91,000 kilometres of overhead line and underground cables. | |

**Summary Points**

- Northern Powergrid has been impacted by extreme weather events in the past, primarily flooding and wind storms, and this has prompted them to seriously consider extreme weather events and climate change in their plans and policies

- Northern Powergrid has risk registers, emergency plans and major incident plans that take extreme weather incidents into account. Future increases in extreme weather events will be more of an issue than changes in baseline conditions

- The biggest challenge for Northern Powergrid is considering climate change mitigation and adaptation at an early stage due to the long life span of its assets

## DETAILED REPORT

**The Past**

Northern Powergrid has seen an increase in extreme weather, especially flood events. It was the severe flooding around the UK, and particularly around Selby, in 2000 that increased the awareness of Northern Powergrid to climate change. Following this, they started to look at climate change mitigation and adaptation seriously. Flood events in 2000 and 2007 particularly affected the Northern Powergrid area and the work that they do. Due to these events, a national programme of building and improving flood defences is in place. This is an

ongoing process and improvements and upgrades make allowances for future climate change predictions.

Accretion of ice on overhead lines was a potential issue during the extreme winters of 09/10 and 10/11 but there have been no specific incidents where this has caused a major impact.

Extremes of heat, drought and long periods of dry weather have not caused impacts in recent times but they may begin to if the occurrence of these events increases as predicted. Northern Powergrid has a maintenance programme which tends to be carried out during the summer months when the loadings (demand) for electricity is lower. However, a pattern is emerging in that the demand for power seems to be levelling across the months in city centres, primarily due to the demand for cooling systems such as air conditioning, with the potential to reduce available maintenance windows.

High winds and storms tend to be quite localised and so manageable without much disruption to business as usual and so at the present time do not cause much of a problem; there may be more impacts in the future if the frequency of storm events increases.

Staff not being able to get to work can be an issue during extreme weather events. However, an agreement already exists between all of the electricity distribution companies in the UK, through NEWSAC (North East West South Area Consortium), whereby if one company is severely affected by an event, staff can be brought in from the least affected area. This plan came into play during the flood event in 2000 when Northern Powergrid received assistance from Scottish Power and Central Networks.

**The Present**

Northern Powergrid is one of the 91 organisations that have been chosen to report to DEFRA on how they are planning to adapt to climate change. Their Climate Change Adaptation Report was submitted to DEFRA in June 2011 and they will shortly receive feedback on its suitability prior to publication on DEFRA's website.

Northern Powergrid has plans in place in case of extreme weather events and if serious, these would be regarded as major incidents meaning that emergency planning documents and policies would come into play. These plans are tried and tested and their effectiveness is continually reviewed. At the present time, these are considered to be adequate and any changes that may occur due to climate change will be picked up annually and the plans can be then altered to take any necessary changes into account. The supply/ demand and loadings on electrical circuits are reviewed annually and any changes will be picked up at this time.

A risk register exists of events that may cause problems for Northern Powergrid in the future and climate change was added to this register in 2003. There are also many major

incident policies for a wide range of major events such as pandemic flu, foot and mouth etc. and flooding has a specific major incident policy.

The aim of all of these plans and policies is to protect customers and their electricity supply. OFGEM sets targets for network performance and Northern Powergrid has an obligation to deliver these standards. Northern Powergrid aims to improve network performance constantly; they monitor and log all faults that occur on the network and the causes and reasons for them occurring. The network is also becoming more automated so that, following a fault, customers can be reconnected more swiftly from a central control room.

With regards to staff not being able to get to work or increased staff absence, continuity plans are in place in the event of a reduced work force, a plan that was initiated by the pandemic flu. In these circumstances, reallocation of the work force would take place. As Northern Powergrid covers such a wide geographical area and many extreme weather events are relatively localised, staff can physically be transferred from other areas.

**The Future**

Changes in the baseline climate are not currently predicted to present significant problems for Northern Powergrid as these changes will occur slowly and allow time to plan and adapt. It is an increase in the frequency and intensity of extreme weather events that will potentially impact upon their work more.

The biggest challenge for Northern Powergrid is integrating climate change mitigation and adaptation into their work early. The assets that they build and use have a long life span and so building climate change projections and resilience into their plans now is important, however this is not always possible due to a lack of data, for example if the frequency of lighting storms will increase.

Research is currently taking place into how the network is expected to change over the next few years and into the future, for example through the increased installation of distributed generation or electric vehicles becoming more prevalent.

Northern Powergrid has a stringent vegetation management policy in place at the present time. Vegetation must maintain a statutory clearance from overhead lines and cables and an extensive programme of cutting and maintenance is in place. If the speed at which vegetation grows increases due to changes in climate, the expenditure for maintaining the statutory clearance may increase as cutting would need to take place more regularly, however the effectiveness of this programme is continually monitored and as this change would happen slowly it would be managed as it occurred.

A large piece of research, known as EP2, has been carried out by the Met Office in conjunction with energy companies across the UK. The aim of the study was to identify how climate change science can be utilised by electricity distribution and transmission

companies. Further work has been completed in conjunction with the Met Office to quantify the relationship between weather and network faults in order to allow distribution companies to understand how network resilience may be affected by climate change.

The Climate Change Adaptation Risk Assessments, compiled under the direction to report concluded that, on the whole, there is currently no evidence to support adjusting network design standards, there will be an increased risk to the performance of power transformers due to temperature thresholds being exceeded more often, soil conditions may change leading to a requirement to review earthing specifications and higher temperatures and seasonal differences in soil moisture are expected which may affect the performance and ratings of underground cables.

Even though the regional electricity distributors work independently, their industry body, The Energy Networks Association (ENA) has coordinated the production of the adaptation to climate change reports across the electricity distribution and transmission companies. The national approach utilised the UKCP09 general climate change projections for the UK; however each regional company has then quantified the projections and discussed how each extreme weather event will impact upon their area.

**Opportunities for Partnership Working**

Northern Powergrid works closely with the ENA at a national level and with other electricity distribution companies. They hire environmental consultants to advice them about certain environmental issues, mainly in terms of flooding.

Northern Powergrid is also working in partnership with British Gas, Durham University and EA Technology on the “Customer Led Network Revolution. This is a £54 million project, part funded by the OFGEM Low Carbon Network Fund. It is intended to produce knowledge to help electricity customers across the country reduce both their energy costs and their carbon emissions and aims to put the area at the forefront of the UK's transition to a low carbon society.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | North York Moors National Park (NYMNP) |
|---|---|
| **Brief Description of the role of the organisation**: The NYMNP area was designated a 1952. The purpose and duties of a National Park are to conserve and enhance the natural beauty, wildlife and cultural heritage of the National Park as well as promoting opportunities for the understanding and enjoyment of the special qualities of the Park to the public. | |

**Summary Points**

- The NYMNP has been affected by several different extreme weather events in the past which have damaged habitats and infrastructure, especially localised flooding and moorland fires.

- Climate Change adaptation, mitigation and management is central to the National Park (NP) and its Management Plan, which is currently undergoing its 5 year review, will reflect this when it is next published.

- The National Park Authority (NYMNPA) is already working on projects to help the area adapt to climate change, it is a key organisation on the "Slowing the Flow" project to reduce the risk of flooding in Pickering and mapping habitats in order to increase habitat size, connectivity, diversity and therefore resilience to climate change.

## DETAILED REPORT

**The Past**

The NYMNP is a predominantly rural area with a variety of landscapes, this is one of the reasons that extreme weather events in the past have tended to be localised.

Flooding in the Park is a big concern, with the town of Pickering being particularly subject to flooding already and at risk in the future. Although the town itself is out of the Park boundary, the catchment of Pickering Beck is within the Park and for this reason, the NYMNPA is one of many organisations involved in the "Slowing the Flow" project, the aim

being to stop flood water reaching the town by a variety of methods e.g. tree planting to aid water absorption.

A 1 in 250 year flood event occurred in the Bilsdale area in June 2005 after an intense cloud burst that lasted 24 hours. 32 footbridges and 2 road bridges were lost and needed to be replaced, a further 10 were in need of repair. Grassy banks became mud canyons, footpaths acted as water courses and many trees were washed away or destroyed. £619, 000 was spent on recovery.

Extreme cold can also be a major issue for the Park, especially for the farming community as the impacts on agriculture can be huge. The loss of livestock and reduction in crop yields can lead to major economic losses and difficulties for which farmers get no compensation. During the extreme winters of 09/10 and 10/11 many Park staff could not get to work, but home working policies are in place and staff are encouraged to take work home and work there where possible. As the NP rangers could not carry out their normal tasks, they put their 4x4 vehicles at the disposal of the health service and transported district nurses around the area.

However, the extreme weather event that impacts upon the NYMNP most severely is long periods of hot, dry weather or drought which can cause destructive moorland fires. In 2003, 250 acres of heather moorland was burned in the Fylingdales area. This resulted in all of the heather and most of the peat beneath being burnt, and as a result, habitats, soil and vegetation were destroyed. On a more positive note however, Bronze Age archaeology was revealed. The fire started in a lay-by which was surrounded by gorse and so gorse in other lay bys was cut back or shortened to reduce the risk. There are also secondary impacts of moorland fires in that the peat beneath is also burned. Peat is a large carbon store and the burning of it emits large quantities of Carbon Dioxide, one of the gasses responsible for climate change. Additionally, peat smoulders and is very difficult to put out.

Wind is a minor issue but can make moorland fires worse as a breeze can blow flames and sparks over a larger area making the impacts worse. The NYMNP has 25 miles of cliffs and so coastal erosion is an issue. Storms can make waves more destructive, thus speeding up rates of cliff erosion.

**The Present**

The NYMNPA is very aware of climate change and it is central to their work. All of the NPA's have been invited to report their climate change adaptation plans to DEFRA under DEFRA's Adaptation Reporting Power. The NYMNPA has signed up to do this and has submitted a report. At the present time, the NYMNPA is rewriting its current management plan which is a statutory document that the Park must submit to Government every 5 years. Climate change will be central in this plan.

Climate change is also already integrated into planning policy to reduce the impact of future climate change on developments. A Core Policy ensures that addressing the causes and effects of climate change is a key element in planning decisions.

The NYMNP also plans to mitigate against climate change and wishes to reduce its own internal carbon emissions and those of communities within the park. 14 renewable energy/ energy efficiency projects have been funded by the Sustainable Development Fund (SDF) and LEADER in community buildings. A Community Renewable Energy Project (CREP) helped set up a community ESCO (Energy Service Company) which is in the final stages of raising funding for a community hydro project on the River Esk.

NP rangers, as well as putting their 4x4 vehicles at the disposal of the health service during times of extreme weather, are also all first aid trained, meaning that they can give assistance in an emergency if they are first on the scene.

Following the 2005 floods in Bilsdale, the design of footbridges has been reviewed. Replacement bridges are higher to allow more water to flow beneath them, non solid surfaces allow water to flow through the bridge rather than allow pressure to build up behind the bridge and the structures are lighter, in order for them to be recovered from the water and reused.

Plans for moorland fires are in place and are vitally important. A fire alert system is in place and trigger points alert certain actions. At a certain trigger point, the NYMNP has an agreement with the North Yorkshire Moors Railway that it will no longer run steam trains through the affected areas due to risk of sparks. There is also an agreement that spark guards are always used on the steam locomotives to reduce the risk of moorland fires. The NYMNPA also works with moorland owners to ensure that fire plans are in place.

The NYMNPA does not own a lot of land, its largest estate is 3 500 acres on Levisham Moor. It is working to protect this area by having High level Countryside Stewardship Agreements with famers and is always working to manage habitats and access.

**The Future**

The Management Plan, which is currently being written, will consider the possible impacts of changes to the climate at the strategic level. The general principles and direction in which adapting to climate change is heading will be included, however because the Management Plan is a long term document, specific figures will not be.

The most important way in which the NPA is trying to adapt is by making its landscape more resilient to a changing climate. Resilience can be enhanced by making a habitat area larger, more diverse and increasingly connected. For this reason, habitat mapping has become important for the NP and has helped to identify habitats that can be linked or joined up to expand the habitat area and increase connectivity. Research has shown that many species

would be able to survive a change in climate but would need a bigger territory in order to do so, this work is therefore vitally important.

The NYMNPA constantly need to manage and adapt coastal footpaths, especially the popular Cleveland Way, due to erosion. The rate of erosion of these coastal paths and the need to protect coastal town and villages would increase if seal levels rise, as predicted by the climate change projections.

**Opportunities for Partnership Working**

The NYMNPA is working with many organisations including the Environment Agency and the Forestry Commission on the "Slowing the Flow" project to reduce the risk of flooding in Pickering. The NPA also has a full time officer working on the Catchment Management Plan for the River Esk.

The NYMNPA is also a partner in the Yorkshire Peat Partnership which has already carried out a lot of peat restoration work on the Moors and has plans to carry out more in the future. Many of the Moors are also in High Level Stewardship (areas that Natural England are seeking environmental benefits from for wildlife, landscape, the historic environment and resource protection), all of which will help to reduce peat erosion.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | North Yorkshire and York Forum (NYYF) |
|---|---|
| **Brief Description of the role of the organisation**: NYYF exists to promote, develop and support new and existing forms of voluntary and community action and aims to ensure that the views and interests of these voluntary and community groups are well represented. It also provides a range of services and support to voluntary organisations, community groups and charities in York and North Yorkshire. | |

**Summary Points**

- NYYF believe that the voluntary sector is very resilient to extreme weather events and is able to offer help in such situations.
- The voluntary sector is extensive, in terms of the wide range of services and support that it carries out and the differing types of the organisations. However it receives little or no funding in respect of issues associated with extreme weather conditions and consequently it is difficult to train and educate people on extreme weather and climate change.
- The NYYF Employment Advice Service has seen an increase in the number of enquiries with regards to environmental issues, such as how to set up environmental policies and procedures.

## DETAILED REPORT

**The Past**

NYYF believe that the voluntary sector is very resilient with regard to extreme weather events and individuals and groups respond very promptly. Some volunteer led organisations primarily exist to help people in crisis, for example the Scarborough Mountain Rescue, whereas others exist to help people on a day to day basis as well as helping with crises, such as St John Ambulance and Red Cross. Volunteers have helped to reduce the impacts and consequent suffering on people following extreme weather events. Volunteer groups have been good at adapting to whatever assistance has been needed in a situation.

Voluntary and Community organisations undertake extensive work with vulnerable and disabled people and help cascade important information to these groups.

**The Present**

There are estimated to be up to 5,000 voluntary organisations in York and North Yorkshire and the volunteering rates in this area are high, with approximately 29% of the population volunteering for more than two hours per week, which is above the National average.

NYYF send daily e-mails news alerts to around 1400 organisations providing news updates with relevant information about the voluntary and community sector. This service is often used by statutory partners to disseminate information to the sector.

**The Future**

The NYYF Employment Advice Service has seen an increase in the number of people asking for advice on developing environmental policies and procedures, however, they believe that there is a need to encourage more organisations to develop such policies and anticipate an increase in these enquiries in the future**.**

**Opportunities for Partnership Working**

Although the voluntary sector interacts with some Local Resilience Forums the sector no longer has any consultative or planning role in North Yorkshire Emergency Planning forums, except on an ad hoc basis.

NYYF and its related networks provide a means of engaging voluntary and community organisations in climate change work in future.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

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|---|---|
| **Organisation:** | Primary Care Trust for North Yorkshire and York (PCT) |
| **Brief Description of the role of the organisation**: Primary care is the care provided when a health problem first begins, i.e. a GP, dentist, optician, pharmacist, NHS walk in centres and the NHS Direct Helpline. PCTs work with local authorities and other agencies that provide health and social care locally to make sure that each local community's needs are being met. PCTs must make sure there are enough services for people within their area and that these services are accessible. PCTs commission health care from hospitals, GPs and other providers. | |

**Summary Points**

- The PCT's roles and responsibilities have changed during recent time, in April 2011 they became a commissioner for health care and as of early 2013, they will be abolished entirely.

- The PCT is working to mitigate against climate change and reduce its own carbon emissions. The NHS has a Sustainable Development and Carbon Management Plan to help with this task.

- Emergency preparedness and resilience to hazardous events, such as extremes of weather, are high priorities for the NHS, however specific adaptations that consider the impacts that climate change may have in the North Yorkshire area have not yet been considered.

## DETAILED REPORT

**The Past**

The PCT for North Yorkshire and York covers a large geographical area and extreme weather events tend to be quite localised and the impacts vary across the county. As many of the health care providers, such as over 100 GP practises across North Yorkshire, work independently, the way in which they respond to extreme weather events is not controlled by the PCT. However, health care providers across the region have been impacted by past weather events.

Flooding is the extreme weather event that has had the most impact on the services of the PCT and has the most potential to cause future disruption. During the floods in Pickering in 2007, the power supply to the GP service was disrupted and similarly during the floods in Malton in 2000, the GP practise was disrupted. Selby hospital is at risk of flooding and during the floods in Selby in 2007, the hospital was evacuated. The flash floods that affected Ryedale in 2005 were however dealt with at a local level and did not require input from the PCT.

During the extreme winters of 09/10 and 10/11, the Ryedale and Whitby area of North Yorkshire was worst affected and the PCTs Business Continuity plan was brought in. There were difficulties with staff being able to get into work and so alternative bases from where staff could work were arranged. NYCC failed to plough some access routes to hospitals as they were not priority routes, however, after discussions, City of York Council ploughed out York hospital. There is an ongoing discussion to ensure that this problem is resolved in future extreme snow fall events. Risk assessments as to whether nursing and other staff should travel to patients were carried out daily via telephone conferencing. Local health organisations accessed 4x4 vehicles from other agencies such as the EA, voluntary 4x4 groups etc. in order for them to be able reach patients in otherwise inaccessible areas.

An NHS Heat Wave alert is in place which covers Adult Social care, the NHS and Education but it has not yet needed to be activated.

**The Present**

The PCT has an overarching Sustainable Development and Carbon Management Plan, which will help the Health Service to reduce its carbon footprint with targets for reduction being set from baseline assessments. A number of initiatives have begun, energy champions within health organisations have been selected who are responsible for increasing energy efficiency within their place of work, teleconferencing has replaced travel where possible and energy saving solutions for IT equipment, such as power downs, are being encouraged.

There are generic Major Incident Plans for identified risks, such as heat waves and a specific Heat Wave Plan also exists. However, there are no organisational specific plans for flood events as none of the premises overseen by the PCT in the North Yorkshire and York area are in flood risk zones. The PCT contributes to multi-agency flood plans. There is also no organisational specific plan for extreme cold but there are Business Continuity Plans for all risks.

A Winter Planning Programme exists which involves discussions about how the service would cope with the increased pressure from an extreme weather event, for example increased cases of broken bones due to people falling on snowy/ icy paths and increased cases of winter flu due to extreme cold. Plans also include where the service can access 4x4

vehicles from to minimise patient disruption. However, how the severity and frequency of these events will increase with climate change has not been discussed.

All new healthcare buildings must achieve excellent or very good BREEAM status. Selby hospital is being rebuilt and has undergone this assessment, as well as flood risk assessments.

**The Future**

Through its Sustainable Development Plan, the PCT aims to combine benefits to both the environment and the health of people. For example, promoting active travel helps reduce carbon emissions to the environment but also improves health and wellbeing.

The PCT has to ensure that adequate healthcare services are available in the local area and where these services are required, meaning that reactive measures and short term planning can be better. In order to consider how these healthcare requirements may be impacted by climate change, a higher level of confidence is needed in the projections. Any statements used regarding climate change projections would be general statements, such as “increased flood risk” rather than any Yorkshire and Humber specific projections.

The NHS Operating Framework states that “... emergency preparedness and resilience continues to be a high priority for the NHS ... in order to deliver an effective response” to a variety of threats and hazards, one of which stated is climate change.

**Opportunities for Partnership Working**

The EA is carrying out investigative work into surface water flooding and mitigation against this which the PCT is interested in.

The PCT is involved in the Local Resilience Forum and attends the meetings, at these meetings, the groups involved discuss how they would react to extreme and severe weather events, however, the specific impacts of climate change have not been discussed.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

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| **Organisation:** | North Yorkshire Police |
| **Brief Description of the role of the organisation**: The role of the North Yorkshire Police is to reduce levels of crime within the North Yorkshire area. | |

**Summary Points**

- North Yorkshire Police have been impacted by extreme weather events in the past. Flooding and extremes of cold, snow and ice appear to have had the biggest impacts.
- North Yorkshire Police are currently focussing more heavily on mitigation (energy efficiency and carbon emission reduction) rather than adaptation to climate change and extreme weather events.
- Police stations and other buildings are currently undergoing an improvement project which includes reducing the energy demand of these buildings.

## DETAILED REPORT

**The Past**

The North Yorkshire police force has been impacted by flood events in the past. Operationally, they are part of the response to these events and were heavily involved in the response to the summer flooding in Filey in 2002 and 2007. In these circumstances, the Police divert resources and officers to these incidents. Flooding can create knock on effects to the ability of the police to attend other none flood related incidents due to impassable roads. The same can be said during times of snow and/or ice.

During events of extreme cold and snow, extra provision of snow and ice clearance is made at key locations in order to ensure that staff are able to get to work. Plans are in place for these events and are tailored to the needs of each police station, for example those in particularly rural areas such as the Yorkshire Dales have greater access to 4x4 vehicles and assets are deployed on a need/priority basis.

Incidents of extreme heat and drought have not been a big issue in the past, but policies are in place for such incidents. The policies include ensuring that staff have access to sun cream

and adequate water supplies, also the uniform policy can be relaxed during these times, for example police officers working without ties.

As an indirect response to the threat of high winds and storms, an ongoing programme of improvements to police assets and buildings, such as roof repairs, is in place.

**The Present**

Policies detailing how the Police will respond to extreme weather events are built into the business continuity plans, these are different for and specific to each department within the force. The Police are of the opinion that planning ahead in order to maintain operational effectiveness and ensure that the role of the service can continue.

A policy is in place in the case of employees being unable to get into work. Staff are expected to make every effort to get to work and if it isn't possible to get to their normal place of work, staff are encouraged to work from their local office or the one nearest to their home. Some staff have access and the ability to be able to work from home, but due to the nature of their work the intranet is heavily restricted. Working from home may be further considered as a response to sustainability issues in the future. The very nature of policing means that officers are required to be out in the communities, so initiatives such as home working are not a suitable alternative for these roles.

Policies and projects are currently underway to help the force reduce their carbon emissions and impacts on the environment. In the past, when an incident occurred, an officer was sent from the command unit area, however in order to reduce mileage and therefore carbon emissions, an officer would now be sent from the nearest location or police station, regardless of whether the incident was in the command unit of that officer. Also, the majority of police vehicles are diesel and the Force actively seek to purchase vehicles with more energy efficient engines, where appropriate. However the suitability of the vehicles for the area in which it will be used must be considered, for example rural areas have greater numbers of 4x4 vehicles. Additionally, police officers are increasingly using push bikes to get around in urban areas such as York and Scarborough.

The Forces Estates Capital Rolling Programme seeks to ensure that buildings are maintained and provide fit for purpose accommodation. This programme of work also includes reducing the energy demand of these buildings, improved insulation, double glazing, new A-rated boilers, LED lights and light sensors, Solar PV and micro CHP. By doing this the Police aim to reduce their costs, both financially but also to the environment and improve their sustainability.

**The Future**

Planning for the future is important and the police believe they are reasonably well prepared for future extreme weather events. However, front line, operational policing tends

to be reactive to the situation and so lessons tend to be learned from previous events and future plans are made according to this.

The Emergency Planning Unit looks at how the force would react in a variety of scenarios and extreme weather events are included within this.

With regards to plans for the future, improving the energy efficiency of the approximate 100 police buildings in the North Yorkshire area is an ongoing project, currently between 30 and 40 of these asset improvement works have been completed. The Police are looking at targeting reducing carbon emissions and improving sustainability as part of a long term future strategy. The Police acknowledge that their approach currently focuses more heavily on mitigation.

**Opportunities for Partnership Working**

North Yorkshire Police is currently working with the other forces that make up the entire Yorkshire and Humber region. They have had contact with CO2Sense and the Carbon Trust with regard to carbon reduction but are receiving no grant funding or consultancy advice at the present time. Improving the energy efficiency of the Police buildings has had expert, professional input from both the private and public sector. They also meet with the other public service providers to discuss/share best practise around assets.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | RSPB |
|---|---|
| **Brief Description of the role of the organisation**: The RSPB speaks out on behalf of birds and wildlife and tackle the problems that threaten the environment. Our work is focused on the species and habitats that are in the greatest danger. The RSPB has over 1 million members. | |

**Summary Points**

- The RSPB believe that climate change is the single biggest threat to wildlife in the UK and because of this, climate change influences everything that they do. They believe that we are already seeing a change in our climate.

- The RSPB has a dedicated climate change team who keep up to date on climate change issues and do a lot of advocacy and consultation work with regards to government policies

- The RSPB is working on measures to both mitigate against further climate change, as well as measures to help the organisation, its reserves and the wildlife adapt to a changing climate

## DETAILED REPORT

**The Past**

Although the RSPB has no reserves wholly within the North Yorkshire region, it has reserves in nearby counties and nationally. As climate change is not determined by boundaries, the concepts and actions that are taking place will be relevant.

Flooding has always impacted upon reserves, but the RSPB is seeing an increase in the occurrence of flood events during the spring, whereas in the past flood events have mainly been confined to the autumn and winter. Incidents of flash flooding have also increased, especially during the spring.

Fairburn Ings is an RSPB reserve which is situated in both Selby District Council and Leeds City Council areas; it has particular problems with flooding. The creation of spoil heaps from

mining activities has caused the valley to become constrained; the water in the River Aire therefore has nowhere to go and so floods the reserve. Habitats, especially those of ground nesting birds, are washed away and nests fail. The visitor centre at the reserve has been built on stilts to prevent damage to it during flood events, but other infrastructure including footpaths and picnic benches have regularly been replaced.

The extreme winters of 09/10 and 10/11 have had an impact. Decisions had to be made to close some reserves because of the ice and snow on the paths making it dangerous for visitors. Staff not being able to get into work was also a problem and the reserve could not open if not enough staff were present.

RSPB reserves have been impacted by drought and are susceptible to harm from prolonged spells of dry weather. If this occurs over one year, this is not so much of a problem as if it occurs regularly over consecutive years.

Storms and winds have the least impact, but can have financial implications due to reduced visitor numbers and damage to infrastructure.

**The Present**

Climate change is a major focus for the RSPB and influences everything that they do and are of the opinion that planning for the impacts is very important. As a conservation organisation, they are trying to be an example to others and lead the way in sustainability, climate change adaptation and mitigation. They have many mitigation measures in place including:

- Encouraging staff to walk or travel by bike, using a tax relief scheme when buying a bike. Car sharing is encouraged as is the use of public transport, even if it cost more. At the RSPB HQ in Bedfordshire, a bus is provided which picks up and drops off staff from nearby villages in order to reduce car use.

- The availability and instructions of how to travel to each reserve by public transport is always flagged up to members and available on the website.

- Renewable energy is being installed at reserves and offices wherever possible, wood fuel boilers are particularly sustainable because waste wood is made available during tree management and can be used to heat bird hides, such as the one at the Blacktoft Sands Reserve near Goole. Micro wind turbines are also being installed at reserves.

- Energy efficiency within the offices and visitor centres is being encouraged which includes turning off equipment, lights etc.

Policies regarding staff not being able to get into work during extreme weather events are fairly flexible and staff have the ability to work from home during these times.

The RSPB is one of the biggest land owners in Scotland; in England they have a combination of owned and leased reserves and they are constantly managing these reserves in order to protect their assets and habitats. When acquiring a new site or when reviewing the management plans for current sites, climate change is always a consideration.

**The Future**

The RSPB have a dedicated climate change team whose job it is to keep up to date on climate change work, projections and policies. The RSPB also have lobbying teams that work at both local government and central government level. Advocacy is also a big part of their work and the RSPB are part of consultations regarding conservation policy.

Their 'Futurescapes' Project is focusing on landscape wide conservation rather and are working with landowners, farmers and communities to improve the wider countryside for birds, rather than just the land within RSPB reserves.

The RSPB is working to ensure that habitats less isolated and fragmented than they are at the moment. The aim is to create habitat corridors, giving wildlife more interconnectivity and a larger surface area over which to spread, meaning that they can adapt more easily and be more resilient to a changing climate.

The RSPB is often consulted by different groups when wind turbines are being considered. The RSPB is of the opinion that renewable sources of energy are very important in order for us to reach our carbon emissions targets and energy demands, they therefore, on the whole, support the construction of wind turbines. However, they do consider these on a case by case basis and where specific problems within an area are identified permission for construction would not be granted.

**Opportunities for Partnership Working**

The RSPB work with a wide range of organisations, these include local authorities, landowners, communities, farm businesses and other conservation organisations such as the Wildlife Trusts. They have a close relationship with Natural England and are currently working with the Environment Agency on their flood risk management strategy.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | Welcome to Yorkshire |
|---|---|
| **Brief Description of the role of the organisation**: Welcome to Yorkshire is the official destination management organisation for Yorkshire. Their aim is to make "... Yorkshire the most popular visitor destination in the UK." Tourism in Yorkshire is worth nearly £7 billion annually and employs almost a quarter of a million people. | |

**Summary Points**

- The tourist industry has been affected by extreme weather events in the past and they do not only affect businesses physically or financially, visitor experience can also be affected

- Equivalent organisations that cover the South West and South East area of England have produced literature and a website which provide tourism businesses with information and advice about preparing for and adapting to climate change

- One of the most important challenges for Welcome to Yorkshire is to educate businesses and make them aware of how a changing climate may affect them

## DETAILED REPORT

**The Past**

The tourist industry is a very important element of Yorkshire's economy, and past weather extremes have already impacted upon the tourist industry. Extreme weather events have had a negative effect on the visitors experience and this is critical for business.

The extreme winters of 09/10 and 10/11 have caused some difficulties for visitors. In both of the last two extreme winters, groups of tourists became snowed in and stranded at different Yorkshire pubs, at Tan Hill Pub near the Pennines and the Lion Inn at Blakey Ridge on the North Yorkshire Moors. Accessibility to some areas, mainly rural locations can be a problem, driving conditions can be hazardous, and many rural roads can become impassable, especially if people do not have suitable vehicles such as 4x4's. The extreme cold also puts heightened pressure on local businesses due to increased energy and heating costs.

Extreme heat and drought can also have an impact on the tourist industry and businesses need to be aware that providing adequate fluids and shade is important. However, increasing temperature may be a positive for the Yorkshire region as the North of England could provide some cooler temperatures and therefore relief from the heat in the South of England and Europe.

The tourist hotspots of York and Pickering are both susceptible to flooding. This can prevent tourists from reaching or exploring the destinations adequately, which can hinder visitor experiences. Flood damage to businesses and properties can also be financially damaging both in terms of direct losses but also in lost business. Footpaths in rural areas can be damaged by flooding which can also prevent tourists from visiting the areas that they wish to. Coastal footpaths are particularly vulnerable to damage, especially if sea level rise leads to an increase in coastal erosion. The Cleveland Way is a popular footpath for tourism which is at risk from coastal erosion and negotiation with landowners to move the path further inland has been an issue in the past.

Damage from wind and storms can also have an impact. High winds can prevent people from partaking in outdoor and water based activities, such as flying, sailing, cycling etc and this can be negative for business revenue. Damage to property and businesses can also occur.

**The Present**

Welcome to Yorkshire believes that planning for climate change is vitally important for the tourist industry and the businesses that it supports. Tourism could see a benefit from a warmer climate but it could be detrimentally affected by extreme weather events.

The equivalent organisations that cover the South East and South West areas of England have taken the lead on climate change adaptation. They have produced literature and set up a website (www.climateprepared.com) to give tourism businesses advice on how climate change may affect them, both positively and negatively, and how they can prepare and adapt for a change in climate. It is a possibility that this could be adapted and rolled out nationally. Internally, the organisation is focussing on mitigation.

Educating businesses about the possible impacts of climate change is a priority for Welcome to Yorkshire. An AXA Insurance report, published in 2007 found that while 77% of small businesses were aware of climate change, only 30% thought it was a threat.

Extreme weather events can also have an impact on employees as well as tourists. Many tourism businesses are small, micro businesses, so one person not being able to get to work can be damaging. Also, the cost of house prices are high in many rural locations that are popular with tourists and so many workers travel long distances from more urban areas to work, making travelling in bad weather more difficult or not possible. Additionally, due to the nature of the business, home working is not often feasible.

The building that Welcome to Yorkshire operates in has a risk assessment in place. Welcome to Yorkshire is currently amending its risk assessment to take a changing climate into account; the building is potentially at risk of flooding.

**The Future**

The long term plan for Welcome to Yorkshire is to look at how they might regionalise the website and advice that has been piloted in the South East and South West and adapt it in order to be relevant to the Yorkshire and Humber region. Welcome to Yorkshire does plan to use the specific projections for the Yorkshire and Humber region in any plans or strategies; this is because Welcome to Yorkshire operates solely in this region and so how the climate will change in this specific area is crucial.

Protecting the landscape and environment is also crucial for the tourist industry in Yorkshire. Many people visit the area because of the natural landscape and biodiversity, if this is changed by climate change, visitors may not come.

**Opportunities for Partnership Working**

Welcome to Yorkshire currently works closely with the national tourism organisation, Visit England and would like to work with other, larger organisations on the subject of climate change at a regional level.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | Yorkshire Ambulance Service (YAS) |
|---|---|
| **Brief Description of the role of the organisation**: The main role of the YAS is to transport patients from one place to another, this is done via two main strands; the first is an emergency response via 999 calls which operates 24 hours a day, 365 days a year across the Yorkshire region. The second is to provide a Patient Transport Service (PTS) to transport patients to and from their homes to healthcare services across Yorkshire. | |

**Summary Points**

- Snow fall and ice making roads dangerous and/ or impassable can be a major problem for the YAS as their role is to transport patients from one location to another.

- The YAS have produced an Extreme Weather Guidance document about how the response to an extreme weather event would be approached and incidents are graded using levels to indicate their severity. This guidance is reviewed regularly.

- The YAS already works closely with other organisations, especially within the health sector, to provide a multi agency response to major incidents involving extreme weather.

## DETAILED REPORT

**The Past**

The main weather event to impact upon the YAS is the extreme cold, snow and ice. Snow fall, but especially ice, can inhibit ambulances being able to reach patients. Ice is particularly difficult and although 4x4 vehicles can be useful, any vehicle can lose grip and slide in icy conditions. Local authorities are expected to clear the areas around ambulance stations of snow to ensure that vehicles are able to get in and out.

Ice and snow can also prevent staff getting to their place of work. Home working is not usually an option because 80% of the 4,200 staff are working on the front line, however in these circumstances, office staff are encouraged to work from home. Alternatively, front

line staff can go to their nearest station rather than their usual station or place of work. Issues involving staff not being able to travel to work are recognised in the transport section of the Business Continuity Plan.

**The Present**

Adapting to and planning for an extreme of weather is an important part of the work of YAS, regardless of whether these are linked to climate change. YAS receive forewarning of any expected weather extreme approximately 10 to 16 days in advance, these warnings are usually accurate and so the YAS can begin to put plans in place when these are received. YAS are proactive in planning to respond to extreme weather events rather than being reactive.

YAS are part of the North Yorkshire Local Resilience Forum which has been set up to co-ordinate the response to major incidents by numerous agencies. This forum produces risk assessments and planned responses by multiple agencies in the event of a major incident such as severe power loss but this event may or may not be as a direct result of climate change.

The YAS has an Adverse Weather Guidance document which provides staff with guidance and advice on what to do in the event of extreme weather, it was written in October 2010 and is due for renewal in November 2011. The Adverse Weather Guidance has adopted a similar structure and incident grading levels to the Heat Wave Guidance which classifies an incident at a level between 1 and 4. Level 1 being normal conditions, level 2 indicating that adverse weather is expected and level 3 shows that adverse weather is imminent and may have a local impacts. Level 4 denotes a severe or prolonged incident of adverse weather that has Trust wide impacts or affects other organisations. As the trust covers the large geographical area of Yorkshire, events tend to be quite localised and not affect the entire Trust.

At the present time, extreme weather events are considered as part of business continuity rather than major incidents. However, plans for adverse weather must be relevant and operational at a local level but also be adaptable to be used at a Trust wide level.

Staff are well equipped to cope with weather extremes. PPE (Personal Protective Equipment) is supplied and staff are made aware of working conditions and what to do in these circumstances, for example in extreme heat they are advised to drink plenty of fluids and encourage patients to do the same. Air conditioning has been fitted in many ambulances. Staff are trained to identify vulnerable individuals and where necessary, give advice on how to look after themselves in weather extremes.

A number of YAS Staff have also undergone additional training so that they are better prepared for weather extremes and have extra capabilities in these situations. Members of the Hazardous Area Response Team (HART) have been trained to deal with dangerous

situations which allow them to enter areas where traditionally ambulance staff would not normally go.

**The Future**

The YAS are continuing to review their Adverse Weather Guidance and they will continue to use and adapt this as necessary. One of the most important aspects is to continue to follow good practise to ensure that staff are prepared and ensure that ambulance stations are in good working order to allow staff and stations to be resilient in weather extremes.

The immediate goal for the YAS is to plan in advance for a multi agency response to extreme weather events and to plan to adapt with the resources that the YAS currently have available to them. However, these plans need to be reviewed annually to ensure that all aspects are still relevant, due to the nature of the work, planning too far in advance isn't always beneficial.

**Opportunities for Partnership Working**

The YAS already work closely with other agencies, especially health partners, on the issues of climate change and extreme weather.

YAS is a member of the Local Resilience Forum has been set up to organise a coordinated response to major incidents, a category which extreme weather events could be included in if necessary. This would include secondary impacts of climate change such as severe power loss.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| | |
|---|---|
| **Organisation:** | Yorkshire Dales National Park Authority (YDNPA) |
| **Brief Description of the role of the organisation**: The Yorkshire Dales National Park area was designated in 1954, the purposes of the National Park Authority are to conserve and enhance the natural beauty, wildlife and cultural heritage of the National Park as well as promoting opportunities for the understanding and enjoyment of the special qualities of the Park by the public. | |

**Summary Points**

- The YDNP has been affected by some severe weather events, such as the extreme winters of 09/10 and 10/11 but on the whole, has escaped any severe flood or moorland fire event. However, it is aware of the risks posed.

- The YDNPA has voluntarily submitted an assessment of the risks, opportunities and actions that climate change may bring to the park area. Unusually, the report focuses on the YDNP as an area rather than as an organisation.

- The YDNPA has reduced carbon emissions by 45% since 2006 and is encouraging the installation of renewable technologies within the park.

## DETAILED REPORT

**The Past**

The YDNP does get some flood events; however they are mainly localised, flash flooding events that have relatively minor impacts, greater flood events tend to occur further downstream in York. The YDNP has a relatively small population with very few settlements built on the floodplain; however, the Park is aware that there is always the potential for flash flooding.

The weather event to have the biggest impact on the Park is extreme cold with snowfall on the ground. The extreme winters of 09/10 and 10/11 had operational impacts on the Park. Most practical conservation work and tree planting takes place in the winter months, due to the high tourist presence in the spring/ summer and the moorlands being used for shooting

in the autumn months and thus snow on the ground can severely disrupt these work programmes.

Prolonged spells of dry weather increases the risk of moorland fires, the YDNP has had to limit access to the Moors in the past as a precautionary measure when fire risk levels have been high.

On the whole, the YDNP area has not been impacted by any severe and large scale extreme weather events in recent times but the authority are aware of the risks and the potential for this to occur.

**The Present**

The National Park Authority were not obligated to report their climate change adaptation plans to DEFRA, however they were asked to do so voluntarily, which they have agreed to. The YDNPA has prepared an assessment of the risks, opportunities and actions within the Park and this has been submitted to DEFRA. Any secondary impacts of climate change, such as loss of power, are also considered in this report. Unusually, this report covers the National Park area rather than just the operations of the authority as the latter are limited and less critical to the lives and health of the people who live in the park. This report uses the UKCP09 projections specifically for the Yorkshire and Humber area. This report has highlighted the threats and risks for the area and activity already underway. However, such an action to manage these has not yet been developed. Instead, this will form part of the next Management Plan for the Park which is produced every 5 years and is due to be updated in 2012.

The LCLIP, carried out by AECOM in 2010, for the Yorkshire Dales National Park Authority is available, this used the secondary data source of newspaper articles to establish how the North Yorkshire region, including the YDNP had been affected by extreme weather.

The YDNPA is trying to protect itself from future weather extremes by actively checking the state of its assets such as offices, toilet buildings, visitor centres and car parks, as well as checking that foot and river bridges are structurally sound. The Business Continuity Plan is also checked. The YDNPA is already prepared for home working; staff have remote access to e-mails etc and so can work from home during weather extremes if necessary. During weather extremes, National Park Rangers with 4x4 vehicles at their disposal assist other organisations, such as district nurses, to reach patients in inaccessible areas.

The YDNPA is also working on climate change mitigation by reducing its own carbon emissions. The National Park offices have had a range of renewable technologies installed, including a GSHP in the Bainbridge office, where a solar PV system is about to be installed. Additionally a wood fuel boiler has been installed at the offices in Grassington. The number of occasions that staff travel between the two National Park offices has also been reduced

through changes to incentives; introduction of video conferencing wherever possible and car sharing is encouraged.

**The Future**

The YDNP is trying to diversify so that the area relies less on tourism and farming. Planning permission has been granted for a Renewable Technology Training Centre in Hawes. The facility would provide training for people wanting to work in the renewable technology industry and helps the Park with this aim.

The YDNP is working on habitat surveys and mapping. This data will enable the Park to see the areas that different habitats occupy and the connections between them, this will allow new habitats to be created and money to be spent in the areas that will benefit most, helping to increase habitat resilience to a changing climate. Targeting the right areas for example woodland planting, will also help to alleviate risks to the Park from both climate change and extreme weather events.

**Opportunities for Partnership Working**

The National Park Management Plan Steering Group involves members from all of the statutory environmental organisations including the Environment Agency, Forestry Commission, Natural England and English Heritage, as well as local bodies.

The YDNPA is one of the organisations involved in the Yorkshire Peat Partnership which, over the next two years, aims to restore 14 000 ha of peat land, where drainage channels will be blocked up, reducing run off and reducing flood risk. Retaining water within the peat blanket bogs will also help to prevent the peat drying out so quickly and reduce the risk of moorland fires.

The YDNPA work closely with the Forestry Commission and Yorkshire Dales Millennium Trust to fund new woodland planting on privately owned land; over 450 hectares have been planted since 2006. Trees are being strategically planted beside rivers and in other locations to reduce flood risk.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| **Organisation:** | Yorkshire Water (YW) |
|---|---|
| **Brief Description of the role of the organisation**: Yorkshire Water manages the collection, treatment and distribution of water in Yorkshire, supplying around 1.24 billion litres of drinking water each day. They also collect, treat and dispose of about one billion litres of waste water back into the environment. Yorkshire Water is also one of Yorkshire's largest landowners. | |

**Summary Points**

- Resilience and management of existing assets is a crucial role for YW which is constantly being planned for, planning for adaption to climate change is needed on top of this existing work in order for it to be managed effectively

- Risk assessments, plans and policies that cover extreme weather events are already in place, however the possible increase in extreme weather events, both in terms of frequency and intensity, has not yet been associated with climate change

- Partnership working already exists, YW work closely with the EA, DEFRA, consultants, Universities, Natural England and other water and utility companies. Extending these relationships to cover climate change has already begun

## DETAILED REPORT

**The Past**

Flood events vary in scale throughout the region and can be wide spread or localised, depending upon the location of where the rain falls, the volume of rainfall, the nearby river capacity etc. Severe flood events in the Yorkshire region during 2000 and 2007 impacted greatly upon Yorkshire Water and its operations. During the 1 in 200 year flood, which affected areas including Sheffield, Doncaster and Hull, YW's main water treatment works in the Blackburn area of Sheffield was inundated, staff had to air lifted out of the facility. The flooding of these treatments works led to a pollution risk and the facility was unable to be used for days and took months of work to get back to full working order. Also during the 2007 flood event, the M1 motorway was closed between junctions 32 and 36 and 700

people were evacuated from their homes after there were concerns about the stability and strength of the Dam on the Ulley Reservoir.

Extremes of cold, snow and ice have also caused problems for YW and the extreme winters of 09/10 and 10/11 have shown this, during these periods YW treated more water than ever. Burst pipes in domestic dwellings and in businesses puts increased strain on water supply and resources. Water treatment works were also put under increased pressure due to chemicals not being able to get to some sites as normal because of road closures and access issues.

Extremes of heat and drought can cause YW problems, however the organisation does have legal powers to put measures in place to curb water usage and protect supply, including hosepipe bans and limit water use. The last major drought in the Yorkshire area was in 1995 when a hosepipe ban was put in place, since this event, major investment has enhanced YW's ability to cope with this type of event and improve resilience. During the drought of 1995, it was widely publicised that tankers were used to transport water up and down the motorway, improvements to pipe work since this event now gives YW the ability to pump water from East to West, or from where there is a supply and where the demand is. They have also increased public awareness with regard to water conservation.

Wind and storms have been less prevalent and have fewer impacts, except for knock on effects. Storms can lead to increased rainfall which can result in flooding, causing the problems discussed previously. High winds and storms can also cause power to be disrupted but YW do have back up energy and are able to generate their own.

Sea level rise and/ or storm surges could be an issue for YW as this could result in flooding of YW's assets, especially in low lying areas or those below sea level, such as the City of Hull. This requires a close relationship with the Environment Agency (EA) to put measures in place to keep flood waters out of these areas.

**The Present**

YW is well aware of climate change and is already taking action. YW is one of the 91 organisations that have been chosen to report to DEFRA on how they are planning to adapt to climate change, along with all of the other water companies in the UK. Their Climate Change Adaptation Report has already been submitted and is available to view on the DEFRA website. This report outlines the potential risks that YW may face which have been based upon the UKCP09 projections. Average trends are mainly used but these are tailored to include Yorkshire and Humber specific projections.

YW produce a Water Resource Management Plan, which plans 25 years in advance and is reviewed every 5 years, this ensures a balance is kept between supply and demand. The plan accounts for predicted changes in population, housing, water use and includes future pressures caused by predicted changes to the climate.

YW has an Environmental Management System and achieved companywide certification to ISO14001 in April 2004, covering 'of sustainable water, sewerage and waste management services'. 6-monthly audits are carried out to ensure continued compliance with ISO14001.

Policies and procedures are in place for snow/ extreme cold and these policies have been reviewed due to the winters of 09/10 and 10/11, however there are varying degrees of flexibility due to the diverse nature of the work that is carried out by YW. Office staff have the capability to work from home but for other staff members, it is down to each team manager to decide how any time off is take, for example paying back the time or taking annual leave.

The organisation has plans in place for the secondary impacts of extreme weather and climate change, such as loss of power.

**The Future**

YW is constantly investing in its assets and services to ensure that it is prepared for and is resilient to climate change and extreme weather. Telemetry systems are used 24 hours a day, 365 days a year and are becoming increasingly high tech, assets can be monitored and understood from a remote location, allowing equipment to be turned on or off from a central control centre and allows a more rapid response to problems.

A flexible asset base which provides suitable infrastructure at the present time but is also able to withstand extreme weather and a changing climate in the future is important for YW and enhances their resilience to cope. The same applies for the habitats, increasing the health and biodiversity of habitats enhances their ability to cope in a changing climate. YW is one of the biggest landowners in the region, owning 70 000 hectares. How the land that YW own, and the land surrounding it, is managed is vital, not just for the quality of the water but for the habitats that the land supports, both now and in the long term. YW works closely with farmers and other tenants to manage the land effectively and works with other groups, such as the Yorkshire Peat Partnership to enhance both the land and water quality.

The risks posed by extreme weather events are already a part of YW's plans and policies, however, their occurrence and the prediction that they will increase in both frequency and intensity has not yet been associated with climate change.

**Opportunities for Partnership Working**

YW considers that working together with other agencies is critical when planning to adapt to climate change. They work closely with the EA as regulators and stake holders and with DEFRA at a national level. YW also work closely with fellow water companies. YW have close relationships with consultants as well as Leeds and Sheffield Universities who provide much research and development.

YW already work closely with the EA with regard to river flow. Under normal circumstances, YW and EA have an agreement that YW will compensate river flow, however under drought circumstances this would not occur, having impacts on the biodiversity within the river, but these impacts must be balanced with the impacts on human health due to lack of water.

YW is a member of different groups that deal with emergency response, they are part of the Local Resilience Forum as well as a Regional Resilience Forum and these bodies proved to be critical in the 2007 flood event.

# NORTH YORKSHIRE AND YORK, RIEP CLIMATE CHANGE ADAPTATION PROJECT: PHASE 2B – BRIEFING

**Introduction**

| | |
|---|---|
| **Organisation:** | The Yorkshire Wildlife Trust (YWT) |
| **Brief Description of the role of the organisation**: Yorkshire Wildlife Trust is one of 47 Wildlife Trusts that work across the UK; the Yorkshire Wildlife Trust covers the whole Yorkshire area except Sheffield, including North Yorkshire. The Trust works to protect wildlife and wild places, and educate, influence and empower people. | |

**Summary Points**

- A few YWT reserves have been affected by flood events. However, a number of wetland reserves can store flood water and help to reduce the effects of flooding downstream

- YWT is focussing on mitigation and how it can help to reduce future carbon emissions. It is also focussing on increasing the size and diversity of habitats to enable wildlife to be more secure from the effects of climate change

- YWT is heavily involved in the Yorkshire Peat Partnership which aims to restore and conserve moorland peat reserves. The work done by the partnership will help to prevent the degradation of peat and the subsequent emission of CO2

## DETAILED REPORT

**The Past**

All weather extremes impact upon natural environments. The YWT is of the opinion that floods are a natural occurrence and the environment does have the ability to recover from flood events. However climate change may lead to increases in extreme weather events and actions such as creating wetland areas in floodplains, river restoration and connecting habitats will enable both benefits for wildlife and storage of flood water.

During the floods of June /July 2007 a number of reserves acted as “washlands” and stored flood water so that areas downstream were less affected by flooding. Reserves such as Woodhouse Washlands near Rotherham and Denaby Ings near Doncaster stored considerable quantities of flood water. Both wildlife and local people benefitted from this.

**The Present**

The YWT believes that, as far as the nature reserves are concerned, any changes in base line conditions will happen fairly slowly and management plans can be adjusted to deal with this. The YWT is therefore focussing more heavily on mitigation and how they can help to reduce carbon emissions in the future. They are also looking into how their reserves can help to mitigate the impacts of any change in climate. In order to do this, the YWT is currently in the process of extending the size of some of its reserves in order to provide a bigger area and more connected habitats for wildlife as the climate changes. A larger habitat area means that bigger populations are more resilient to any changes in climate.

The main conservation campaign that feeds into all of the YWT's projects is 'Living Landscapes'. With regard to climate change, this project aims to join up habitats to make them larger and more diverse and therefore more resistant to climate change.

**The Future**

As an organisation, the major focus for the YWT seems to be on the future and how future climate change predications will impact upon its reserve and what can be done to slow down the advance of climate change.

The Yorkshire Peat Partnership has been formed with the aim of restoring and conserving upland peat resources. Peatland restoration could provide a first defence for climate change mitigation due to a number of factors that are unique to peatlands;

- Peat contains a very high density of carbon compared to other soil types; in fact, peatlands are thought to store 50% of all terrestrial carbon in the UK.
- As peat is forming it absorbs carbon from the atmosphere in the form of carbon dioxide and acts as a long-term carbon sink.
- It has been calculated that the loss of just 12% of the UK's peatlands would result in the release of the equivalent in climatic effect to the total annual green house gas emissions from the burning of fossil fuels.

Peatland quality is important because, in good condition, they are thought to be far more resilient to environmental changes than degraded peat. Degraded peat also causes a lowering of water quality with increased erosion into rivers and streams.

**Opportunities for Partnership Working**

Some of the plans and policies that the YWT are putting in place to tackle the possible future impacts of climate change already involve partnership working with some of the other organisations included in their projects. In the future it is hoped that partnership working with organisations such as the Environment Agency and local authorities will enable

further habitat creation which will act to mitigate flooding and other effects of climate change. For example the Yorkshire Peat Partnership (YPP) is an umbrella organisation comprising of the Yorkshire Wildlife Trust, the Yorkshire Dales National Park Authority, Natural England, the North Yorkshire Moors National Park Authority and the Environment Agency. It also receives support from Nidderdale AONB, Pennine Prospects, Yorkshire Water, the National Trust, Moorland Association, National Farmers Union and the Yorkshire Dales Rivers Trust.

**Summary**

During the course of interviewing this wide range of organisations, a number of patterns with regards to preparedness for weather extremes and climate change adaptation have emerged. This summary is not exhaustive but gives a general idea of some of the major points that have been identified.

Although it cannot necessarily be quantified or proved scientifically, many organisations have said that they feel that they have seen an increase in both the severity and frequency of extreme weather events in recent years, especially incidents of flooding and flash flooding. Both flooding and extreme cold (and related weather such as ice and snowfall) are the weather extremes that have impacted upon organisations the most severely and frequently within the last 10 years. Storms and incidents of high winds have been less frequent and have impacted the least number of organisations.

It has also been identified that extreme weather events cannot be considered in isolation and that many either occur in sequence or have a direct impact on each other. For example, long spells of hot, dry weather or drought conditions can cause moorland fires. The addition of a strong wind during this period, which in other circumstances may not have caused a problem, can make the impacts and consequences of moorland fires worse.

A pattern that has emerged is that some, large organisations do have some plans and policies in place with regard to climate change, but the degrees of detail vary. The Environment Agency, Yorkshire Water and CE Electric have had to by law submit detailed reports to DEFRA about how they are planning to adapt to climate change, which they are obligated to do under the Climate Change Act of 2008. Other organisations, such as the National Park Authorities have been asked to report to DEFRA but are not obligated to do so, they have all chosen to do this on a voluntary basis but have no specified timescales as to when these must be submitted.

However, it seems that many small businesses, such as those represented by organisations such as The Chamber of Commerce, Welcome to Yorkshire, $CO_2$ Sense and the NYYF have not considered the impacts that climate change will have. The occurrence of extreme weather events that have occurred over recent years in the York and North Yorkshire Area, such as flooding in 2000 and 2007 and the severe winters of 09/10 and 10/11 have highlighted the seriousness of extreme weather events, but many small business are still of the opinion that “it won’t happen to me.”

A pattern has also emerged with regards to making habitat health a priority. It has been found that habitats with a larger surface area, high biodiversity and better connectivity with other habitats are more likely to be able to withstand damage from extreme weather and be more resilient to climate change. Many organisations, including the Yorkshire Wildlife Trust, Environment Agency, the Royal Society for the Protection of Birds, the North

Yorkshire Moors and Yorkshire Dales National Parks, The Forestry Commission and Yorkshire Water have plans in place to increase the biodiversity and interconnectivity of habitats.

Many of the organisations do not have specific extreme weather event plans in place, but do have emergency response plans and business continuity plans which take weather extremes into account. It would be fair to say that even those extreme weather events have been taken into consideration, they are maybe not considered under the specific topic of climate change. The predication that the intensity and frequency of extreme weather events is likely to increase is also rarely considered.

It has also been observed that there is confusion over some terminology with regard to climate change. Many organisations confuse mitigation and adaptation. Some organisations, such as the Police, Fire and Rescue Service and HM Coastguard are focussing on increasing energy efficiency, reducing carbon emissions and their carbon foot print, whereas others such as the National Parks are combining the two. CO2Sense believe that educating people and businesses about the differences between these two terms is important to increasing understanding and participation in climate change planning, both in terms of mitigation and adaptation.