

Police, Fire and Crime Commissioner for Essex

Environment Strategy 2020-2030



Essex County
Fire & Rescue Service



**ESSEX
POLICE**

Protecting and serving Essex

PFCC 
**POLICE, FIRE AND CRIME
COMMISSIONER FOR ESSEX**

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Executive Summary

Following the collaboration of Essex Police and Essex County Fire and Rescue Service, an environmental strategy was produced to ensure that both organisations are aligned with other blue light services to reduce their carbon footprint and expenditures on budgets.

The effects of climate change are becoming more prevalent and are experienced first hand by our emergency services as they respond to weather-related incidents. The Commissioner therefore will be a leader in trialling and evaluating new technologies which have the potential to reduce our carbon footprint, to conserve natural resources for future generations.

The Police Fire and Crime Commissioner (PFCC) for Essex has reduced its carbon footprint by 38% using a 2008 baseline; Essex Police by 40% and Essex County Fire and Rescue Service by 28%. This is largely attributed to advancement in technology in building plant and vehicles over the past decade. Furthermore, the power sector has significantly decarbonised in recent years contributing to this reduction.

The PFCC must comply with the Government's target of bringing all greenhouse gas emissions to net zero by 2050. To reach this target significant investment is required in both building and vehicle assets. New technologies will be adopted that fulfil our operational duties and are approved in an adequate timescale to fulfil the net zero target.

Essex Police and Essex County Fire and Rescue Service will continue to collaborate by sharing research and knowledge into new technologies, along with keeping in contact with other Police Forces and Fire Services.

The direction of travel required to bring all greenhouse gas emissions to net zero by 2050 will be a challenge, nonetheless one we are determined to meet.

Introduction

This environment strategy will detail how the Police Fire and Crime Commissioner (PFCC) shall understand and utilise our dynamic environment to reduce our environmental impact. The document will set out the key challenges we face as emergency services and the measures that will be put in place in order to achieve our overall target.

As Emergency Services are funded publically from Central Government and revenue raised locally, it is vital that Blue Light Services act as leaders in innovation to reduce their impact on climate change and in turn reduce costs. The risk of extreme weather events, such as flooding and heatwaves, is increasing pressure on our emergency services and damage to our ecosystems.

Flooding requires a response from the fire service to pump water away and heatwaves lead to an increase in wildfires and the likelihood of drought. Essex County Fire and Rescue Service reported a 67% increase in wildfires during the heatwave of 2018; and the heatwave in the August Bank Holiday 2019 led to a doubling in the number of incidents. Drought could lead to little or lower water pressure and as a consequence reduces our ability to maintain normal fire fighting capabilities. These risks tend to also heighten public tension, increasing demand of our police service to maintain public order. It is therefore imperative emergency services collaborate to mitigate the risks, and increase the UK's capacity for resilience to climate variability and change.

Essex Police and Essex County Fire and Rescue Service are responsible for one of the largest and most populated Counties in the Country. Essex has complex industrial sites, densely populated urban environments and remote rural areas including 350 miles of coastline with ecologically important mudflats and salt marshes.

Essex covers 1,400 square miles with a population of 1.8 million. Both organisations have a number of assets contributing to the carbon footprint, all of which need to be managed efficiently to preserve finite global resources.

There are a number of key changes and challenges required to continue the reduction in carbon emissions for both services. The very nature of our 24/7 service leads us to a unique set of challenges. Our buildings require facilities to be available 24/7, and our fleet vehicles vary in size and require the ability to respond to incidents rapidly.

Building on the 2008 Climate Change Act, the Government amended it in 2019 with a target of bringing all greenhouse gas emissions to net zero by 2050. The Clean Growth Strategy, issued by the Government, set out a number of proposals to help decarbonise all sectors of the UK economy through the 2020s. The voluntary emissions reduction pledge was included, committing public and higher education sectors to reduce green house gas emissions by 30% by 2020/21, compared to 2009/10 baseline, which has been met.



Figure 1 –67% increase in wildfires in Essex during the heatwave of 2018.

The Carbon Footprint

The environmental impact of an organisation's activities is indicated by their carbon footprint. The Greenhouse Gas Protocol Initiative, encompasses the various emission sources (figure 2) and is an international accepted standard for Green House Gas reporting. Table 1 details the various emission sources used in our overall carbon footprint calculation.

The figures produced do not take into account the scope 3 emission sources of waste and water consumption. These will however be reported on in the future. This also does not allow for journeys made in lease vehicles or personal vehicles, colloquially known as an organisations grey fleet. This is owing to data availability not being consistent between both organisations.

Emissions sources in baseline scope

Scope 1

Fuel combustion in buildings (gas or heating oil)

Fleet vehicle consumption (diesel or petrol)

Scope 2

Electricity consumption in buildings

Table 1 – details the various emission sources included in the baseline calculations

Following the Climate Change Act the two key targets for the PFCC are:

- Net zero greenhouse gas emissions by 2050.
- 46% reduction of greenhouse house gas emissions using a 2008/09 baseline by 2030/31.

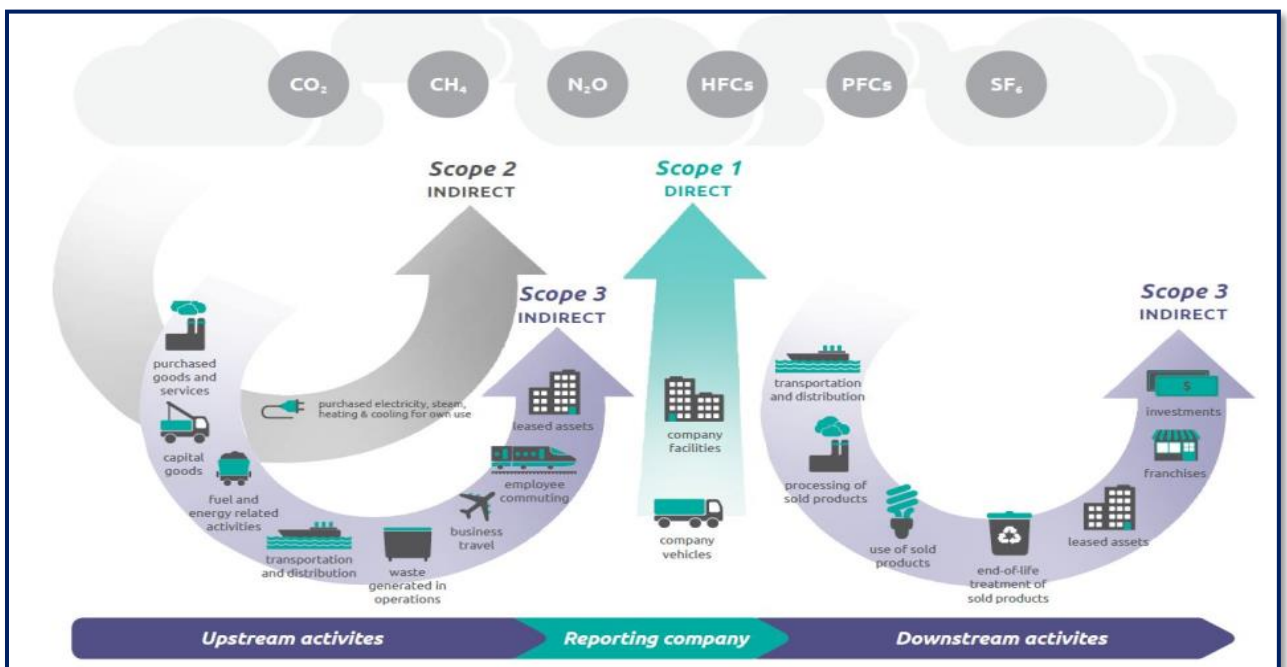


Figure 2 – Greenhouse Gas Protocol Corporate Standard.

The Carbon Footprint

Essex Police and Essex County Fire and Rescue Service have reduced carbon levels by 40% and 28% respectively when compared to a 2008/09 baseline. This baseline has been used for both organisations due to availability of data, which is one year previous to the baseline being used for the emission reduction pledge. Figures 3,4,5 and 6 depict the carbon footprint reduction for both Essex Police and Essex County Fire and Rescue Service.

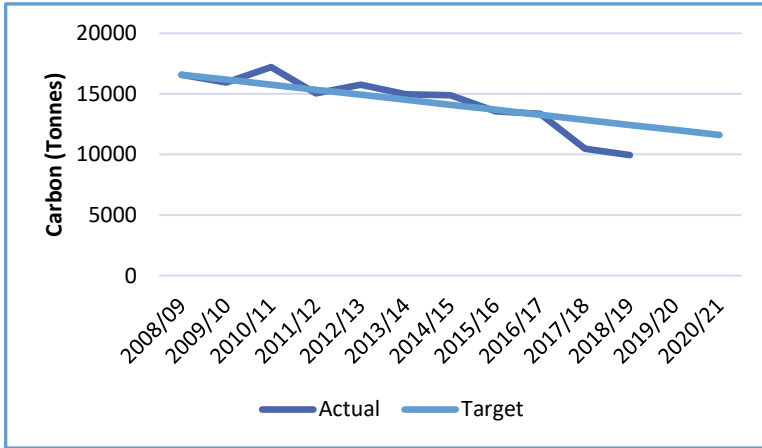


Figure 3 – Essex Police carbon footprint.

The carbon footprint of Essex Police has reduced by 40% since the 2008 baseline. It is assumed that there are no changes in transport contribution to the carbon footprint between the years of 2009/10 – 2013/14, and 2015/16 – 2016/17. Due to data availability it is difficult to determine when 30% reduction was achieved, although it can be confirmed that this was achieved 3 years ahead of 2020. The building asset disposal programme has contributed to this reduction.

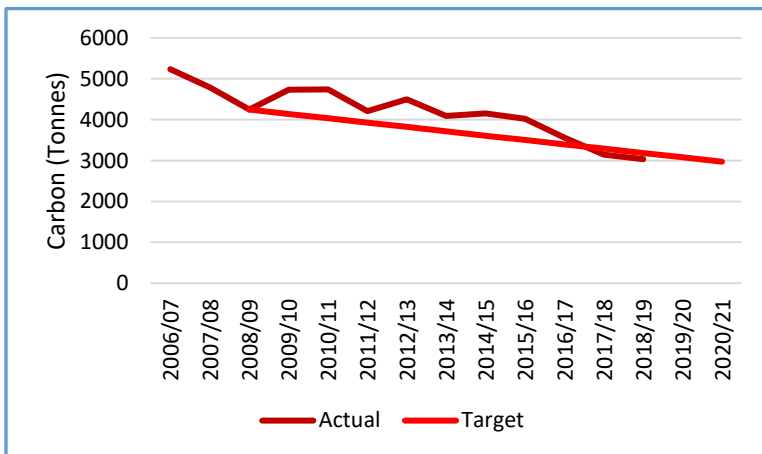


Figure 4 – Essex County Fire and Rescue Service carbon footprint.

As Essex County Fire and Rescue Service has recorded data for its carbon footprint since 2006, this has been included in figure 4. The Service is on target to achieve a 30% reduction in carbon footprint by 2020/21 from a 2008/09 baseline.

The Carbon Footprint

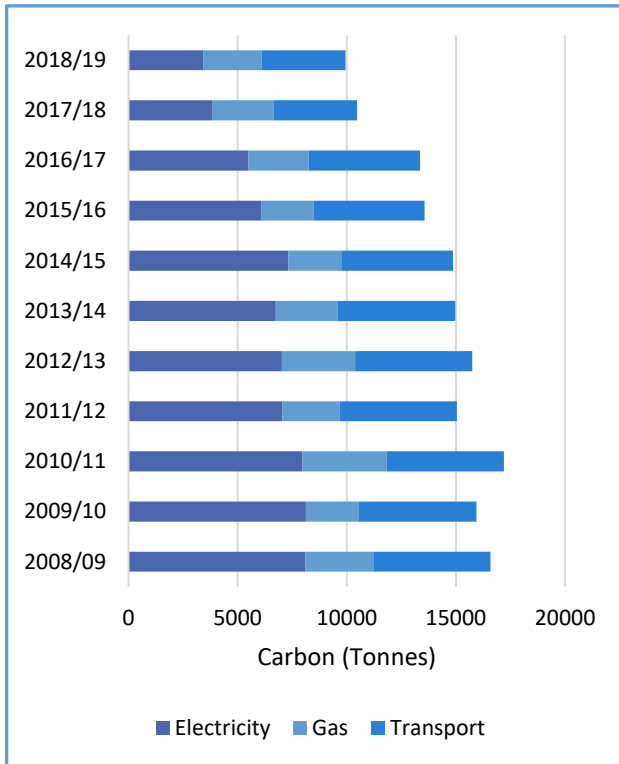


Figure 5 – Essex Police carbon footprint contribution per year.

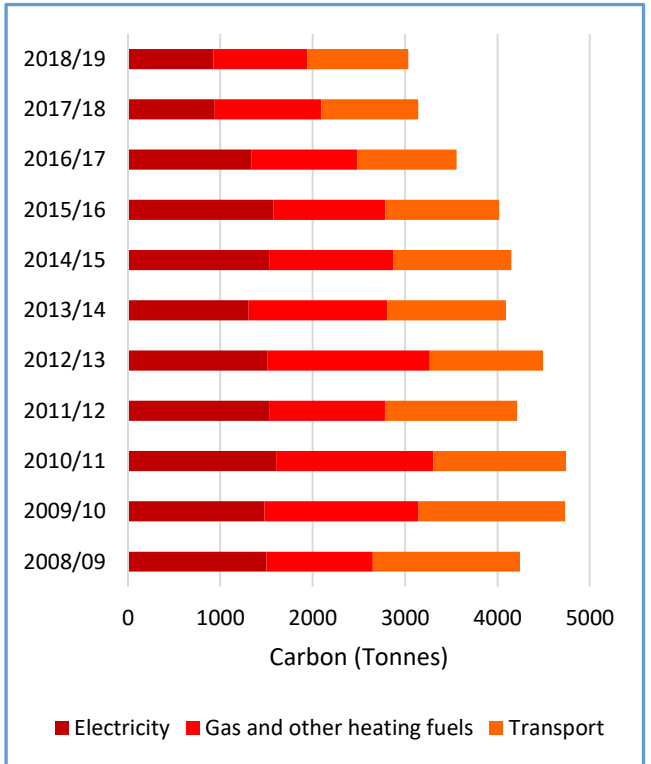


Figure 6 – Essex County Fire and Rescue Service carbon footprint contribution per year.

Figures 7 and 8 details the contribution that each emission scope has to the carbon footprint for both Essex Police and Essex County Fire and Rescue Service along with the number of carbon tonnes per employee (2018/19):

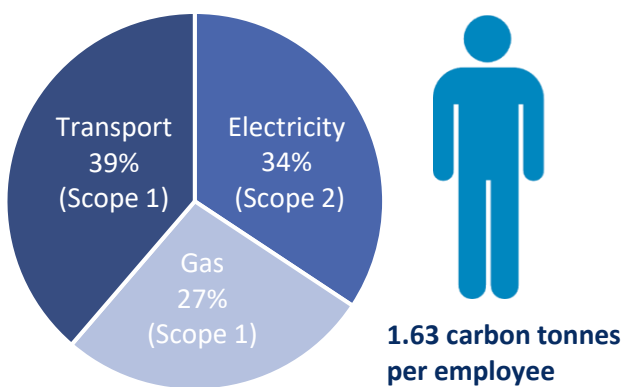


Figure 7 – Essex Police carbon footprint contributory factors and carbon tonnes per employee (2018/19).

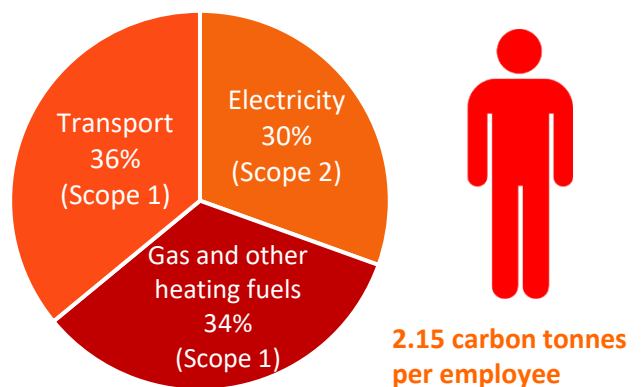


Figure 8 – Essex County Fire and Rescue Service carbon footprint contributory factors and carbon tonnes per employee (2018/19).

Our Sustainable Development Goals

In line with the overall target of bringing all greenhouse gas emissions to net zero by 2050, the UK Government is committed to the delivery of the United Nations (UN) Sustainable Development Goals (figure 9). These goals were adopted in 2015 by all UN Member States, including the U.K., and therefore are fully embedded within this strategy. Table 2 details those goals that are significant to the PFCC Environment Strategy.



Figure 9 – United Nations Sustainable Development Goals.

Our Sustainable Development Goals	
	Ensure availability and sustainable management of water and sanitation for all.
	Ensure access to affordable, reliable, sustainable and modern energy for all.
	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.
	Ensure sustainable consumption and production patterns.
	Take urgent action to combat climate change and its impacts.
	Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Table 2 – Our sustainable development goals.

Clean Water and Sanitation

Rationale for Action

Despite there being an abundant supply of water on the planet, fresh water is considered to be a finite resource. To guarantee a reliable potable water supply it is essential for water suppliers to ensure appropriate measures are in place which continue to provide a high standard of water quality. The increasing global population continues to strain the water supply and the increasing risk of flooding may cause possible water contamination issues.

Essex has three reservoirs to ensure that long term water supply requirements are met. Water is not only used in our buildings for use in buildings by employees and those in police custody facilities, but also operationally to fight fires.

Current Activities

Every effort is put in place to encourage minimal water use throughout our property portfolios. Essex Police consumes approximately 57,649m³ per annum and Essex County Fire and Rescue Service consumes approximately 20,327m³ per annum. Consumption in our operational work is not included in these figures as it is not measured. At Essex County Fire and Rescue Service's headquarters, significant investment was put into the sewage treatment plant to ensure that water returns to neighbouring water courses, and rainwater is harvested.

Future Intentions

Since water consumption is a scope 3 emission source, this will be reported on in future carbon footprint calculations. Essex Police and Essex County Fire and Rescue Service will collaboratively work on a joint water and sewage tender minimising procurement costs and resources for both authorities.

Both organisations will work with their future water and sewage suppliers to identify methods of reducing water consumption, with focus on those assets identified in figures 10 and 11. This will involve behavioural change campaigns to encourage building users to reduce water consumption. Automatic water meters will also be installed to assist with identifying potential leaks and changes that could be made to water outlets in our buildings.

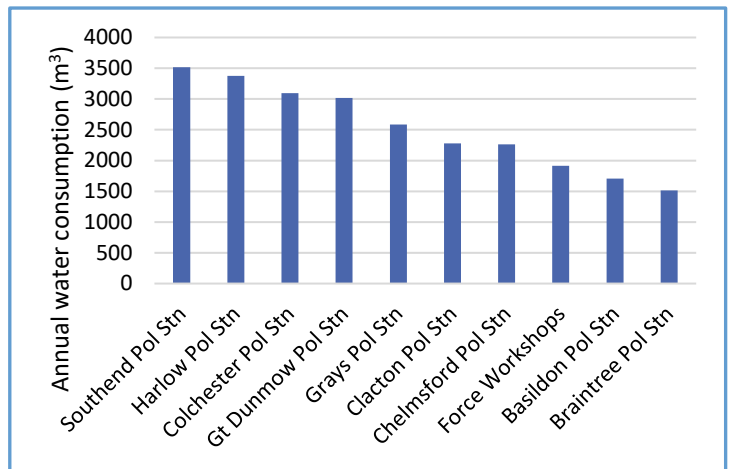


Figure 10 – Top 10 highest water consuming assets for Essex County Fire and Rescue Service. Please note due to the number of buildings that comprise Force Headquarters, this has not been included. The training establishment at Six Hills Court has also not been included.

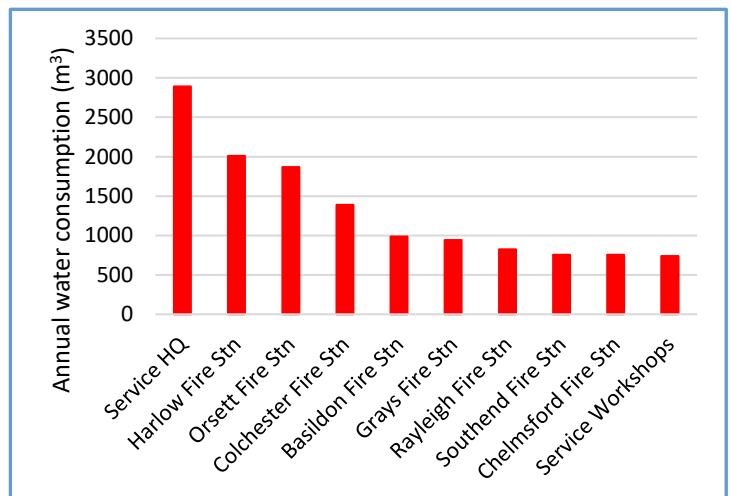


Figure 11 – Top 10 highest water consuming assets for Essex County Fire and Rescue Service.

Affordable and Clean Energy

Rationale for Action

Property assets consume a large volume of electricity, gas and heating oil, significantly contributing to the carbon footprint of both Essex Police and Essex County Fire and Rescue Service.

Our buildings require power for IT equipment. This is integral for deployment to incidents and providing means to work remotely. This is significant as it allows our police officers to be more visible in the community fighting crime, as opposed to returning to police stations to fill in paperwork. Our buildings must also be at an appropriate level of thermal comfort at all times of day for employees and those in police custody.



Figure 12 – Solar panels at Frinton Fire Station.

Current Activities

The consumption of electricity and gas from our property assets needs to be minimal to reduce both the carbon footprint and costings for the Police Force and Fire Service. Owing to the complex pricing structure for our electricity and gas supplies, it is essential that financial regulations of the Authority, UK and European are adhered to.

To maximise efficiencies throughout both portfolios, it is essential for both the Police Force and Fire Service to be informed of the latest changes in technologies. A series of meetings attended by both parties provides a platform to trial and evaluate new technologies, share best practises and report on carbon savings. One such technology being solar panels (figure 12).

The U.K. electricity market has rapidly decarbonised following the implementation of renewable energy sources, comprising of solar, wind, hydro and biomass. The Government intends to phase out unabated coal generation by 2025. Figure 13 illustrates the reduction in the emission conversion factor for electricity. This is one of the main contributory factors to the reduction in both organisations carbon footprints.

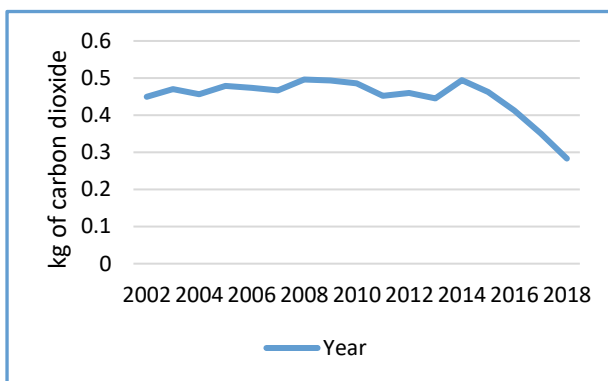


Figure 13 – Emission conversion factor for electricity.

Affordable and Clean Energy

Future Intentions

Our efforts to minimise consumption will be focussed on those assets which consume the largest volume of energy as depicted in figures 14 and 15.

Energy audits will be carried out and recommendations put forward to endorse into capital programmes and small repair work schedules. This may range from solar panel installations to replacement of LED lighting. These sites shall also be used to trial and evaluate new technologies which have the potential to reduce energy consumption.

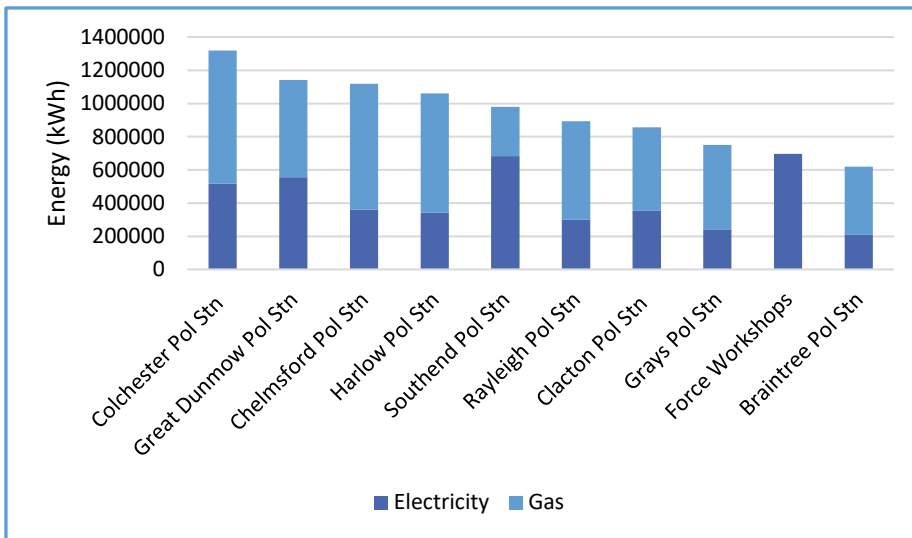


Figure 14 – Top 10 highest energy consuming assets for Essex Police. Please note due to the number of buildings that comprise Force Headquarters, this has not been included. The training establishment at Six Hills Court has also not been included.

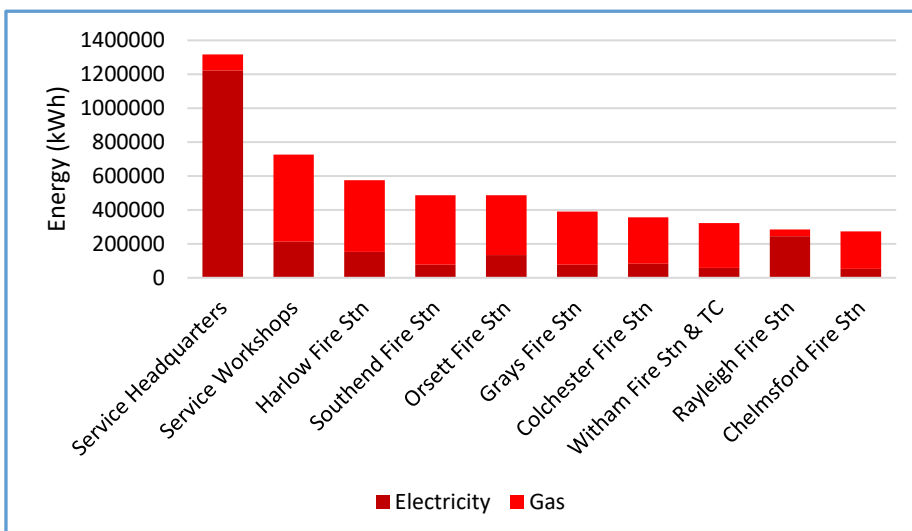


Figure 15 – Top 10 highest energy consuming assets for Essex County Fire and Rescue Service. N.B.TC stands for Training Centre.

Innovation and Infrastructure

Rationale for Action

Our fossil fuel – powered fleet assets are integral to deliver the statutory duty of Essex Police and Essex County Fire and Rescue Service. Vehicles ensure that mobilisation is achievable, operational resources are available at an incident and protection and prevention support is delivered to the people of Essex. Whilst it is imperative to ensure that fleet assets are serviced, maintained and repaired to ensure vehicles sustain the planned life cycle, this also ensures that the more stringent vehicle emission standards are met.

Following the publication of the Clean Air Strategy to improve air quality across the country, a number of clean air zones have been established; the nearest zone to Essex is the London Ultra Low Emission Zone (ULEZ). This operates 24 hours a day, 7 days a week, year-round. Charges are applied to vehicles entering the zone that do not meet certain emission standards.

The ULEZ became operational in April 2019, and is set to expand in October 2021 to the North and South circular roads.

Following the Government's recent announcement to bring forward the ban on the sale of new petrol and diesel cars and vans to 2030, it is imperative to ensure that both the Force and Service are considering alternative fuels for our transport assets. There are of course some significant challenges to overcome to meet all of our operational needs.

Current Activities

Essex Police is currently trialling an electric vehicle within their fleet, a BMW i3 (figure 16). This meets the requirements of a pool car but not as an operational response vehicle. Essex County Fire and Rescue Service is currently investigating a suitable electric fleet car to trial.

There is currently one electric vehicle charging point at Essex Police Force Workshops in Boreham and another at Force Headquarters. Proposals are also being investigated for a charging point at Great Dunmow Police Station. A suitable point is also being sourced for Fire Service Workshops to ensure value for money, and meeting the potential future needs of the fleet.

Essex County Fire and Rescue Service has a well established method to trial and evaluate new technologies through the Radicale (Research and Development in a Controlled and Logical Environment) process. This provides a platform for colleagues to suggest new technologies to trial within the service with potential to reduce our carbon footprint.



Figure 16 – Essex Police BMW i3

Industry, Innovation and Infrastructure

Future Intentions

Supplementary funding will be requested to support the transition to an alternative fuelled fleet since electric vehicles can be more expensive when considering whole life vehicle costs.

The running costs of an electric vehicle are more economical when considering pence per mile for recharging in comparison to fuel for a combustion engine. The purchase price of an electric vehicle is however more expensive than a petrol or diesel equivalent vehicle. The resale value for an electric vehicle also tends to be lower, due to consideration being given to battery replacement later in the life of the vehicle.

The viability of an alternatively fuelled fleet is contingent on a sufficient alternatively fuelled infrastructure across the County. Since a number of property assets are shared with both the Fire Service and Police Force, the feasibility of collaborating on an electric vehicle charging point infrastructure across the County should be explored. As an alternative both organisations could make use of Allstar Cards for access to the largest fuel network. This could be used to either fully charge a vehicle or carry out a short charge as the vehicle progresses through the duty day.

For the larger vehicles in our fleet such as fire appliances, a substantial advancement in technology is required to equal the current specification. These specialised vehicles need power to reach high speed to arrive at the incident, and simultaneously require power to deliver essential resources to an incident such as power to pumps, lights and cutting equipment.

Fleet Managers and our Environmental Officer must maintain their continued professional development to keep up to date with the latest advancements in alternatively fuelled vehicles and infrastructure.

Additionally it is vital to improve telematics within our fleets to avoid unnecessary journeys, minimise fuel use and identify vehicles that are underutilised.

Moreover Essex Police and Essex County Fire and Rescue Service fleet assets are occasionally deployed to the current Ultra Low Emission Zone in London. Both fleets therefore need to be managed to ensure that vehicles meet the desired standards, or ensure that vehicles that enter the zone comply with the emission standards to avoid charges. The expansion of this zone in 2021 will impact further and require further strategic management of fleet to ensure that we are fulfilling the required standards of the ULEZ.

Responsible Consumption and Production

Rationale for Action

Waste is generated from all property assets and operational work of Essex Police and Essex County Fire and Rescue Service. The waste from incidents is often hazardous and therefore hazardous waste regulations have to be adhered to. Waste is however not included in the carbon footprint calculation as it is a scope 3 emission source. Waste where possible should be diverted from landfill to prevent pollution that can harm both our health and environment.

Current Activities

Essex Police is in contract with Kent Police for waste disposal services. A quarterly report is generated detailing the tonnage of various waste types and approximately 25% is recycled.

Essex County Fire and Rescue Service recycles approximately 75% of waste, and the remaining is burnt as refuse-derived fuel.

Future Intentions

Since waste is a scope 3 emission source, this will be reported on in future carbon footprint calculations.

Increasing efforts shall be put in place to encourage personnel from both Police Force and Fire Service to reduce reuse and recycle where possible. Essex Police will target the same level of recycling that Essex County Fire and Rescue Service achieves subject to contract restraints.

Volumes of waste, waste type and proportion of recyclable waste will be published through internal communication channels to ensure transparency of the current waste management arrangements within the corresponding workplaces. Budget will be requested for recycling points and resources to reduce single use plastic across both organisations.

Climate Action

Rationale for Action

In order to fulfil our net zero target by 2050, every employee is obliged to take action to reduce our carbon footprint. This is termed sustainable behavioural change, and ranges from staff turning off electrical items when not in use, to ensuring that heating is turned off when temperatures are at an adequate level.

Individuals are more likely to develop empathy towards positive feelings so it is essential to use this to endorse behavioural change through both organisations. In recent years, the increased awareness of climate change in the news and social media has helped in this area.

Current Activities

Essex Police has a Green Guardian Scheme in place in conjunction with Kent Police. This highlights individuals as 'Green Guardians' who are ambassadors of the Force to assist the local management of energy and waste reduction, along with increasing awareness of issues of environmental importance to colleagues. This has however dwindled in recent years.

Essex County Fire and Rescue Service has worked with a number of fire services across the UK in recent years to develop an initiative called 'Green Action.' This is a competition for participating stations to reduce the most energy over a four month period. A collaborative approach between Fire Services was taken following a common need for an economical and efficient behavioural change scheme to deliver tangible savings.

Future Intentions

By 2050 the PFCC will take lead in reducing greenhouse gas emissions to net zero and encourage sustainable behavioural change in the workplace and wider community.

The Green Guardian Scheme in Essex Police will be relaunched within the Force firstly with those colleagues who have raised environmental concerns on the Force's online portal 'Idea Drop.' Once the scheme is established an appeal will be made for additional Green Guardians.

Essex County Fire and Rescue Service will continue with Green Action, and promote the initiative to other Fire Service's. In line with collaboration, the Green Guardian Scheme will be launched in the Service to highlight those employees who are environmentally aware and taking action to help the environment.



Figure 17 – Green Action logo.

Life On Land and Below Water

Rationale for Action

Biodiversity is the variability of life on Earth and it is essential that wildlife, plants and their habitats are conserved to sustain life on the planet. Operational incidents related to climate change, such as flooding and heatwaves, can have a detrimental impact to our ecosystem. Construction projects to our building assets must adhere to wildlife legislation to minimise our impact on biodiversity.

The action taken by the Fire and Rescue Service to respond to the incident itself can also have a detrimental impact to the environment. The direct fire water run-off from responding to an incident logically soaks away into the ground or enters drainage systems. The heated liquid also has a potential to cause de-oxygenation or kill aquatic organisms. There are however a number of control measures to prevent the contaminated water from entering systems such as absorbent pads and booms.

The class of fire, either Class A, B, C, D, E or F, will determine the method to extinguish the fire. The smoke plume generated from the fire itself can potentially be harmful to the environment and advice is acquired should this be toxic to both the environment and human health. Furthermore, some incidents that involve fuel require the use of foam to extinguish the fire. This is however highly toxic and can cause deoxygenation to aquatic life, nevertheless it should not stop Fire and Rescue Services from using foam if there is an operational need.

Current Activities

Both organisations work with each other alongside partner agencies to ensure appropriate plans and measures can be put in place to manage a climate change incident in Essex. This ensures that there are a series of suitably trained officers and specialist vehicles that can be deployed to such an incident.

Work with the Environment Agency (EA) is pivotal to ensure our planning and emergency response is aligned to the latest legislation. Essex County Fire and Rescue Service have recently worked with the EA to produce a framework for use by all UK Fire and Rescue Services for fire fighting foam. The EA provided the scoring criteria to ensure that the least polluting foams received preferential weighting.

Future Intentions

Essex Police and Essex County Fire and Rescue Service will maintain partnerships by participating in multi agency exercises to ensure continuity should an emergency occur. Plans that are in place to manage such an event will be reviewed to ensure appropriate measures can be put in place by both the Force and Service.

To ensure that both organisations comply with up to date environmental legislation, it is imperative for operational training standards to be maintained and those related to construction projects.



Figure 18 – Training exercise using foam.

Conclusion

The most important means of reducing our environmental impact is to reduce our carbon footprint. Progress in this area will be stimulated by the Government’s 2050 net zero target (figure 19), along with our sustainable development goals which have been set using the UN agreed framework. The PFCC will be actively working towards our targets and goals, namely through the adoption of clean energy sources for buildings and alternatively fuelled vehicles. This means that the PFCC is somewhat reliant on new and more affordable technologies to emerge in order to bring about net zero carbon emissions.

Schemes such as the ‘Green Guardian Scheme’ and ‘Green Action’ will encourage positive behavioural changes amongst our employees such as being more mindful on electric, gas and water usage which will contribute to the reduction of our carbon footprint. Action will be taken to encourage employees to recycle whilst also deterring the handling of single use plastics in order to reduce strain on landfill sites. By adhering to the latest environmental legislation, it will minimise biodiversity loss both on land and water.

The PFCC understands the enormity of the environmental challenges that must be overcome in the future. These are challenges that will be embraced by all employees to ensure the preservation of our environment, and that by 2050 our greenhouse gas emissions are at net zero.

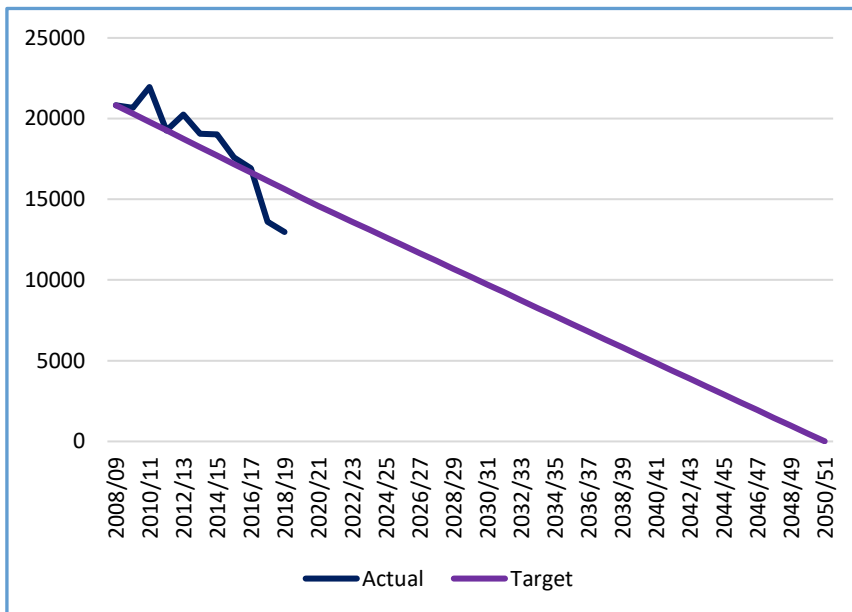


Figure 19 – PFCC (Essex Police and Essex County Fire and Rescue Service) carbon footprint target to achieve net zero by 2050.