Local Government Association

Climate emergency

Fire and rescue services

Report

Foreword

As we approached the end of the last decade the effects of extreme weather, including the devastating bushfires in Australia and the flooding experienced in the UK, demonstrated the potential disruption we face in a changing climate.

With 2019 seeing record high temperatures[1] and announced as the second warmest year on record[2], it is clear that this is an issue that will only become more pressing as we move through the next decade.

As climate change continues the impact on the fire and rescue service (FRS) will become more pronounced. We have already seen that the weather can impact our work, in 2018 we saw a 28 per cent increase in secondary fires linked to the hot, dry summer[3], and the Whaley Bridge Dam, which started to collapse following days of heavy rain in summer 2019, led to a nationally supported and coordinated FRS response.

These events also have a clear cost to the climate. A 2018 wildfire in northern Scotland released into the atmosphere the equivalent of six days' worth of Scotland's total greenhouse gas emissions, burning for six days across 5,000 hectares.[4]

The Government has committed to achieving net zero greenhouse gas emissions by 2050. It is clear that we all have a part to play if we are going to achieve this national target locally. The Local Government Association (LGA) has already declared a climate emergency following in the footsteps of a significant number of councils.

1 https://www.metoffice.gov.uk/about-us/press-office/news/weather-and-climate/2019/record-breaking-heat

2 https://news.un.org/en/story/2020/01/1055392

3 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/845846/fire-and-rescue-incident-jun19-hosb2819.pdf

4 https://airqualitynews.com/2019/11/20/scotland-wildfires-released-six-days-worth-of-carbon/#

Therefore, we need to ask how we, as a sector, are going to meet these challenges? This report starts that conversation. It is already clear that fire and rescue authorities (FRAs) will need to adapt to the challenges posed by current climate change as well as trying to mitigate its impact by reducing greenhouse gas emissions.

However, there are wider national conversations that need to happen to ensure that the sector has the resources it needs to deliver the Government's targets and meet the needs of our communities.

This report provides a basis for having local conversations about adaptation and mitigation, as well as providing comments and case studies from a range of organisations and programmes working on the issue.

We still have a way to go as a sector but at a national, local and individual level we all have a part to play in driving our activity on this issue forward.

Councillor Ian Stephens
Chair, Fire Services Management Committee (FSMC)

International commitments

Climate change is a global issue. Much of the work underway in the UK is underpinned by international work done through the United Nations (UN). The sustainable development goals and the Paris Agreement, in particular, have provided the basis for work.

In 2015 the UN developed the 2030 Agenda for Sustainable Development, containing 17 sustainable development goals (SDGs). SDG 13 is specifically on climate change, stating the need to take urgent action on climate change and its impacts. The UN has identified that between 1998 and 2017, direct economic losses from disasters were estimated at almost $3 trillion and climate-related and geophysical disasters claimed an estimated 1.3 million lives.[5] In their last assessment of progress in 2019 the UN said that 'far more ambitious plans and accelerated action are needed on mitigation and adaptation'.

Our Government has committed to the delivery of the SDGs, the aim of which is to provide a blueprint for ending poverty and other deprivations. The SDGs interlink work to improve health, education, improving gender equality and economic growth with tackling climate change.

The Paris Agreement was developed in 2015 and commits the UK and other countries to a global temperature rise this century of well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.[6] The UN has stated that the implementation of the Paris Agreement is essential to the achievement of the sustainable development goals.

The UK pledged, with other EU members, to agree to a 2030 target of at least a 40 per cent reduction in emissions below 1990 levels.

Following the Paris Agreement, the UN's Intergovernmental Panel on Climate Change (IPCC) was asked to report on the impact of global warming of 1.5 degrees Celsius above pre-industrial levels and the risks associated with 1.5 degrees Celsius of warming compared to 2 degrees Celsius. The report, published in October 2018, stated that human-induced warming had already reached about 1 degrees Celsius above pre-industrial levels, and stated, with a high degree of confidence, that temperatures are likely to reach 1.5 degrees Celsius between 2030 and 2052 if warming continues at the current rate.

The report identified numerous far reaching risks with a global increase in temperature to 1.5 degrees Celsius, which became more acute if the global temperature was raised by 2 degrees Celsius, including drought; flooding; wildfires; heatwaves; rising sea levels; species loss and extinction; marine biodiversity, fisheries, and ecosystems; risks to health, livelihoods, food security, water supply, human security and economic growth. The report states that to limit warming to 1.5 degrees Celsius will require a rapid escalation in the scale and pace of change, particularly in the coming decades.[7]

5 https://sustainabledevelopment.un.org/sdg13

6 https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

7 https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_Chapter4_Low_Res.pdf

UK commitments

The Climate Change Act 2008 is the key piece of legislation setting out the UK's approach to tackling climate change. The Act originally set a target for reducing greenhouse gas emissions to 80 per cent of 1990 levels, however in 2019 the Act was amended. This put in place a new target: that the UK will deliver net zero greenhouse gas emissions by 2050 (compared to 1990 levels). It also introduced five-yearly carbon budgets, which place a restriction on the amount of greenhouse gases the UK can emit over a five year period.

What does net zero mean?

'Net zero' refers to achieving an overall balance between emissions produced and emissions taken out of the atmosphere. This is different from a gross zero target, which would reduce emissions from all sources uniformly to zero, a net-zero emissions target allows for some residual emissions.

www.lse.ac.uk/GranthamInstitute/news/what-is-net-zero

The Act created the Committee on Climate Change, which is an independent, statutory body whose purpose is to advise the Government and devolved administrations on emissions targets and report to Parliament on progress made in reducing greenhouse gas emissions and preparing for climate change.

The Act also requires the Government to produce the Climate Change Risk Assessment every five years, assessing the current and future risks to the UK as well as looking at opportunities from climate change. The Act requires the UK to produce a National Adaptation Programme for England. The last Climate Change Risk Assessment was produced in 2017 and set out six priority areas:

1. flooding and coastal risks to communities, business and infrastructure
2. risks to health, wellbeing and productivity from high temperatures
3. risks of shortages in the public water supply, and for agriculture, energy generation and industry, with impacts on freshwater ecology
4. risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity
5. risks to domestic and international food production and trade
6. new and emerging pests and diseases, and invasive non-native species, affecting people, plants and animals.

Apart from the final area, all are designated as 'more action needed' meaning that new, stronger or different government policies or implementation activities – over and above those already planned – are needed in the next five years to reduce long-term vulnerability to climate change.[8]

8 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/584281/uk-climate-change-risk-assess-2017.pdf

What risks are we facing as a country?

Carol Holt Deputy Director, Preparedness and Recovery
The Environment Agency

What is the Environment Agency (EA)?

The EA is Europe's biggest environmental protection organisation and our single purpose is to create a better place for people and wildlife, with 10,000 people up and down the country making it happen. This is achieved through protecting and enhancing the environment by regulation and creating new habitats. Protecting people from flooding by building and operating flood defences and warning and informing communities when floods threaten. We work with planners to design and build cities which are life-enhancing, particular places that will cope with the biggest challenge of our time; the climate emergency.

Current risks

The rise in global temperature over the last several decades is a matter of public record with overwhelming scientific consensus that it can only be explained by one thing – the rise in greenhouse gas emissions caused by human activities, and that this in turn is causing more extreme weather and rising sea levels.

As the Environment Agency, right now:

- We are seeing more extreme rainfall and more extreme flooding. In 2015 a gauge at Honister Pass in Cumbria recorded 341mm of rain in 24 hours, a new record. That rain caused some of the worst flooding in living memory.
- In 2017 there were flash floods at the Cornish coastal village of Coverack. They were caused by an extreme rainfall event which set a new UK record for three-hour rainfall intensity.
- We are seeing more extreme heat. Last summer's prolonged dry weather caused local droughts, environmental damage, fires, pollution, and the death of wildlife. EA teams responded to three times the normal number of pollution incidents – including going out and rescuing fish that were in distress because of low water or oxygen levels.
- We are seeing rising sea levels. The Thames Barrier, which the EA owns and operates, protects London against flooding from high tides. It has the higher predicted sea level rise designed in, and will be sufficient until around 2070, but we are already planning its successor, which will have to cope with the significantly higher tides and sea levels we know will happen as a result of climate change.
- We are seeing impacts on national infrastructure as it comes under greater pressure from climate change. In Summer 2019 Toddbrook Reservoir in Whaley Bridge nearly failed after heavy rainfall. A disaster was narrowly averted – and the Environment Agency was at the heart of that operation alongside the FRS. But like Toddbrook, much of our infrastructure is Victorian: it's aging and it wasn't designed for the more extreme weather climate change is causing. That is bringing greater and greater risks.

Future risks

If we do not tackle climate change you will begin to see:

- More frequent and more extreme flooding and coastal erosion, caused by wetter winters, heavier rain, stronger storms and rising sea levels. That threatens all of us, because floods destroy lives, livelihoods, and communities.
- More water shortages and higher drought risk, caused by the hotter drier summers and less predictable rainfall. That would do deep damage to our economy and our environment.
- More frequent and more extreme fires and wildfires, such as we saw in the UK and around the world last summer, often with terrible cost to humans and wildlife.
- More air and water pollution, due to those longer, hotter summers. That will threaten plants and animals, our wider environment and our own health.
- More damage to wildlife and the habitat on which it depends. In many cases that damage may be existential. If we continue to emit greenhouse gases at the same rate as today, then by 2050 one million species across the globe are likely to vanish.

The Government's 25 Year Environment Plan (www.gov.uk/government/publications/25-year-environment-plan), produced in 2018, commits the Government to take all possible action to mitigate climate change, with the new environmental watchdog holding government to account on their climate performance. The Department for Environment, Food and Rural Affairs is currently working on the third National Adaption Programme (NAP) report, which sets out what government and businesses need to do to become more resilient to the effects of a changing climate.

For our part, we practice what we preach and tackling the climate emergency is our top priority. We continue to regulate industry, farmers and the energy sector. We work with local authorities to create better places designed for the future climate and work with water companies to manage risks and short-term consequences of drought ensuring better water security. We will build flood defences that are explicitly designed for greater climate resistance and we have set ourselves the hard goal of becoming a net zero carbon organisation by 2030, even though we don't have all the answers yet. If this isn't tough enough, we aspire to be absolute zero by 2050 – one that does not produce carbon at all.

We will continue to work strategically with all our stakeholders to better prepare. We already work with the National Fire Chiefs Council (NFCC) across different themes; environment, waste and industrial fires, and flood response and in the near future creating EA Waste Tactical Advisors who will have enhanced knowledge and understanding of fires to support FRS and our collective response.

What is the fire service role in tackling climate change?

Nathan Travis Lead for Environment and Climate Change
National Fire Chiefs Council, Chief Fire Officer, Hereford and Worcester Fire and Rescue Service

When day-to-day emergencies happen in our communities such as fires or road traffic collisions, the expectation is that the FRS will respond quickly and provide a professional and caring service whatever the time or circumstances. But what are the expectations of politicians and local communities when they are faced with extreme events linked to climate change (such as wide-scale flooding, blizzards, heat waves, droughts, structural collapse and wild fires) – all which have the potential to devastate whole communities and pollute large areas of the environment?

In terms of managing the impacts of climate change (both in respect to mitigation and adaptation) FRSs find themselves in a different position compared to most organisations, insomuch that not only do they need to manage and maintain their own assets and resources when faced with extreme events but they are also expected to mobilise those assets and resources promptly and effectively in order to intervene and help the public, businesses and communities when their own plans have failed. In other words, their primary role is to help others in emergency situations when they are struggling to help themselves.

Of the local FRSs that serve the UK, it is fair to say that these expectations can differ significantly – and local priorities can vary greatly as a consequence. Some services have climate change adaptation and mitigation as a key focus for both the way they manage their organisations and the range of additional specialist rescue services they are able to deliver. But in a world that has been dominated by financial austerity for over a decade, others have been forced to focus on their core statutory requirements and little else.

In the FRS context, adaptation refers to adapting our working practices and our physical assets (such as our buildings and equipment) in order to reduce our vulnerability to actual or future climate change, whereas mitigation usually refers to the planned organisational activities focussed on reducing and preventing the release of greenhouse gases into the atmosphere. In an operational context, mitigation can be associated with our emergency response and recovery work aimed at directly reducing the worst impacts of extreme weather events on local communities when they occur.

Nevertheless, whatever the prioritisation and resources available, each FRS will use its integrated risk management planning (IRMP) process to identify and assess all appropriate 'fire and rescue related-risks' in their area with a view to preventing emergencies happening in the first place, putting in place protections to mitigate their impacts and/or responding to them when they do occur.

In addition, FRS's have collaborated effectively with each other over this period (as well as with other emergency services and across government departments) in order to provide effective mutual assistance when needed or the much wider National Resilience capability that can be mobilised promptly and coordinated centrally to provide assistance to communities across the country faced with major incidents such as the wide-area flooding or wildfires.

With this in mind, the role of the National Fire Chiefs Council (NFCC) is not to provide firm proposals as to how the UK's FRSs will

adapt their services over the next few years in order to meet the challenges of responding to climate change-driven emergencies – that will be down to each individual FRS to decide based on their own operating context and their analysis of the organisational and operational risks they are faced with. What the NFCC will do, however, is highlight the changing nature of the climate change risk as well as sharing good practice guidance in respect to both operational and organisational working practices so that services might use that to help develop both their own local capabilities and their partnership arrangements. Having said that, NFCC will lead on the on-going National Resilience capability debate on behalf of all UK FRSs (in partnership with central government and the devolved administrations), in order to meet the growing challenges of climate change across the whole of the country.

How will fire and rescue services continue to mitigate and adapt to climate change?

Looking to the future, FRSs will continue to change and develop their prevention, protection and emergency response activities in line with changing risks to local communities – of which climate change-driven risks are fast becoming a high priority.

The anticipated increase in scale and frequency of flooding, wildfires and heatwaves – resulting in things such as landslips, subsidence and sinkholes, as well as water and heat damage to buildings and infrastructure – not to mention the related health and wellbeing impacts both on people's physical and mental health – means that services will continue to play a key collaborative role with partners at both local and national resilience levels.

It is expected FRSs will continue to build on already well-established policies, procedures, plans, capabilities and partnerships with other emergency services, the Environment Agency, councils, the NHS, utility companies and the voluntary and community sector. These will not only be focussed on dealing with extreme weather events when they occur but also on the subsequent combined efforts of Local Resilience Forums to return their communities back to normality after the emergency phase of any incident has subsided.

In fact, FRSs have a significant role to play in protecting all of the key areas of national vulnerability identified in the latest Climate Change Risk Assessment (2017) and the associated National Adaptation programme (2018), namely: the natural environment and natural assets; infrastructure; people and the built environment; business and industry. The important operational contribution of FRSs from across the country to the Toddbrook Reservoir breach near Whaley Bridge in Derbyshire last summer being a recent good example of a coordinated FRS response at a national level. In relation to environmental sustainability, FRSs are also able to proactively and positively contribute to the country's carbon reduction ambitions by adapting their organisations and their working practices – whilst at the same time promoting themselves as positive organisational role models.

Examples of this from across the UK can include: the adoption of certified environmental management systems (eg ISO 14001); procurement processes that take into account sustainability; collaborative support for and commitment to a number of city Clean Air/Ultra Low Emission Zones; greener renovation and construction of buildings; promoting environmental competitions that positively change the behaviour of teams on frontline stations (such as Green Action and Plastic Free Day); greening of fleets; investment in the development of zero-emission capable fire appliances; and smart utility metering – to name a few.

In conclusion, both the NFCC and individual FRSs have key roles to play in helping communities manage and deal with the growing impacts of climate change – not only

as important responders/coordinators to a wide range of emergencies, but also as well-trusted influencers.

In fact, the scope of that influence is potentially very wide. Whether it is influencing the behaviours of individuals and communities to help make them more resilient to the impacts of climate change, to working with partners to ensure multi-agency response arrangements are effective and joined up. However, it is also about engaging with government departments and ministers regarding the future investment options in to FRSs so that they are capable of adapting to and delivering on the country's expectations.

Fire and rescue service activities

Leadership, adaptation and mitigation

We all have our part to play if we are going to reduce our carbon emissions in line with the Government's goal of net zero by 2050.

There are two key elements in tackling climate change – adaptation and mitigation. Adaptation refers to adapting our practices and reducing our vulnerability to actual or future climate change, whereas mitigation refers to reducing and preventing the release of greenhouse gases into the atmosphere. This can be either by reducing the sources of these gases (eg the burning of fossil fuels for electricity, heat or transport) or enhancing those resources that accumulate and store these gases (eg oceans, forest, soil, peatlands).[9]

These two components provide a pathway for fire and rescue authorities to consider their own activities and how the service can impact on greenhouse gas emissions. However, fire and rescue authorities also have a role in providing local climate leadership, working with their communities and with their councils to provide a focus for activity.

Climate leadership

Fire and rescue authorities have a role to play in responding to climate change at a local level, alongside our local councils. Fire and rescue authority members can also provide individual leadership, helping to provide a joined-up response to the issue at a local level.

Councillors can build support for the issue, providing a vision at the local level and identifying opportunities for mainstreaming climate action in their organisations. They can participate in plan making and decisions on climate action as well as representing the concerns and perspectives of their local communities.[10]

Climate leadership at a local level therefore includes:

- demonstrating leadership within the local authority, developing a vision and mainstreaming ownership and responsibility
- communication and engagement, listening and engaging with the community
- establishing partnerships for action
- making things happen, eg supporting local energy projects actively championing flood defence measures
- representing: advocating for change at national, regional and local levels, looking after the interests of the vulnerable
- empowering communities: providing support, funding, information and capacity
- transparency and accountability about goals, actions and progress against targets.[11]

Partnership working across the local area will be key to ensuring a coordinated response to the risks and opportunities posed by climate change – councillors can help to facilitate this through their work within their own councils.

9 https://climate.nasa.gov/solutions/adaptation-mitigation/

10 www.local.gov.uk/councillor-workbook-acting-climate-change

11 www.local.gov.uk/councillor-workbook-acting-climate-change

Adaptation and mitigation

It is up to the local area to identify the particular risks that they are facing due to climate change and how the service can adapt to meet these. However, below are a range of suggested activities that might help to provide a starting point for those discussions locally.

Role in adaptation

Adaptation means changing practices to reduce vulnerability to climate change. There are a number of ways in which the fire service can adapt to climate change. This will include operational change as well as changes to wider ways of working.

The NFCC's Operations Committee has already identified a number of areas affected by climate change (including flooding, wildfire and building collapse) to focus its work on. The Operations Committee provides advice and good practice guidance around operational issues and inputs into discussions around national resilience, including on climate change. These areas also form part of the ongoing assessment of national resilience capability that the NFCC is currently engaged in with the Home Office – which looks to review and develop both established and new capabilities to meet the changing needs of the country.

Alongside adapting our operational activities, FRSs will also need to consider how the service can best use its established fire prevention activities to tackle climate change. Our expertise in these areas means that as we identify new risks to our communities as a result of climate change, we can develop our prevention, protection and emergency response to take account of these risks.

The following provide an overview of the sorts of activities that fire services and authorities could start to take to adapt to climate change:

1. Identify areas within the local area that are vulnerable to extreme weather events – ensuring that these are included within the IRMP and Local Resilience Forum's Community Risk Register and that firefighters are trained appropriately to face local risks.
2. Work in partnership with other organisations to understand the risks facing the local area and who is best placed to respond to particular issues. There may be some activities where councils have a lead role but fire authorities can provide a resilience perspective – eg around housing and planning to help ensure that we have a resilient built environment.
3. Working with communities to help them understand the risks they are facing from the changing climate, including helping the most vulnerable by understanding who is most at risk from the impacts of extreme weather such as flooding, over-heating and the cold.
4. Working in partnership with others to share services and increase purchasing power.
5. Making sure the local area is prepared to manage future weather-related issues, in terms of business continuity and costs such as the repair and clear-up from flooding and storm damage.

Role in mitigation

Mitigation will require us to look internally at our own fleet, estate, waste, procurement, water use and energy usage to reduce the amount of greenhouse gases we are emitting within our day-to-day activities.

Again, our prevention activities will be key. Preventing fires will mean that we can reduce the release of further greenhouse gases into the atmosphere as a result of fire.

Fires release carbon dioxide, for example the recent Australian bushfires are likely to cause a significant increase in the concentration of carbon in the atmosphere in 2020. The Met Office have forecast that the fires will contribute up to one fifth of the increase in carbon emissions we are likely to see in 2020.[12]

The service already has a strong role and clear expertise in preventing fires, therefore we must consider how we can put this to best use when looking at issues such as wildfires and how we might work with partners to protect natural climate stores – eg forests, peatlands, etc. Each area will have its own risk factors and vulnerable areas that they are already working with so messages can be tailored effectively.

However, there are also our own internal activities that need to be considered when thinking about how to mitigate the impact of climate change. In 2018 transport accounted for a third of all carbon dioxide emissions in the UK and the use of natural gas for heating was the main source of greenhouse gas emissions for the public sector[13], meaning that both our estates and fleets have an important role to play in helping us to decrease our greenhouse gas emissions.

There are a number of activities that services could undertake that would help to do this. It is clear that these would require investment on the part of the FRA, although some activities could save services money in the long run, for instance through reducing energy costs by making buildings more energy efficient. Previous LGA work has suggested potential savings for low cost, quick payment energy efficiency measures range from £60,000 to £2.4 million a year depending on council size.[14]

Ashden, an environmental charity, have worked with Friends of the Earth to develop a list of the most effective actions councils can take on climate change: www.ashden.org/programmes/top-31-climate-actions-for-councils

The 31 actions are quantified in terms of likely carbon savings, approximate cost and co-benefits. Whilst several of these are specific to councils there are a number of activities identified that fire and rescue authorities can undertake to reduce their carbon emissions:

1. Retrofit buildings to be more energy efficient – upgrade insulation and heating systems. Competitions such as the Green Action initiative (more on pages 29-30) can show what fire stations have been able to achieve individually.
2. Require renewable energy in fire authority owned buildings.
3. Deliver a rapid transition of the authority's own fleet to electric.
4. Encourage energy saving amongst our own staff, and reducing the use of single use plastic amongst staff.
5. Cut paper waste by using electronic systems for papers.
6. Encourage car sharing amongst staff.
7. Use food waste according to the food waste hierarchy of prevent, reuse, recycle, and use remaining biodegradable waste to generate biogas.
8. Committing to emissions zone.
9. Improving recycling rates.
10. Through procurement, ensure the local authority supply chain is minimising carbon emissions.

The list is not exhaustive, but it provides a starting point for councillors to consider what their own fire authorities can be doing. Some activities will be easier to introduce than others which will require further investment.

12 https://www.metoffice.gov.uk/about-us/press-office/news/weather-and-climate/2020/2020-global-co2-forecast

13 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/790626/2018-provisional-emissions-statistics-report.pdf

14 www.local.gov.uk/sites/default/files/documents/potential-energy-efficien-10a.pdf

Several FRAs have already undertaken work to improve the energy efficiency of their estates and their fleet, examples of which are examined in more depth in the case studies section of this report.

Fire authorities may also wish to consider what we as a sector need to do at a national level. The sector needs funding to be able to invest in new ways of working as well as technology, however how we identify local risks will help to contribute towards this.

NFCC Community Risk Programme (CRP)

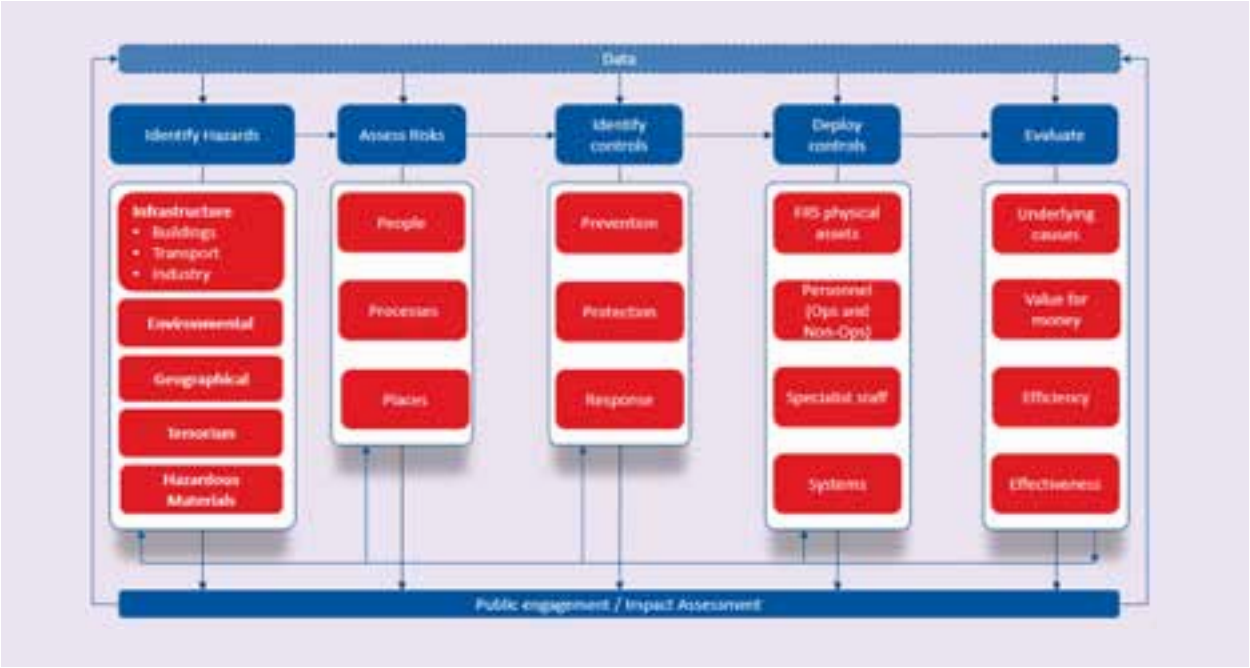
Phil Loach Community Risk Programme Lead – Climate Change
National Fire Chiefs Council, Chief Fire Officer, West Midlands Fire and Rescue Service

The aim of the NFCC's Community Risk Programme (CRP) is to provide a digital toolkit that will support fire and rescue services to develop their IRMPs. This will help to bring greater consistency to the process of identifying and assessing risk, including those from climate change, whilst providing local flexibility for services to identify individual risks.

A key component of an IRMP is to identify hazards and assess risk, followed by developing an action plan for how a fire service intends to mitigate or respond to the risks identified. The UK FRS is already used to dealing with incidents influenced by climate change, for instance flooding and wildfires. However, research is now pointing to an increase in severity and likelihood of these types of incident. This will impact directly on both the local response of the FRS and the national arrangements in place to deal with such incidents. We need to ensure that we are building a strong evidence base on the impact of climate change within the work of the CRP, to help the service make informed decisions around these risks as part of the IRMP process.

How the CRP will support FRSs in meeting the challenges of tackling this

The CRP has developed a model to support FRSs in all stages of their IRMP to help them assess risks including those linked to climate change. This model will provide a systematic approach to allow services to identify hazards, assess risks, identify control measures, deploy resources and evaluate the effectiveness of its response.



Whilst climate change has been the topic of discussion amongst scientists and activists for a number of years, it has only recently grown in prominence for the public. Whilst much focus remains on how to reduce the speed with which climate change is occurring, the FRS must be ready to respond to such incidents effectively to reduce their impact on communities.

The CRP has identified that as budgetary constraints have hit the service, there has understandably been a concentration on meeting demand for the service. However, this has limited the sector's ability to not only identify future risk but predict its impact and therefore the resources required to meet the needs of communities or lessen them. When looking at extreme weather events, each of these incidents will require different resources to meet the risks that they pose, whether that's specialist equipment, staff or training. We must therefore be versatile to be able to match resources to risk to ensure that services are able to deal with such incidents effectively.

In line with the NFCC position that the fire service should be resourced to risk, not historical demand, the CRPs toolkit will provide the guidance and advice to ensure that FRSs conduct horizon scanning exercises to plan for future short and medium-term changes to risk within its service area.

Key for the CRP is the requirement for the toolkit it is developing to provide consistency for FRSs when identifying and analysing risk but the flexibility for FRSs to take into account regional variations that may arise.

However, an important layer to this is the need for FRSs to understand their value in contributing to the response effort to incidents linked to climate change in order to mitigate its impact. To support FRSs in achieving this, the CRP has commissioned a project, with support from the Home Office, to look at the economic and social cost of incidents which can then be used to determine the investment and value of the FRS.

How can we use our procurement practices to drive this agenda?

Fire and rescue services (FRS) collectively spend around £500 million a year – £200 million of which is spent on construction, facilities management and fleet which incorporates category spend on energy, fuel and waste management. This gives the fire and rescue sector significant spending power and leverage in tackling climate change. The collective spend can be used to help shape the development of innovation and encourage more energy-efficiency with the vehicles and equipment the service uses and in the buildings we operate out of.

Procurement policy should be developed to establish principles and processes within the FRS so that climate change objectives lie at the heart of the decision-making process.

Climate change implications should be considered from the outset and at all stages of the procurement process, from stakeholder consultation, early market engagement, through to product specifications, evaluation criteria and performance outcomes.

Procurement can play a prominent role with the delivery of climate change strategies through:

- innovation and revision of specification
- collaboration
- sustainability
- reducing energy consumption, switching to renewable energy sourcing
- embedding social value initiatives.

Innovation and revision of specification

Consideration needs to be given to the extent that product specifications can be rationalised to deliver climate change benefits, prepare the FRS for the changing types of incident it will face in the future, and ensure that existing standards of firefighter safety are not reduced but are improved wherever possible.

Not only will we need to consider the incidents we will be going to as a result of climate change, but also how the service can work to specify and implement new 'greener' vehicles and equipment that will enable the FRS to respond to these incidents. Recently the FRS worked in conjunction with manufacturers to deploy new synthetic materials, plastics and electronics to deliver improvements in firefighting, fire protection and firefighter safety. It is vitally important that these benefits are not lost but the challenge now is to work with manufacturers to identify ways in which these improvements can be maintained but with a reduced environmental impact. An example of this can be seen in the work between Essex FRS and the Environment Agency.

Case study

Essex Fire and Rescue Service and the Environment Agency

Essex County Fire and Rescue Service has worked collaboratively with the Environment Agency to create a framework for use by all UK fire and rescue services for firefighting foam. The framework was produced for the Operational Equipment category under the Fire Commercial Transformation Programme. The framework is broken down into nine lots based on the risk classification; all foams were scored and selected on a number of criteria and the weighting varied according to the use of the foam.

Firefighting foam is incredibly effective at putting out fires, saving lives and property. Sadly, it is also incredibly polluting.

When it is used on a fire it can enter drains which then flow into our rivers. Rivers that are used for drinking water, watering crops, industry, fishing, bathing and other recreation. These rivers are havens for fish and invertebrates.

Many firefighting foams contain harmful persistent chemicals, which break down when they are in water and can be toxic to fish. When the foam breaks down it is an enormously rich source of food for the natural bacteria existing in our rivers. The bacteria break down the foam, which uses the oxygen present in the water. The oxygen is used up by the bacteria breaking down the foam faster than it can make it back into the water. In some cases all the oxygen in a river can be removed causing fish to suffocate.

The Environment Agency (EA) asks that whenever foam is used the FRS notify them so we can manage the impact.The EA work closely with services during incidents offering advice and guidance concerning pollution.

When Essex decided to establish a national foam procurement framework, they approached the EA to be involved. The EA were asked to provide scoring criteria that would see the least polluting foams receiving preferential weighting.

The scoring criteria included how toxic the foams were to fish and invertebrates, the presence of hazardous chemicals and importantly how rich a food source for bacteria they are (or their biochemical oxygen demand in technical terms).

In the past foam, manufacturers often did not supply the specific environmental impacts of their products. So now even knowing the environmental impact is a massive advantage to environmental protection. The impact to land and water pollution this will have is incalculable but hugely significant. The tender process may well be repeated. Now that suppliers know environmental criteria will be used they will no doubt design this into any new products. This is a really positive step forward.

Both the FRS and the EA were delighted to work together, and it helped to strengthen the working ties between both organisations.

A key aspect of this work will be to review and revise specifications to identify opportunities for the FRS to contribute positively to reducing and managing the impacts of climate change operationally and from an impact viewpoint.

Working together to develop specifications across the FRS of goods specific to firefighting – fleet, personal protective equipment (PPE), respiratory protective equipment/breathing apparatus (RPE/BA) – will provide cost benefits to the sector. It will provide manufacturers with the confidence to invest, knowing that their significant development costs needed to meet the FRS's requirements will result in vehicles and equipment being adopted by the majority of fire and rescue authorities, not just a few.

Collaboration

The diversity of size and spending power of individual fire and rescue authorities means their procurement functions differ vastly in terms of capacity and capability. The NFCC has an established programme to bring together FRSs to procure items together. However, there may also be other opportunities, which can be explored, to buy non-fire specific products – such as energy and waste management with existing blue light partnerships, other fire and rescue authorities and councils.

Sustainability

Sustainability can be embedded into procurement to support the objectives of an FRA whilst adopting an approach to reduce consumption wherever possible. FRAs can take environmental factors on whole-life costings into account in the evaluation of price – accounting for the costs of energy consumption, recycling and climate change mitigation.

It's also important to build flexibility into long-term contracts to accommodate changes to sustainability targets and obligations that are likely to evolve in an ever-changing landscape of new legislation and technology.

Reducing energy consumption, switching to renewable energy sourcing

FRAs can look to reduce their energy demand through cultural behaviour change and energy efficiency retrofits, whilst looking to source renewable energy through working with other local public sector bodies, including councils and existing blue light collaborations. Due to the proximity of FRAs to councils – in both geographical and organisational terms – non-fire specific goods and services, including energy and waste management services can be bought alongside other local public sector bodies/blue light services.

FRAs can reduce demand for energy across their portfolio in a variety of ways:

- monitoring and targeting energy consumption
- engaging with employees to embed an energy efficient culture
- retrofitting energy efficiency measures
- implementing Energy Performance Contracts (EPCs).

Fire and rescue authorities can also procure electricity from suppliers specialising in renewable energy sources using long-term contracts including power purchase agreements.

Embedding social value

As part of their procurement processes many public sector organisations now seek social value 'additionality' as part of their procurement requirements. Buying locally, engaging local supply chains and investing in local economies has the benefit of reduced transport costs, creating new jobs in the community and being able to influence suppliers to include carbon reductions, energy efficiency measures, biodiversity and air pollution policies in their contracts. The LGA has developed a toolkit on understanding and implementing social value, which is available on the LGA's website: www.local.gov.uk/achieving-community-benefits-social-value

FRAs can also establish a senior fire officer to champion climate change strategies, which will help to ensure sustainable, climate mitigating procurement policies are embedded throughout the fire and rescue authority.

Case studies

Case study

London

We have been working on reducing our carbon emissions since 2004 when we published our first environmental policy. Reporting a 50.3 per cent reduction in carbon dioxide emissions from 1990 levels in 2019. The recent declaration of a climate emergency by the Mayor of London and the introduction of a new carbon zero target, have provided an opportunity to identify what more we can do. The Mayor's ambition, outlined in the London Environment Strategy (LES), is for London to become zero carbon by 2050 and achieve a reduction of 60 per cent in greenhouse gas emissions by 2025.

It is clear that climate change will impact considerably on the fire and rescue service, in the types and frequency of incidents, and on how we plan our resources. The Government's latest UK Climate Change Projections suggest that by 2050, London could see an increase in mean summer temperature of 2.7 degrees, an increase in mean winter rainfall of 15 per cent and a decrease in mean summer rainfall of 18 per cent from 2010 to 2050.

Activities

We instigated our first comprehensive programme of energy efficiency improvements across our sites in 2005 and have delivered an ongoing programme of installing energy efficiency measures and renewable energy generation at brigade premises since then. Most low complexity measures with short-term gains, have been installed.

Examples of these types of quick wins include:

- installing lighting control upgrades to LED and passive infra-red (motion) sensors – internal/external lights
- reducing the use of floodlighting throughout the estate
- optimising the on/off control of heating systems
- removing inefficient heating systems and controls
- photovoltaics installations
- installing improved fenestration to premises
- controlling appliance bay temperatures to prevent waste heat escape
- draught proofing, cavity wall, loft, roof, and pipework insulation.

We are now looking at other ways to increase the energy efficiency of our estate in the longer term.

We have reviewed where and how we can reduce our greenhouse gas emissions further in line with the Mayor's targets. Our Carbon Strategy for 2019-2025 set out the sources of our carbon emissions. As shown in the table over the page, the majority of our emissions come from the electricity and gas used in our buildings.

We have a fleet of over 400 vehicles that account for around one quarter of our carbon emissions. The vehicles range from light cars and vans through to heavy specialist vehicles. Some 13 per cent of the fleet has already achieved zero emission capable, 61 per cent of our fleet are now compliant with London's Ultra Low Emission Zone, including vehicles

Source of emissions	Proportion of emissions – per cent	Sub-category – per cent		
Buildings	71.4	Gas	Electricity	
		36.0	35.4	
Fleet	26.9	HGVs	Light vans	Low emission cars
		23.0	3.8	0.1
Grey fleet*	1.2	Lease	ECUS	Casual
		0.4	0.4	0.4
Air travel	0.5			

*Leased and private vehicles used by operational staff for business travel including attending incidents

based outside the zone. This is supported by electric vehicle charging facilities at some 102 Brigade sites. Our nine publicly accessible charging points continue to be popular, accounting for 38 per cent of charging at all points and 90 per cent of their usage is by the public. Electricity usage for charging continues to account for less than 1 per cent of our emissions from electricity.

London's Ultra Low Emission Zone

In London an Ultra Low Emission Zone (ULEZ) operates 24 hours a day, seven days a week, every day of the year, except Christmas day, within the same area of central London as the Congestion Charge. Most vehicles, including cars and vans, need to meet the ULEZ emissions standards or their drivers must pay a daily charge to drive within the zone.

Our current challenge is around our heavy vehicles, which make up the majority (~70 per cent) of our fleet. Due to their specialist nature they have long life policies and are more challenging to decarbonise. In order to push the market to develop suitable vehicles and to support a comprehensive testing regime to prepare for fleet wide roll out of low emission vehicles we have introduced a Zero Emission Pumping Appliance project. We are working towards procuring a zero emission capable prototype and to commence testing in 2021. Alongside this we are testing the market to offer low emission vehicle options as part of the replacement of some of our less challenging vehicles. Additionally, we are developing our proposals and assessing the feasibility of different infrastructure options to support the roll out of heavy low emission vehicles. Our aim is to be zero emission capable or fossil fuel-free from 2030 for all our heavy vehicles.

Next steps

Our carbon strategy includes a carbon reduction action plan covering a range of short to medium-term activities, taking us up to 2025. Working towards carbon zero by 2050 is expected to require significant changes to our reliance on gas for heating and hot water. Actions will include: trialling innovative renewable heating technologies; improving our building design to aid carbon reduction; further energy efficiency and use of onsite renewable energy; continuing efforts to decarbonise our fleet and controlling the use of air travel and looking further at our grey fleet. Additionally, we will explore power purchase agreements to increase the amount of new renewable energy generation supplied through the grid.

Behaviour change will be key to delivering carbon reductions. The behaviour of individuals will influence the success of the strategy through the actions they take, from making strategic decisions through to building users behaviour. We will continue our Green Champions programme, with over 200 champions in operational and non-operational roles, and look at how we can support decision makers to better understand the challenge faced and scrutinise how we work through a carbon literacy programme.

Case study

Avon

Reducing emissions

Avon Fire and Rescue Service has set itself a target to reduce carbon emissions from its sites and operations by 50 per cent by 2020 and 65 per cent by 2030. This is from a 2009 baseline and we are currently ahead of target, achieving an overall reduction of 57 per cent reduction in emissions by 2018/19.

Our environmental policy also includes a target to generate 20 per cent of our total energy demand from renewable energy (on and off site) by 2020. By the end of 2018/19, we had already exceeded the 2020 target, with 47 per cent of our total energy demand generated from renewable sources both on and off site.

We have undertaken a number of activities on adapting and mitigating our carbon emissions as well as working with our partners on issues such as the Clean Air Zones (CAZ) which are soon to be implemented in both Bristol and Bath.

Clean Air Zones

As a frontline public sector organisation with the mandate to make our communities safer, we recognise our duty to take responsibility and play our part in reducing pollution from our predominantly diesel fleet. The memorandum of understanding (MoU) that we have signed with Bath and North East Somerset Council (and other emergency service providers) sets out how each emergency service will demonstrate leadership to address air quality issues and manage fleets in order to reach compliance in the shortest possible time, within financial constraints and without compromising emergency response.

Under the MoU, we have been granted a concession to allow vehicles to enter the Bath CAZ without charge until 1 January 2025, subject to Avon Fire and Rescue Service stationing compliant vehicles at Bath Fire Station from commencement of the CAZ charging scheme in late 2020. Though the Bristol CAZ contains a permanent exemption for emergency service vehicles from charges, this is likely to be reviewed in the future.

A comprehensive fleet review was undertaken in 2018 by the Energy Savings Trust in light of the proposed Clean Air Zones in Bristol and Bath. This has assessed our current compliance/non-compliance with the Clean Air Zone restrictions and has identified opportunities to reduce emissions and/or replace existing vehicles with low emissions vehicles. Over 55 per cent of our frontline and ancillary fleet vehicles are compliant with the Euro 6 emissions standards and the first two electric vans have been introduced to our fleet. They are being used by the Community Fire Safety team at Bedminster and further electric car charging points have been installed, partly funded by national and regional grant schemes.

We are also currently involved in the research and development of zero emissions fire appliances, in partnership with other FRS services and a fire appliance manufacturer.

Climate mitigation

Other activities to reduce carbon emissions during 2018/19 have included:

- complete lighting upgrades with LEDs and smart controls at a number of sites
- building fabric improvements at a number

of stations, including plant room and pipework insulation, and installation of double glazed windows

- further heating system improvements at retained stations
- purchasing 100 per cent renewable electricity and 100 per cent green gas for all Avon Fire and Rescue Service sites
- installation of three further photovoltaic (PV or solar power) systems at Yate, Blagdon and Kingswood stations, bringing the total to nine systems (170 kW installed capacity).

Climate adaptation

We have increased resilience to climate change by ensuring the resilience of our infrastructure and functions, and by building our capabilities to respond to climate change related events as a front-line emergency service. Associated activities undertaken in 2018/19 include:

- The development and testing of detailed business continuity plans for all our sites and operational units so that we can continue to deliver our services to the public in the event of emergencies such as severe weather and flooding.
- Integration of climate resilience in our service plan (IRMP).
- Training and equipping our firefighters to deal with the associated emergency situations, including significant development of water rescue skills and resources (eg high volume pumps) to enable response to wide area flooding, continual development of our Urban Search and Rescue capabilities, and a range of specialist vehicles and equipment to effectively tackle incidents such as large-scale pollution events.
- Advice and inspection of businesses and industrial buildings, to challenge and support their own business continuity arrangements.
- Collaborative working with other emergency responders, councils and appropriate organisations through mechanisms such as the Local Resilience Forum so that we are able to provide resources that will ensure a targeted response. By doing this – and also providing training and support to local communities – we are able to ensure that events such as flooding or extreme cold weather do not overwhelm people.

Looking ahead: future challenges and areas of work

All environmental targets and policy will be reviewed during 2019/20, to align with the most up-to-date international and national policies and drivers. Other future activities to reduce carbon emissions and ensure environmental protection include:

- continuing to roll out a programme of energy efficiency measures in our buildings
- integration of low carbon technologies in energy-efficient new build fire stations at Avonmouth, Bath and Weston
- ongoing replacement of front-line and ancillary fleet vehicles with Euro 6 and low emissions vehicles
- the development of an ISO14001 compliant Environmental Management System.

Case study

Greater Manchester

The current Greater Manchester Fire and Rescue Service Sustainability Strategy (2014-2020) outlines an overall target of being carbon positive by 2050 and essentially moving beyond net zero. The Sustainability Strategy also has an interim target of achieving a 50 per cent carbon reduction by 2020 (from the 2008/09) baseline. As well as carbon targets, the strategy also outlines our ambition to become a zero waste organisation, causing zero pollution, creating zero wasted water, as well as being local leaders on sustainability.

By April 2019, we had achieved a 45 per cent reduction in carbon emissions from a baseline set in 2008/09.

Net positive carbon footprint

To move towards becoming a net positive organisation, we have:

- invested over £1 million in energy efficiency measures including LED lighting, voltage optimisation, dehumidifiers within drying rooms, insulation and heating controls
- 22 fire stations have solar PV systems, generating enough electricity to power 13 fire stations for a full year
- rebuilt four sites with high standards of energy efficiency
- introduced 11 electric vehicles, which reduce carbon emissions by 75 per cent when compared to combustion fuel equivalents
- our fire engines have 100 per cent recyclable polymer bodies making them 75 per cent lighter and enables annual fuel savings of 3 per cent
- commenced research into diesel consumption from fire appliances at incidents
- helped avoid around 80,000 tonnes of carbon from fires entering the atmosphere (since 2008) through our prevention work.

Zero waste

By 2050, we aim to be a zero waste organisation, which will require a move towards more closed-loop procurement systems. Our activities include:

- technical equipment such as hoses, fire engines and PPE donated through an ethical organisation to countries in need
- obsolete smoke detectors previously installed by Greater Manchester FRS are collected and returned to the supplier for repurposing to avoid unnecessary disposal
- firefighting PPE is composed of panels meaning that fabric panels can be replaced individually rather than the whole uniform
- our waste collection arrangements ensure that recyclable waste and general waste are collected separately leading to improved recycling rates.

Zero pollution

Our target for 2050 requires environmental protection to be fully built into firefighting activity whilst also ensuring that none of our sites pollute the environment:

- we have an Environmental Management System (EMS), certified to the ISO 14001 standard
- Bury Training Centre has a smoke scrubber to treat carbon emissions and weather monitoring technology to ensure local impacts are considered during training activities
- environmental protection techniques have been implemented at incidents including the recycling of firewater to reduce stress on mains water
- incident commanders can access key environmental information (eg drainage maps, SSSI information, key risks) to facilitate environmental protection in incident management and are trained in undertaking environmental risk assessments at incidents.

Zero wasted water

- For 2020, our aim is to understand the cost and scale of our water usage, and by 2050 we aim to have zero wasted water from our sites and incidents. We have:
- transitioned from 18mm hose reel to 22mm hose reel and use ultra-high pressure lances, reducing the water consumed at incidents
- installed automatic meter reading across our estate to identify excessive consumption patterns as well as leaks – one of which would have cost £32,000 per year if undetected
- installed rainwater harvesting in three stations which meets the demand created from toilet flushing and vehicle washing
- initiated a rollout of pressure washers across the estate to reduce water consumption from cleaning activities.

Leaders in sustainability

One of our key activities has been engaging staff and peer organisations in this work. We:

- have a network of over 100 environment champions, who feed into our activities and identify energy efficiency opportunities
- were part of the Net Positive Group, an international collaboration aimed at moving corporate sustainability thinking away from 'doing less harm' to 'having a benefit beyond profit'
- co-chair of the UK Emergency Services Environment and Sustainability Group
- ran Green Hose and Green Impact awards to identify to greenest fire stations and offices which led to a 10 per cent reduction in energy consumption as well as projects such as tree planting, community growing schemes and beehives on stations
- were the lead organisation in a Department for Business, Energy and Industrial Strategy (BEIS) funded pilot to develop a 'Carbon Literacy' training course that will be made available to any UK FRS.

Adaptation and mitigation

At an estates level, we are considering the future risks that climate change may pose towards operational activity. Our new training centre at Bury, located next to the River Irwell, features flood protection measures including roller shutters and above ground level areas for mechanical and electrical systems to ensure potential floods have limited impact on-site. Additionally, in 2014, we moved to North West Fire Control (NWFC), which now handles all fire related 999 calls made within Cumbria, Lancashire, Cheshire and Greater Manchester FRSs. The centre was built with environmental risks in mind, and is purpose built to high resilience standards, allowing its operation to continue in crises. Using the latest technology to improve our resilience and reduce costs (more than £500,000 per year for us), this collaboration is also acting as a springboard for further joint working

between the four services and others by providing the opportunity and facilities to work together on new projects.

The Greater Manchester FRS IRMP recognises climate change related incidents, such as increased floods and moorland fires, as an operational risk and strategic resource planning factors in such risks. By working with local partners and national partners such as the Environment Agency (EA), the organisation continues to ensure that preparedness to climate change events is efficient and effective. A good example of this is via the use of a joint-FRS and EA developed kit that enables the use of EA high-volume pumps with FRS hoses. This work with the EA was effective in tackling the wildfire on Saddleworth Moor in 2018.

Our IRMP also makes a commitment to maintain an ISO 14001 certified EMS to ensure the organisation continually improves environmental performance and reduces our climate impacts.

Our Service Delivery Model, which evolved from the IRMP, commits us to deliver services in a sustainable way, with environmental performance acting as a key focal point throughout organisational activity. To ensure that performance is measured and progressed against this goal, a corporate key performance indicator (KPI) has been implemented and focuses on the measurement of our carbon footprint.

Looking forwards

The Mayor of Greater Manchester announced that the region would target carbon neutrality by 2038, 12 years in advance of the Government's target. To drive immediate action, the Greater Manchester five-year environment plan was announced which details actions to rapidly progress action towards 2038. Pivotal in the paper was the announcement of a 15 per cent year-on-year carbon reduction starting with immediate effect.

Additionally, in Summer 2019, the Greater Manchester Combined Authority declared a climate emergency to ensure that the organisation takes action towards achieving a maximum 1.5 degree Celsius global temperature increase required by the Paris Agreement. The declaration was supported by an action plan detailing immediate, short and medium-term commitments to ensure immediate progress is made.

With the climate emergency declaration, carbon neutrality target and Greater Manchester five-year environment plan, Greater Manchester FRS will be aligning future activities alongside key themes within these areas and will assist the region in achieving the ambitions.

Additionally, a Mayoral Fire Plan for Greater Manchester is being developed and it is the intention that environmental sustainability ambitions will be fed into the plan to ensure that the future direction of Greater Manchester FRS aligns with wider regional targets around carbon reduction and environmental performance.

Case study

Green Action initiative

Green Action is an initiative first developed in 2017 by Avon, Essex, Hertfordshire, London and Greater Manchester FRSs to engage crews on fire stations across the country in environmental matters. It's comprised of two parts:

1. Energy Savers, a winter competition which sees participating stations across each service compete to reduce the most energy over a four month period by monitoring and taking ownership of their stations electricity and gas use.
2. A second phase summer campaign focuses on a specific theme such as single use plastic.

The role of FRSs is to protect and improve lives. With the impact of climate change on our communities becoming ever more obvious, working towards a more sustainable future feels like a good way to uphold that core purpose. Firefighters in particular see the reality of climate change first hand, so it is essential to our organisations that we address this within the FRS.

The five FRSs who developed Green Action recognised that more could be achieved collectively by scaling up our efforts. The sustainability representative from each organisation worked together to create a pilot programme that was then endorsed by WWF and Greenpeace, who provide certificates to participating stations. In 2018 participation grew to include Scotland Fire and Rescue Service and in 2019 to include Hampshire Fire and Rescue Service.

Green Action

The initiative began with conference call meetings between the sustainability representatives of the initial five participating FRS's to shape the campaign. In the first instance calls identified precisely what would be asked of crews (better energy management on stations), how long the first phase of Green Action Energy Savers should run for (four months), what data should be collected (gas and electric meter readings) and how performance would be monitored (kWh consumption compared to the same sites use the previous year). The group also agreed a common approach to weather correction (using heating degree day analysis) and accounting for any other factors that that would skew the data, eg station refurbishments. Further to this both internal and external communication channels were utilised to publish results of the competition.

Achievements and outcomes

The goal of Green Action Energy Savers is to encourage crews to take better ownership of their workplaces. Largely Green Action campaigns aim to raise awareness of climate issues and the actions everyone can take to address them. This will in turn reduce energy consumption, expenditure on energy budgets and the carbon footprint of each participating service.

At its conception Green Action was a pilot project to be reviewed after the first round of Energy Savers and therefore no targets were set. Having had such a successful first round

of the campaign, a broad target to sign up more stations the following year was set. The 2017 Green Action pilot saw 54 participating stations across five FRSs. By 2018 this had risen to 66 participating stations across six FRSs and in 2019 67 participating stations across seven FRSs.

Although no specific targets were set over the 2017/18 Energy Savers competition, the 54 participating stations collectively reduced energy use by 194,457 kWh. This is equivalent to the annual energy consumption of 12 average UK households. In addition to energy savings, the competition also helped services identify problems with energy supplies and consumption more quickly than they otherwise would have done.

The result of most value to the sustainability teams at each FRS is the behavioural shift seen. All FRSs had stations that reduced overall energy use. The average energy reduction made across the top 10 stations was 24 per cent and the winner of Green Action Energy Savers was Eltham Fire Station in London who made a massive 35 per cent reduction.

Green Action was shortlisted for the IEMA sustainability awards 2019. The IEMA is a professional body for everyone working in environment and sustainability, who use their awards to recognise the achievements of organisations and individuals from around the world demonstrating the success of Green Action.

The next step for Green Action is to improve the analysis of data, to make it clearer what the savings are per service. Green Action would also like to invite more FRAs and fire stations to join in with the challenges. Further information can be obtained by contacting Sarah Rimmington at Essex Fire and Rescue Service.

Case study

Hertfordshire

Jim Attenborough
Fire Protection Inspecting Officer

The station that I work on, Hemel Hempstead, is probably a typical example of many public sector buildings of its time. It was built before environmental issues, including climate change became so prominent and when energy was cheaper. It is a wholetime station with two fire appliances, the DEPU (decontamination and environmental protection unit) and crews based here, with day workers, rooms used by the community, the DVLA, and also the Princes Trust.

The building still had metal single glazed windows, no insulation or poor insulation in limited areas, two ancient boilers and the lighting wasn't of the energy efficient type or linked to sensors.

In 2011, when I started the process of trying to persuade colleagues to use resources at work, and in the station, in a smarter way my plan was relatively simple. I wanted to find out how much energy we'd historically used, and work with colleagues to save energy in the future. I put together a presentation to show how much energy we could save through simple changes to our behaviour as well as introducing the idea of a competition between watches on the station. I was keen to collect their ideas as well as ensure that they would be rewarded for their work. I also sought to persuade Hertfordshire Fire and Rescue Service and Hertfordshire County Council to reinvest some of the savings to drive more change.

In April 2011 I spoke to all four watches at Hemel Hempstead station regarding cutting carbon emissions associated with running the site. The main thrust of my presentation was that by reducing our impact we could:

- help in the fight against human induced climate change
- save taxpayers money
- gain rewards for doing so
- reinvest savings to make improvements to the building's infrastructure
- publicise our good work.

The presentation covered:

- Climate change effects on the fire service, future generations, and wildlife.
- An explanation of tipping points and their impact including the melting of sea ice at the north pole, losing the Amazon to fire, thawing of the arctic tundra and resulting methane emissions.
- Planned improvements for fire stations by Hertfordshire FRS/Hertfordshire County Council, showing that this work was supported by management and that everyone was playing their part.
- The science behind climate change, including tackling some climate change myths.
- The biggest emitters by amount of carbon per country and the biggest emitters per head of population.
- And a degree by degree exploration of temperature rises and what the effects would be.

I then outlined how results from our energy saving activities would be shared – to keep people engaged with the competition we would have a CO2 board to display results.

Collecting ideas from staff was a key part of the process, it made everyone become more involved and allowed us to identify good ideas for change.

Without any physical improvements to the building staff were able to save 22 per cent on electricity use and 17 per cent on gas, although gas use is harder to quantify due to weather variations. By the end of 2013 physical improvements were starting to be implemented at the station, including double glazing and some LED lighting. The service also purchased new sofas for the mess deck as a reward to the staff for their efforts. This news began to ripple out to other stations and led to more stations coming on board and I ran a training course for energy champions to enable them to take the model I had used and apply it to their own workplaces. We also installed recycling facilities at the station. Savings at the end of 2013 were £5,500, 28 per cent on electricity, 17 per cent on gas.

By 2014 I was publishing each watch's energy use each month and making it more of a competition. A domestic boiler for hot water was installed, as the older boilers had to run heating while heating water, and new boiler controls were added. Green Watch had used the least electricity most often in 2014 and a local franchise of Domino's pizza agreed to supply Green Watch free pizzas as a reward for this as they had a budget for corporate social responsibility. I also arranged for a certificate of commendation from Greenpeace UK for the station to recognise their efforts. Savings at the end of 2014 were £17,203.25, 32 per cent on electricity, 34.8 per cent on gas.

In 2015 the lights in the appliance bay were connected to a passive infrared system so that they only came on when people were in the bays and the other lights in the station were now all LEDs. In 2015 I did a business case for the service to provide branded reusable water bottles on the basis that we carried bottled water on the appliance, the acceptance of which saved money and single use plastic. Nando's provided a free evening meal to Red Watch for using the least electricity most often that year. Savings at the end of 2015 were £25,084.85 on electricity and gas use was cut by 42 per cent.

In 2016 we changed our energy reporting system to one that was more user friendly and cut down the time it took to produce figures. By the end of 2016 gas use had reduced by 65 per cent saving a total of £19,401 and electricity use had dropped by 54 per cent saving a total of £17,334.70. The total saving versus the 2008/9 baseline was £36,735.70.

In 2017 in collaboration with other fire services (London, Avon, Essex, Greater Manchester and Hertfordshire) Green Action, the first national energy saving competition for fire stations was launched. It ran from December to March 2018. this helped to refocus efforts and Hemel Hempstead came a respectable ninth out of 54 stations. A good result considering previous actions carried out by staff at Hemel Hempstead. The top three stations and the best placed from each service were recognised by WWF UK and Greenpeace UK for their hard work. Blue Watch used the least electricity most often in 2017 and were rewarded with a white-water rafting session at the Lee Valley Centre. By the end of 2017 gas use had slipped back to 42 per cent saving a total of £23,820.17 since 2011 and electricity use had slipped back slightly to 51 per cent saving a total of £21,363.18 since 2011. The total saving versus the 2008/9 baseline was £45,183.35.

In 2018 as a result from feedback from staff at Hemel Hempstead we changed the way the winners were calculated. Instead of simply adding the number of times each watch had used the least electricity we now award four points for using the least electricity, three for coming second, two for coming third and one for coming last. This change to a positive scoring method recognised that although a particular watch may have come last one month they were still making a positive contribution to the process. It also meant that consistently coming second gained more recognition and kept the competition alive for longer. By the end of 2018 electricity use had dropped by 56 per

cent, gas by 47 per cent with a total saving of £45,183.35.

There have been many benefits for the organisation and staff at Hemel Hempstead. I am proud of what my colleagues have achieved, the improvement of our impact on the environment, the money we have saved and the positive image that has been portrayed of Hertfordshire Fire and Rescue Service. Just imagine if this could be recreated at every fire station.

Resources

LGA resources

LGA Climate Change page
www.local.gov.uk/topics/environment-and-waste/climate-change

The potential for energy efficiency and renewable energy
www.local.gov.uk/potential-energy-efficiency-and-renewable-energy

Councillor workbook: Acting on climate change
www.local.gov.uk/councillor-workbook-acting-climate-change

New Conversations 2.0: LGA guide to engagement
www.local.gov.uk/new-conversations-20-lga-guide-engagement

Energising procurement: National energy procurement category strategy
www.local.gov.uk/energising-procurement-national-energy-procurement-category-strategy

National Procurement Strategy 2018 toolkit
www.local.gov.uk/national-procurement-strategy-2018-toolkit

Clean, connected and in-control: What tomorrow's transport technology could mean for councils
www.local.gov.uk/clean-connected-and-control-what-tomorrows-transport-technology-could-mean-councils

Councils in charge: Making the case for electric charging investment
www.local.gov.uk/councils-charge-making-case-electric-charging-investment

Other resources

NFCC Climate Change Adaptation Report 2014
www.nationalfirechiefs.org.uk/write/MediaUploads/NFCC%20Guidance%20publications/Sector%20improvement/Climate%20change/Climate_Change_Adaptation_Report_2014_-_July_2014_(1).pdf

UK Committee on climate change
www.theccc.org.uk

Re:fit programme
https://localpartnerships.org.uk/our-expertise/re-fit

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REF 10.45