

MERSEYSIDE FIRE AND RESCUE AUTHORITY			
MEETING OF THE:	AUTHORITY		
DATE:	18 MAY 2023	REPORT NO:	CFO/016/23
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TITLE OF REPORT:	PATHWAY TO NET ZERO		

APPENDICES:	APPENDIX A: NET ZERO ROUTE MAP
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Purpose of Report

1. To present Members with a route map to Net Zero and the details of the governance structure for the implementation and monitoring of the interventions required to meet Net Zero by 2040.

Recommendation

2. It is recommended that Members.
 - a) note the contents of the Net Zero route map and
 - b) note the governance structure including the appointment of the Deputy Chief Fire Officer as the senior project executive.

Introduction and Background

3. Merseyside Fire and Rescue Service ('the Service') Officers have been carrying out a review of the actions and arrangements required to enable Merseyside Fire and Rescue Authority ('the Authority') to achieve its target of delivering Net Zero by 2040. As the expertise was not available in-house, the Service engaged Eunomia Research and Consulting Ltd to consider the extent of the challenge and develop a pathway that will assist the Authority in meeting its climate and environmental objectives.

4. Eunomia Research and Consulting Ltd were appointed via the Eastern Shires Purchasing Organisation framework to support the Authority in:
 - a) Undertaking a detailed review of the Service's existing Greenhouse Gas footprint (GHG), including key recommendations for improvement: and
 - b) Developing a pathway to Net Zero which aligns with Liverpool City Region's 2040 Net Zero ambition.

5. The outcomes from that review are attached at appendix A and will form the basis of the Authority's plans to achieve Net Zero.

Developing and implementing our plans

6. Given the scale of the task and period to achieve Net Zero, it should be noted that the implementation of a plan to deliver Net Zero has the potential to affect every department and directorate of the Authority.

7. It was determined that a project management structure is established with a senior executive at PO level allocated to Chair the group and drive forward the delivery of Net Zero. The project group can then report into one of the already established SLT Boards on a formal basis and follow the normal governance and Authority reporting arrangements. Notwithstanding regular updates on the progress will be presented back to Authority Members and the 'Path to NetZero' is an item on the Scrutiny Foreword Work Plan to bring before Members on the Scrutiny Committee to scrutinise.

8. The route map identifies key areas (sectors) for which interventions and actions need to be considered and implemented. Suggested members of the Project Group include staff from the following departments to ensure actions highlighted in the route map can be progressed.

a) Building & Energy	Estates, ICT
b) Transport	Fleet, Ops Planning, Response, POD
c) Procurement	Procurement, Finance
d) Waste	Estates, Catering, TDA
e) Corporate Communications, Strategy and Performance (planning) and Legal services.	

Equality and Diversity Implications

9. EIA's will be considered by the project group as each intervention/action is progressed.

Staff Implications

10. Staff implications have been highlighted in the report.

Legal Implications

11. The project group will need to identify and consider any legal implications and report back to Members.

Financial Implications & Value for Money

12. The cost to carry out the Routemap to Net Zero 2040 as contain within Appendix A was £14.5k, such costs were contained within existing revenue budgets.
13. At this stage costs have only been categorised as low, medium and high, further detailed work will be required to finalise any specific cost plans. It is likely that future financial plans will need to build in additional funding to cover any significant investment requirements.

Risk Management, Health & Safety, and Environmental Implications

14. MFRA is required to reduce its carbon emissions to meet the government target of Net Zero by 2050 and needs to set clear strategic targets across all its functional areas to achieve this deadline.
15. An independent view on our current GHG and having a strategic pathway to Net Zero for the Authority demonstrates how MFRS is addressing climate change from our operational and other organisational activities.

Contribution to Our Vision: *To be the best Fire & Rescue Service in the UK.*

Our Purpose: *Here to serve, Here to protect, Here to keep you safe.*

16. Developing and implementing a plan to assist the Authority achieve its Net Zero target date will have a direct impact on its efficiency and effectiveness as a fire and rescue service and will also directly contribute to improving environmental outcomes for Merseyside.

BACKGROUND PAPERS

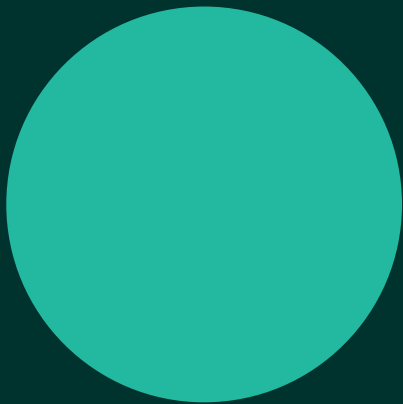
GLOSSARY OF TERMS

MFRA	M erseyside F ire and R escue A uthority is the physical and legal entity. When writing reports MFRA is the “object”.
MFRS	M erseyside F ire and R escue S ervice is the service provided by MFRA. When writing reports MFRS is the “action”
GHG	G reen H ouse G as
EIA	E quality I mpact A ssessment
PO LEVEL	P rincipal O fficer L evel

Net Zero Routemap

Merseyside Fire and Rescue Service

February 2023



Report For

Merseyside Fire and Rescue Service

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1.0

Introduction



Merseyside Fire and Rescue Service (MFRS) commissioned Eunomia Research and Consulting Ltd. ('Eunomia') to produce a Net Zero Routemap that indicates how MFRS can meet a target of becoming Net Zero by 2040.

About Merseyside Fire and Rescue Service

MFRS is the statutory fire and rescue service covering the county of Merseyside in northwest England and is the statutory Fire and Rescue Authority responsible for all 999 fire service calls in Sefton, Knowsley, St Helens, Liverpool and Wirral. MFRS is a team of diverse people undertaking different roles to save, protect and improve lives within the local community.

In addition to fighting fires and other emergencies, MFRS helps to keep communities safe by working closely with police, health services, local authorities, and other agencies to plan for community, workplace and business safety and major incidents such as train derailments, floods, chemical leaks and terrorist attacks.

Merseyside Fire and Rescue Service and Climate Action

In addition to its statutory duties, MFRS wishes to contribute to local climate action. Following surrounding Local Authorities such as Liverpool City Council (LCC) and Liverpool City Region declaring climate emergencies and setting ambitious Net Zero targets, MFRS wishes to develop a Routemap to Net Zero which aligns with LCR's 2040 Net Zero ambition.

To date, MFRS has already:

- Calculated its operational greenhouse gas footprint;
- Planned to trial a working from home scheme for 12 months from January 2023;
- Secured a £1 million grant for the installation of air source heat pumps at its stations;
- Ensured it is on a green electricity tariff;
- Switched to biodegradable takeaway trays and re-usable cleaning bottles; and
- Planned to install seven electric vehicle charging points in 2023.

This document builds on the previous work of MFRS. It provides a Net Zero Routemap for the Service to meet Net Zero in 2040. To guide immediate action this document also provides a description of key interventions and actions to be taken by MFRS.

Throughout the document the term Routemap is used when referring to the entire document, including the plan of how MFRS can achieve Net Zero. The term Pathway is used when referring to the indicative, modelled, trajectory outlined in Section 3.0.

This Routemap sets out the following:

- **Section 2.0– Scale of the Challenge**
 - A summary of the Service's 2021-22 greenhouse gas (GHG) footprint; and
 - Key recommendations on how to improve the monitoring of GHGs moving forward.
- **Section 3.0– Net Zero Pathway**
 - An indicative pathway demonstrating how MFRS could reach Net Zero in 2040; and

- Details on recommended offsetting approaches.
- **Section 4.0– Interventions and Next Step Actions**
 - A summary of recommended interventions associated with the Net Zero Pathway, required to decarbonise each key GHG emissions sector; and
 - A summary of key next steps required to deliver the interventions.
- **5.0- Summary**

A photograph of two firefighters in full protective gear, including helmets and jackets with reflective stripes, standing with their backs to the camera. They are positioned in front of a large, intense fire that is consuming a structure. The firefighter on the left has a yellow air tank on their back with some text on it. The scene is set outdoors, with a building and some greenery visible in the background.

2.0

Scale of the Challenge

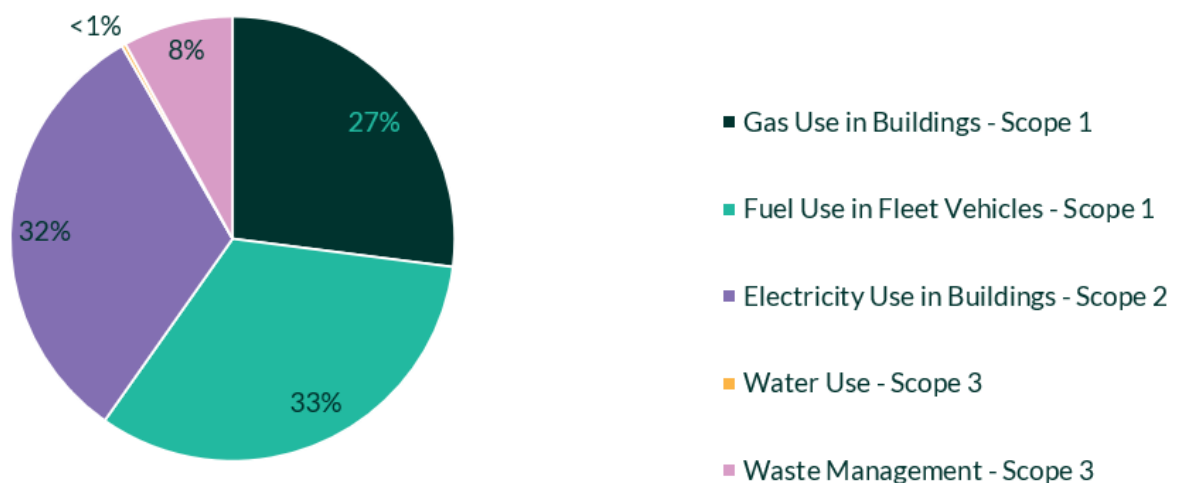
2.1 Greenhouse Gas Baseline

MFRS’s GHG footprinting exercise calculated the Service’s total emissions as 2,934 tonnes of carbon dioxide equivalent (tCO₂e). This figure is based on the GHG impact of its operational gas, electricity and water use and waste generation for the period of August 2021 to August 2022, and the GHG impact of its fuel use in operational vehicles for the period of April 2021 to April 2022. The different reporting periods are a result of MFRS’s different data collection periods. This footprint is equivalent to heating approximately 1,087 average UK homes for a year.

Figure 2.1 demonstrates MFRS’s GHG footprint broken down by core emission sources. As shown, fuel use in operational vehicles accounts for the largest proportion of the calculated emissions at 33% (960 tCO₂e), closely followed by electricity use in operational buildings (32%, 937 tCO₂e) and gas use (27%, 793 tCO₂e). 8% of MFRS’s footprint comes from waste generated in operations and <1% of emissions come from water use in operations.

These proportions would change if additional emissions sources were included in future footprints.

Figure 2.1: Merseyside Fire and Rescue Service’s GHG Footprint (2021/22)



2.2 Net Zero Fire Service

Nobody has ever decarbonised a fire and rescue service before and there are a number of specialist activities and statutory duties that mean this is a more complex process than decarbonising many other organisations.

MFRS consists of approximately:

- 1,000 employees;
- 40 operational buildings¹, including:
 - 22 fire stations;

¹ Merseyside Fire and Rescue Service Property Asset Management Plan 2022/2027

- A training and development centre;
 - Marine unit;
 - Service headquarters;
 - Vehicle workshop; and
 - Dual use 999 call centre.
- 295 operational vehicles, including:
 - 126 appliances;
 - 126 ancillary vehicles;
 - 27 officer-leased vehicles; and
 - 16 National Resilience vehicles.²

The main challenges for the Service in meeting its Net Zero ambition will come from buildings that are difficult to insulate and heat, and from large vehicles and appliances where zero emissions options do not currently exist.

For many organisations it is possible to reduce or eliminate activities in order to reduce emissions; however the Service's statutory duties mean that this will not be possible for the Service in many instances.

There are a few Fire and Rescue Services that have committed to becoming Net Zero by certain dates. For instance, both the Scottish Fire and Rescue Service (SFRS) and the London Fire Brigade have set targets which align with wider regional and local targets. The SFRS have a Net Zero target of 2045 which aligns them with Scotland's Climate Change Act, whereas the London Fire Brigade have a 2030 Net Zero target, due to the Mayor of London's target date of 2030. In contrast, MFRS's neighbour, the Manchester Fire and Rescue Service, are planning on being climate positive by 2050.³

SFRS has published its baseline emissions which enables a comparison to MFRS's. In 2018/19 SFRS emissions per employee stood at 2.4 tCO₂e whereas MFRS emissions per employee equate to 2.9 tCO₂e.⁴ This difference could be due to a range of factors, for example the age and insulation levels of SFRS's operational buildings, economies of scale due to SFRS being a larger organisation, or the frequency with which SFRS's vehicles are used. SFRS's baseline calculation was not analysed, and it is therefore possible that the difference in emissions per employee between SFRS and MFRS is due to a different calculation methodology.

The challenges and ambitions MFRS hold are similar to other fire and rescue services. It would therefore be beneficial to communicate and collaborate with other fire services to share best practice on ways to reduce emissions and improve performance. This will help MFRS in its own decarbonisation journey, but also enable it to influence the other fire and rescue services.

² Merseyside Fire and Rescue Service Transport Asset Management Plan 2022/2027

³ Climate positive means that activity goes beyond achieving net-zero carbon emissions to create an environmental benefit by removing additional carbon dioxide from the atmosphere.

⁴ Scottish Fire and Rescue Service, Climate Change Response Plan 2045, <https://www.firescotland.gov.uk/media/1143819/climatechangeresponseplan2045.pdf>

2.3 GHG Footprint Gap Analysis

In order to identify potential improvements, a gap analysis assessed the data sources, boundary setting, and calculation methods of the current GHG footprint. The reference for this assessment was the Greenhouse Gas Protocol, a commonly used standard for footprinting GHG emissions. This comparison enabled the development of a set of recommendations for future improvements in the footprint.

Eunomia's assessment concluded that MFRS's existing operational footprint has been calculated using a sound approach. The analysis largely uses appropriate emissions factors, and the use of primary data means that calculated GHG emissions are likely to be accurate. However, some alterations would improve the footprint from this strong foundation. The essential recommendations made are summarised below. The recommendations are based on Eunomia's review of MFRS's GHG footprint and discussions with MFRS in December 2022 during the stakeholder workshop.

- Include sources for all emissions factors. When including the sources, provide information on the year in which the emission factor was set;
- Further develop the GHG Footprint Report. The spreadsheet should include raw data inputs for each activity (including the data source), any calculations used and the source of all emission factors with the year;
- Include emissions from Procurement under Scope 3, and place water use within this category;
- Use both "location-based" and "market-based" approaches when reporting GHG emissions for Scope 2;
- Collect data on the fuel type of owned and leased vehicles and use the appropriate emissions factor. An average emissions factor can be used when the fuel type is unknown; and
- Improve waste GHG emissions reporting by replacing existing BEIS factors with the factors recommended by Eunomia.
- Include water consumed when dealing with emergency incidences within the footprint, in addition to water use within operational buildings;
- Fuel consumed by the appliances, both for travel and for pumping, should be included within Scope 1 fuel consumption GHG emission reporting. If the fuel consumption for each operation (travel vs pumping) is known this can be reported separately within scope 1 to aid monitoring of progress but is not essential;
- All fuel consumed for work travel, and possibly commuting, should be included. This includes both the fuel claimed through fuel cards (this is included in the current GHG footprint) and fuel consumed and claimed for through mileage (this is not included in the current GHG footprint);
- MFRS is planning on trialling a working from home scheme in 2023. Emissions from staff members working from home should be considered for inclusion in MFRS's GHG footprint (see Section 6.0); and
- It has been confirmed that quantity data per product purchased is available. This should be utilised to accurately report GHG emissions from purchased goods and services.

It should be noted that MFRS's footprint currently excludes staff commuting, business travel and downstream leased assets. It is advised that MFRS calculates and includes GHG emissions from these sources to be aligned with best practise. However, it is MFRS's prerogative to determine which emissions sources to include within its reporting boundary. Factors such as data availability

should be considered in making this decision. The scale of the challenge for MFRS to reach its Net Zero target would be larger if the GHG emissions from these additional activities were considered.



3.0

Net Zero Pathway

3.1 Indicative Net Zero Pathway

MFRS’s current GHG footprint is shown in Figure 3.1 along with an indicative pathway to reach Net Zero by 2040. The indicative pathway follows a trajectory set out by the Science Based Targets initiative (SBTi), although it goes beyond the minimum reductions required. It is applied to the footprint as currently calculated and would need to change to reflect a recalculated footprint should changes be made to the calculations as recommended in the previous section. The reasoning behind using the SBTi definition and a 2040 target date are set out in Section 6.1.

SBTi is a not-for-profit entity that seeks to define and promote best practices in emissions reductions and Net Zero targets in line with climate science. SBTi requires that organisations reduce their GHG emissions by a minimum of 4.2% per year compared to baseline in the ‘near-term’, i.e. over the next 10 years. This means reducing from 2,934 tCO_{2e} in 2022 to at least 1,702 tCO_{2e} in 2032. SBTi requires that organisations reduce their GHG emissions by at least 90% compared to baseline in order to claim the status of Net Zero.

For MFRS, this means reducing from 2,934 tCO_{2e} in 2021/2022 to 293 tCO_{2e} in 2040. To achieve Net Zero as defined by SBTi, the remaining GHG emissions need to be offset. This means that nature-based⁵ carbon sequestration needs to increase to 293 tCO_{2e} in 2040 if only 90% reductions are achieved. If more reductions are achieved, less offsetting will be required. At this point, net GHG emissions will be zero. This is shown in Figure 3.1 as follows:

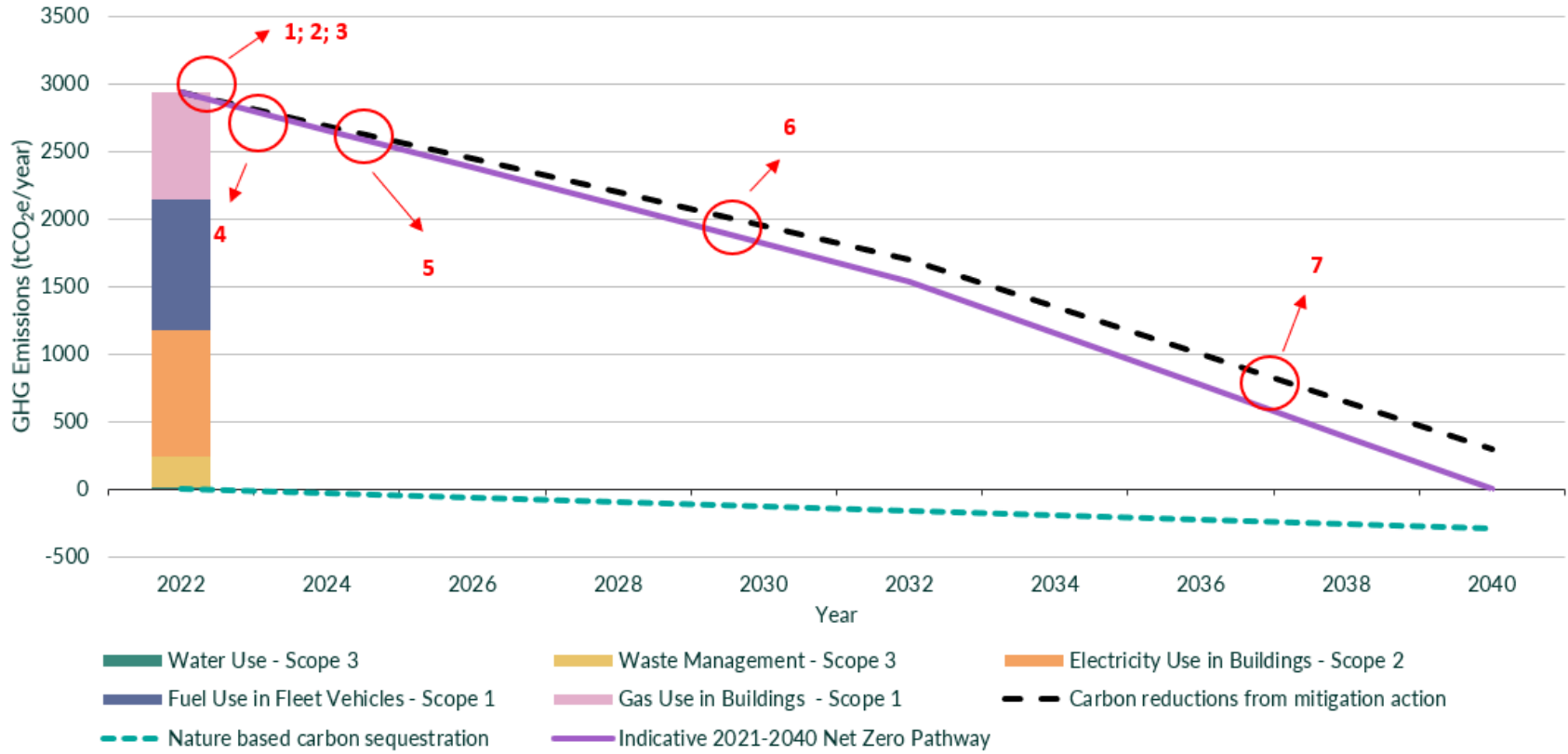
- The **black** dashed line shows the **minimum** emission reductions required from mitigation action for MFRS to reach Net Zero emissions by 2040, as per the SBTi definition.⁶
 - The circled numbers indicate critical decision points relating to key opportunities for decarbonisation. These are discussed in Section 3.2.
- The **teal** dashed line shows the **maximum** carbon sequestration required for MFRS to reach Net Zero emissions by 2040, as per the SBTi definition. This is a total sequestration of **293 tCO_{2e} in 2040**.
- The **solid purple** line shows the indicative Net Zero Pathway 2022-2040 recommended.
- Each **coloured segment** demonstrates MFRS’s 2021/2022 baseline emissions for each core GHG emissions source as currently calculated in the footprint.

The pathway is purely illustrative, demonstrating both the scale of change required for MFRS to reach Net Zero by 2040 and the kind of trajectory the Service would have to follow to reach Net Zero. In reality progress will be ‘lumpier’ as certain actions make big changes in specific years.

⁵ If technical sequestration processes are successful, this could also include versions of carbon capture and storage but this is as yet unproven and so not included in current thinking.

⁶ A steady reduction has been assumed.

Figure 3.1: Indicative Net Zero Pathway



The pathway shown in Figure 3.1 presents MFRS's electricity emissions as location based as this is the way they are calculated in MFRS's GHG footprint. Calculating electricity emissions as location based means that the emission intensity of the electricity that MFRS consumes is based on the UK electricity emission factor. Under the GHG protocol, organisations are obliged to report their location based emissions. However, presenting emissions in this way does not account for the type of tariff that MFRS is on. Therefore, in addition to reporting location based emissions, MFRS can also report its market based emissions, meaning that the emission factor it uses to calculate its electricity emissions accounts for the electricity tariff that MFRS is on. Since, to the best of Eunomia's knowledge, MFRS was on a true green electricity tariff in 2022, its market based emissions from electricity would be 0.⁷ MFRS can choose to report a separate market based emissions baseline to showcase its effort in procuring a renewable electricity tariff. However, this will not change any of the actions that MFRS should take to reach Net Zero going forward.

3.2 Critical Decision Points

This section outlines the critical decision points for MFRS from 2023-2040. Critical decision points are points in time where there is an opportunity for significant change and a decision will lock in emissions for a period of time. For instance, when a gas boiler reaches end of life, this offers an opportunity for it to be replaced with a low carbon heat source, such as a heat pump, rather than a like-for-like option. Critical decision points demonstrate where, if an opportunity is missed, the Service could be locked into high-emitting infrastructure and contracts, increasing the challenge of decarbonising by 2040.

Making decisions in line with critical decision points also helps to avoid creating additional emissions by discarding equipment which is not at end of life. This is because all equipment has GHG emissions associated with its manufacture and installation, and these 'embodied emissions' also need to be considered when thinking about the total impact of MFRS's actions. Some embodied emissions are substantial, and so discarding equipment early can actually increase overall emissions, even if new equipment generates significantly lower emissions in operation.

Assessing embodied emissions for all equipment is a complex and costly process, and so we recommend replacing equipment at end of life as a default. By planning for this well in advance budgets can be planned to enable this, maximising the chance of success.

⁷ According to the GHG Protocol, electricity covered by green electricity tariffs may be considered as zero emissions. However, not all green electricity tariffs are created equal, and some do not contribute to a reduction in emissions in reality. A blog post from Good Energy outlines the reason for this concern well (see: Good Energy (2017) Not all green tariffs are created equal, <https://www.goodenergy.co.uk/not-all-green-tariffs-are-created-equal/>. Accessed on: 19/12/2022). The current practice is based on the industry regulator, OFGEM, giving the generator of renewable electricity a "green" certificate for every 1000 units of renewable electricity produced. This certificate is called a Renewable Energy Guarantee of Origin certificate (REGO) and it can be bought on the market by electricity suppliers who wish to sell 'renewable' electricity to their customers. This allows suppliers to buy the actual power from any energy source, including polluting ones such as coal-fired power stations, and claim that the energy they supply is renewable because they have also bought the REGOs. Some have argued that these electricity providers are engaging in a practice called "greenwashing" and misleading their customers into thinking that their electricity payments are adequately supporting renewable energy generation and that their electricity consumption is not generating GHG emissions. When considering the procurement of renewable electricity, MFRS should keep in mind that it purchases true green electricity tariffs which do not engage in the practice mentioned above, but which buy or produce a unit of electricity directly from a renewable generator for every unit of electricity the provider's customers use.

Key opportunities to implement decarbonisation interventions by 2040 have been identified based on one of the following criteria:

- Heating system due for replacement;
- Vehicles due for replacement; or
- Contract expiry/renewal.

The critical decision points identified are shown in Figure 3.1 in red and listed in Table 3-1 along with relevant decarbonisation interventions. The timing for these critical decision points has been determined from:

- The stakeholder workshop held in December 2022;
- Estate Asset Management Plan (2022 – 2027);
- ICT Asset Management Plan (2022 – 2027);
- Transport Asset Management Plan (2022 – 2027);
- Asset Management Plans (2022 – 2027); and,
- Service Delivery Plan.

Figure 3.1 ultimately demonstrates that there is a strong opportunity for change in the near future. Most decision points arise before 2030, emphasising the need to plan for these decisions as soon as possible so that they can be acted on in time.

Table 3-1: Critical Decision Points and Related Decarbonisation Interventions

Year	Critical Decision Point	Critical Decision	Related Decarbonisation Intervention(s)			
2022-2027	1	Refurbishment of sites ⁸	LED lighting	Low carbon heating	Insulation and double glazing	Low carbon construction
	2	Construction of buildings	Low carbon construction			
	3	Purchase of new vehicles ⁹	EV charging point infrastructure	Electrification	Review of alternative fuels	
2023	4	Renewal of waste services contract	Waste prevention	Improved recycling	Reduction of incinerated waste	

⁸ Based on 5-year Estate Asset Management Plan

⁹ Based on 5-year Estate Asset Management Plan

Year	Critical Decision Point	Critical Decision	Related Decarbonisation Intervention(s)			
2024-2025	5	Gas boiler replacement	Low carbon heating	Insulation and double glazing		
2029-2032	6	Purchase of new vehicles ¹⁰	EV charging point infrastructure	Electrification	Review of alternative fuels	
2037	7	Purchase of new vehicles ¹¹	EV charging point infrastructure	Electrification	Review of alternative fuels	

¹⁰ Based on replacement cycles

¹¹ Based on replacement cycles

4.0

Interventions and Next Step Actions



This section sets out the recommended interventions and next step actions (see Table 4-1) for decarbonising MFRS's estate.¹² It also provides recommendations for monitoring progress, and outlines the recommended next step actions for each emissions sector in detail.

There is a difference between interventions and actions, as shown in Table 4-1. This section provides recommendations on both interventions and next step actions.

Table 4-1: Intervention and Action Definitions

Type	Description
Intervention	Physical measures/changes which are required to reach Net Zero e.g. changes to operations, changes to building structure etc.
Action	Steps needed to successful implement interventions e.g. engage with staff, pilot GHG reduction measures

4.1.1 Overview

Table 4-3 outlines the recommended interventions for each emissions sector (buildings and energy, transport, waste, and procurement), setting out:

- The influence level MFRS has over each intervention;
- The indicative costs of the intervention;
- The associated emissions impact;
- The suggested timeline for implementation;
- Co-benefits of the intervention; and
- Key Performance Indicators (KPIs) that can be used to monitor progress.¹³

Indicative GHG emissions reduction and associated cost ranges are given. More specific values can be developed when the specifics of each intervention are developed, but the indicative values demonstrate the order of magnitude anticipated and can be used to inform strategic decision making.

¹² Recommendations were developed using Eunomia's experience in developing routemaps for other organisations, and MFRS's insight into the specifics of their operations.

¹³ Procurement is included despite not being part of the current footprint as MFRS has direct control over actions in this category

Table 4-2 demonstrates the values and RAG rating associated with three categories of analysis:

- The level of influence;
- Indicative costs (total capital costs); and
- Indicative emission reduction.

The colour coding within the RAG rating relates to the “positivity” of each categorisation, for instance for costs low is green, whereas for emission reduction potential low is red.

Table 4-2: RAG Rating Categorisation

	Influence Level	Indicative Costs	Indicative Emissions Impact
Low	Low	<£10,000	<2% emissions
Low - Medium	Medium	£10,000-£50,000	2-20% emissions
Medium		£50,000-£100,000	
Medium - High		£100,000-£200,000	
High	High	>£200,000	>20% emissions

Interventions which are enabling and are not associated with direct GHG emission savings, for example improving data collection, are labelled as ‘enabling’. Although their direct GHG emission savings could be classed as ‘low’, they are a key enabler to ‘unlock’ significant GHG emissions savings in other areas.

Table 4-3 also provides a timeframe for each intervention, categorised as short-term (<2 years), medium term (2-5 years) and long-term (>5 years).

Table 4-3: Summary of Recommended Interventions

Emission Sector	Intervention	MFRS Influence	Costs	Emissions Impact	Timeframe	Co-benefits	KPIs
Buildings and Energy	Insulation and double glazing	Medium	Low - Medium	High	Short-term	Lower energy bills Improve working conditions	Number of buildings insulated Number of windows replaced with double glazing
	LED/automatic lighting	High	Low	Low	Short-term	Lower energy bills	Percentage of lighting switched to LED and/or automatic
	Low carbon heating e.g. heat pumps	Medium	High	High	Medium-term	Lower energy bills Improve local economic growth in heat pump supply chains Improve air quality by reducing nitrous oxide and carbon monoxide emissions	Number of heat pumps installed

Emission Sector	Intervention	MFRS Influence	Costs	Emissions Impact	Timeframe	Co-benefits	KPIs
	Renewable generation and storage	Medium	Medium - High	High	Medium/long-term	<ul style="list-style-type: none"> Lower energy bills Additional source of income Improved energy security Visible demonstration of MFRS's decarbonisation commitment 	kWh solar energy installed
	Renewable electricity supply	High	Low	High	Short-term	<ul style="list-style-type: none"> Support growth in renewable energy market 	Renewable electricity tariff re-evaluated frequently
	Improved data collection	High	Low	Enabling	Short/ medium-term	<ul style="list-style-type: none"> Facilitate targeted actions Increase awareness of energy consumption and elicit behaviour change 	Percentage of buildings with sub-meters and/or BMS
Transport – fleet vehicles	Reduced travel demand e.g. consolidated journeys	High	Low	Medium	Short-term	<ul style="list-style-type: none"> Fuel cost savings Improved local air quality 	Number of trips reduced

Emission Sector	Intervention	MFRS Influence	Costs	Emissions Impact	Timeframe	Co-benefits	KPIs
	Active travel and public transport	Medium	Low	Medium	Short-term	<p>Reduce private transport use, making active travel safer and improving local air quality</p> <p>Promote better mental health through spending time outside and better wellbeing through being active</p>	Number of fleet vehicle trips reduced and replaced with public transport or active travel
	Electrification and efficiency gains	Medium	High	High	Medium/long-term	Improve local air quality	<p>Number of electric vehicle charging points installed</p> <p>Percentage of fleet vehicles electrified</p>
Transport – business travel and commuting	Reduced travel demand e.g home working scheme	High	Low	Medium	Short-term	<p>Agile working can improve staff satisfaction by facilitating flexibility and promoting work-life balance</p> <p>Improve local air quality</p>	<p>Percentage of staff (FTE) working from home</p> <p>Percentage reduction in number of mileage/expense claims</p>

Emission Sector	Intervention	MFRS Influence	Costs	Emissions Impact	Timeframe	Co-benefits	KPIs
	Active travel and public transport	Medium	Low	Medium	Short-term	<p>Generate more equity between staff because each individual can have equal access to transport modes and routes</p> <p>Reduce private transport use, making active travel safer and improving local air quality</p> <p>Promote better mental health through spending time outside and better wellbeing through being active</p>	<p>Percentage reduction in number of mileage claims</p> <p>Percentage increase in public transport expense claims</p>
	Electrification and efficiency gains	Low	Medium	High	Medium/long-term	Improved local air quality	Number of electric vehicle charging points installed for staff use
Waste	Waste prevention measures	High	Low	Low	Short-term	Reducing the use of paper and single-use plastics can lead to lower costs by reducing the quantity of goods purchased and due to less waste being required for collection.	Quantity (kg or number) of paper and single-use plastic bought

Emission Sector	Intervention	MFRS Influence	Costs	Emissions Impact	Timeframe	Co-benefits	KPIs
	Reuse measures	High	Low	Low	Short-term	Lower costs	Number of reuse schemes
	Improved recycling	Medium	Low - Medium	Low	Short/medium-term	Increasing recycling, especially of plastics, can improve air quality by reducing incineration and associated emissions of GHGs	Recycling rate
Procurement	Sustainable procurement	High	Low	High	Short-term	<p>Decarbonising procurement offers the opportunity to work collaboratively with suppliers, with the potential to build and encourage the development of low carbon supply chains</p> <p>Encouraging purchasing reusable goods offers the opportunity to engage with small businesses, supporting the local economy</p>	Sustainable procurement policy complete

Emission Sector	Intervention	MFRS Influence	Costs	Emissions Impact	Timeframe	Co-benefits	KPIs
	Low carbon catering	High	Low	Low	Short/medium-term	Health and well-being benefits Possibly lower costs Other environmental benefits such as lower water use and biodiversity conservation	Percentage of catering made up of plant-based options
	Low carbon construction ¹⁴	Medium	Medium	Medium	Medium-term	Other environmental benefits such as lower water use and reduced waste impact Materials with lower embodied carbon	kWh consumed per m ² or £ spend BREAMM rating of built asset SKA rating of refurbishment

¹⁴ Please note construction costs and emission reduction impact could be high (instead of medium) i.e. if more money spent, higher standards are reached and more emissions saved.

4.1.2 Buildings and Energy

Gas and electricity consumption from operational buildings represents c. 59% of MFRS's emissions. MFRS will have high influence over the buildings it owns but potentially limited influence to make low carbon interventions in leased buildings and PFI buildings. However, with ever more organisations working towards Net Zero targets, MFRS may have opportunities to collaborate with landlords to achieve the required changes.

The following interventions and next step actions should be taken to improve energy efficiency and reduce GHG emissions from MFRS's buildings:

- **Insulation and double glazing** reduce the total amount of energy required. This can reduce GHG emissions in itself, but also is a prerequisite for low carbon heating installations, i.e. heat pumps. Actions include:
 - Implementing known energy efficiency measures, for instance following the planned energy audits at all PFI buildings;
 - Commissioning an energy audit of each non-PFI operational building including comms room and training buildings to reduce excess heating/cooling required;
 - Consider plastic curtains and/or roller shutter doors for appliance buildings to help with insulation and temperature control; and
 - Developing and implementing a staff behaviour change programme to drive reduction in overall consumption.
- Replace existing lighting with **LED bulbs** and consider **automatic lighting**. Actions include:
 - Formulating the process of automatically replacing faulty lightbulbs with LED lighting;
 - Developing a pro-active lightbulb replacement programme for priority buildings i.e. high emitting ones;
 - Ensuring opportunities for automatic lighting are considered within planned/future energy audits; and
 - Conducting a performance review of automatic lighting already in place to ensure timings are effective. Feedback received during the stakeholder workshops indicated some automatic lighting already in place does not turn off.
- Replacing gas boilers in operational buildings with an **air/ground source heat pump**. Actions include:
 - Undertaking an inventory of current gas boilers' likely replacement dates;
 - Commissioning a feasibility study for low carbon heating at each operational building, including the training buildings where electric heating (other than heat pumps), hydrogen (long-term) or heat recovery may need to be considered;
 - Commissioning a heat recovery feasibility study for the training buildings and comms room. The excess heat used in the training buildings could be recovered for use as on-site thermal storage to heat water tanks or could be used off-site as part of a local heat network. Equally, the comms room may be suitable for ambient cooling; and
 - Surveying the cooling system in the comms room for leaks assessing both whether an updated system is required and/or a refrigerant with a lower emissions intensity can be utilised.

- **Provision of renewable energy generation technology (e.g. solar PV) and battery storage.** Due to the high upfront costs of renewable energy technology, this should be considered a lower priority compared to measures that reduce energy consumption. Many of MFRS buildings are, however, a possible good location for solar PV panels, with large roof areas available. Relatively short payback times can be achieved. Actions include:
 - Commissioning a solar feasibility study across MFRS’s estate, including possible finance options; and
 - Commissioning a battery storage feasibility study, whilst acknowledging the potential fire risks.
- **Continuing to assess whether MFRS’s electricity tariff is a true green electricity tariff.** From the evidence currently available, the electricity tariff that MFRS was on until 31st March 2022 is a true green tariff. However, MFRS should ensure that its new tariff also meets the standard of a true green tariff and that it continues to meet this standard over time as standards and guidance may change. A true green electricity provider will buy or produce a unit of electricity directly from a renewable generator for every unit of electricity the provider’s customers use.¹⁵ Whilst purchasing energy through a green tariff will reduce electricity emissions to zero under the market-based approach, taking steps to improve energy efficiency is important to ensure MFRS manages future risk and protects itself from price rises in energy. Actions include:
 - Reviewing proposed REGO backed option for 2023 to understand its energy composition; and
 - Creating a business case for procuring a true green electricity tariff (if necessary).
- **Improved data collection.** Greater data availability can facilitate more targeted actions and increased awareness of energy consumption may elicit behaviour change. Actions include:
 - Increasing metering and reporting across operational buildings. When MFRS’s leases are up for renewal, or new sites are being considered, the following measures should be discussed with managing agents:
 - **Lighting Systems** – this can account for between 65-75% of energy usage in offices, retail stores and warehouses. Ensure new sites come with LED lighting as standard, with passive infrared sensors to automate controls.
 - **Heating Systems** – legacy heating systems are likely to have high losses and are expensive to operate. Ensure new sites have efficient heating systems which do not rely on natural gas.
 - **Building insulation and airtightness** should also be a key priority as these are key causes of heat loss, especially in warehouses.
 - Use **established rating systems** to assist the decision making process, ones to look out for include BREEAM, Passivhaus and SKA.^{16,17,18} Develop sustainable buildings criteria and use this to influence rental decisions.

In the meantime, MFRS should speak with landlords and PFI building managers to discuss potential decarbonisation measures in more detail.

¹⁵ Good Energy (2017) Not all green tariffs are created equal, <https://www.goodenergy.co.uk/not-all-green-tariffs-are-created-equal/>. Accessed on: 19/12/2022.

¹⁶ BREEAM, <https://bregroup.com/products/breeam/>.

¹⁷ Passivhaus, <https://www.passivhaustrust.org.uk/>.

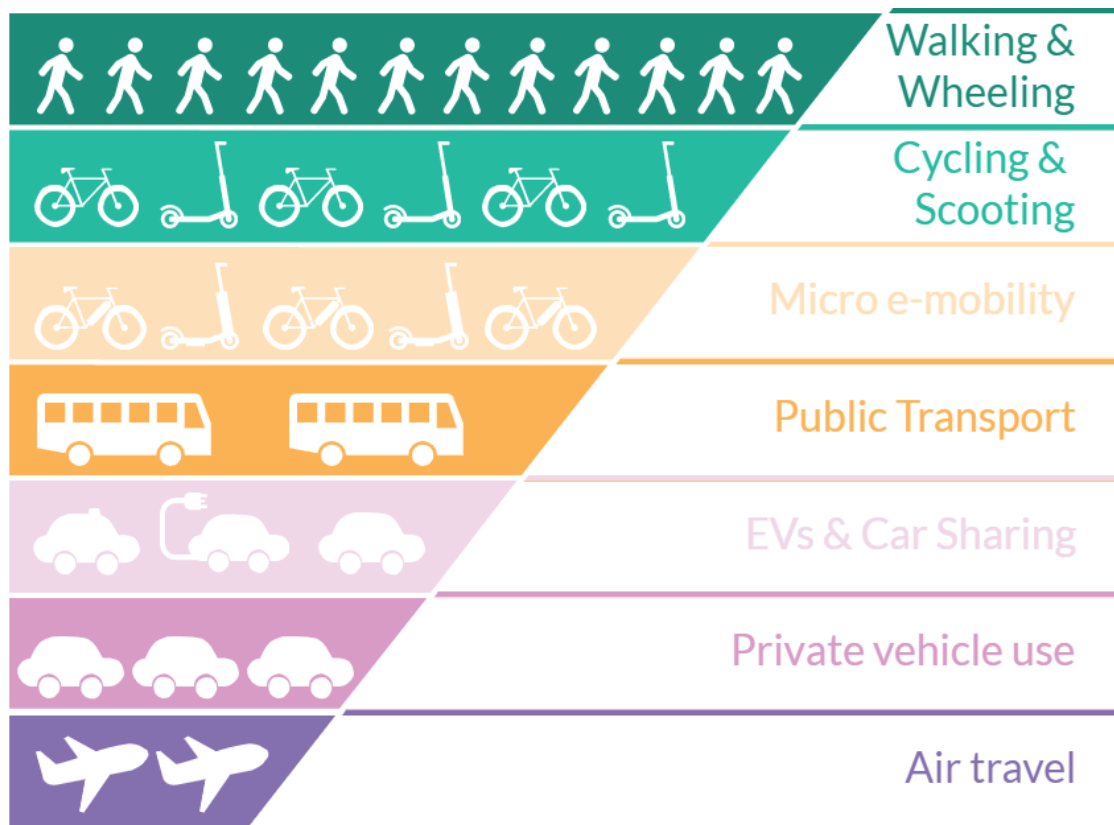
¹⁸ SKA, <https://www.rics.org/uk/about-rics/responsible-business/ska-rating/>.

4.1.3 Transport

MFRS’s transport emissions consist of emissions from its fleet vehicles (vehicles used to respond to emergencies and undertake fire safety checks, such as fire appliances, and other MFRS owned vehicles) and emissions from the vehicles used for business travel and commuting (leased vehicles and employee owned cars). In its 2022 footprint, MFRS has only recorded the emissions from its fleet vehicles, however, it is recommended that, going forward, emissions from leased vehicles and staff owned vehicles used for business travel and commuting are also captured. According to MFRS’s 2022 footprint, transport emissions from fleet vehicles account for 33% (960 tCO₂e) of MFRS’s total emissions.

MFRS has a high degree of influence over its fleet transport emissions and Sections 4.1.3.1 and 4.1.3.2 outline interventions and associated next step actions which MFRS can take in order to reduce them. The interventions and next step actions outlined align with the transport hierarchy (see Figure 4.1) which lists different transport modes, from the most to the least sustainable.

Figure 4.1: Sustainable Transport Hierarchy



4.1.3.1 Fleet Vehicles

This section outlines the interventions and next step actions which MFRS can take to reduce the emissions from its fleet vehicles. MFRS’s primary responsibility is to respond to emergencies rapidly, meaning it must have access to affordable response vehicles whose use cannot be limited through the implementation of interventions. This context was kept in mind during the development of the following interventions:

- **Reduced travel demand.** A reduction in travel demand directly results in the elimination of transport emissions as the vehicles which produce the emissions no longer need to travel. Due to the nature of MFRS’s activities, many fleet vehicle trips cannot be eliminated as this would impact MFRS’s essential services. However, certain trips can be consolidated. Actions include:
 - Assessing whether the trips taken by prevention teams for the purpose of undertaking public safety checks can be consolidated further. This can be accomplished through efficient route planning. For instance, MFRS can ensure that, where possible, multiple public safety checks in one area are undertaken within one trip; and,
 - Assessing whether there are other opportunities for fleet vehicle trip consolidation aside from the example of public safety checks.
- **Electrification and efficiency gains.** The biggest reductions in MFRS’s fleet vehicle emissions can be achieved through the replacement of diesel and petrol fleet vehicles with alternative fuel vehicles. Actions include:
 - Investigating the viability of replacing fleet vehicles with electric alternatives and undertaking replacement in line with fleet replacement cycles; and
 - Considering the viability of hydrogen and biofuel fleet vehicle alternatives. Hydrogen and biofuel alternatives are not commercially available at this point in time, but they may become so in the coming years. It is likely that these types of vehicles will primarily enter the market as replacements for heavier vehicles such as fire appliances.

Case Study: Electrification of Fire Appliances^{19,20}

There are a handful of fire and rescue services in the UK who are currently exploring the option of electric fire appliances, one of them being the Scottish Fire Service. Emergency One, a manufacturer of fire appliances and equipment, has developed the E1 EVO which is a fully electric fire appliance.¹⁹ Emergency One claims it has a 220-mile range on an 80% charge.²⁰ It can also house 1,750 litres of water, and 100 litres of foam. Scottish Fire and Rescue Service has commissioned Emergency One to provide one of the electric vehicles as a test unit. Although this vehicle will not be put into service until 2023, they estimate that an electric fire truck will reduce emissions by 66% compared with a diesel appliance. A diesel truck omits around 10.79kg CO₂e over an average six-mile journey, compared to 3.46kg CO₂e for the EV truck.²⁰

Despite the clear carbon emission benefits, there are downsides to the electric fire appliances currently available on the market. Firstly, research shows they cost twice as much as fire appliances with diesel engines. There are currently only two electric appliances on the market, costing around £600,000 per vehicle. Secondly, an Audit Wales report on the South Wales Fire and Rescue Service has suggested that EVs will have to be replaced more frequently than diesel vehicles and will therefore have subsequent implications on cost and possibly embodied carbon. Both of these downsides may no longer be relevant in a few years’ time as the market for electric vehicles is rapidly developing.

4.1.3.2 Business Travel and Commuting

Emissions from MFRS’s business travel and commuting are not currently captured in MFRS’s GHG baseline. However, it is likely that these activities generate significant emissions. For instance, in Eunomia’s experience of undertaking work for public sector bodies, it is not unusual for business travel and commuting to account for 10 – 15% of an organisation’s total transport emissions.

¹⁹ Scottish Enterprise: Emergency One: the specialist vehicle company responding to the call of the climate emergency, <https://www.scottish-enterprise.com/learning-zone/success-stories-and-case-studies/components-folder/success-stories-listing/zero-emission-emergency-vehicles-from-emergency-one>. Accessed on 19th December 2022.

²⁰ Move Electric: Hot new EV: meet the Emergency One E1 EVO fire engine, <https://www.moveelectric.com/e-world/hot-new-ev-meet-emergency-one-e1-ev0-fire-engine>. Accessed on 19th December 2022.

Unlike in the case of MFRS's fleet vehicles, the interventions which tackle business travel and commuting can more closely follow the sustainable transport hierarchy outlined in Figure 4.1. MFRS is likely to have influence over its business travel emissions, but its influence over staff commuting emissions may be limited. The key recommendations which would reduce MFRS's business travel and commuting emissions are outlined below:

- **Reduced travel demand.** A reduction in travel demand will directly result in a reduction of transport emissions as the journey's taken by staff for business travel and commuting are no longer required. Actions include:
 - Implementing a sustainable travel policy for both business travel and commuting which aligns with the sustainable transport hierarchy. For instance, a sustainable business travel policy may advise employees to prioritise active travel and public transport over car travel when choosing how to travel for business purposes. MFRS can also stipulate that staff must communicate the transport modes they wish to utilise for business travel to MFRS's sustainable transport lead (a role MFRS can assign to one of its employees) and that the sustainable transport lead must approve the staff's choices;
 - Stipulating that staff must include the travel mode and fuel type within their mileage claim. This would aid the monitoring of business travel emissions. These processes may already be set up should MFRS choose to grant different mileage claims depending on the mode of travel and fuel used, as suggested in actions below;
 - Exploring the emission reduction benefits of allowing staff to work remotely. This can be achieved as part of MFRS's remote working trial in 2023;
 - Ensuring that all employees have adequate home working equipment, either by procuring the equipment on behalf of the employees or by assigning a home-working allowance to each employee which they can use to buy their own equipment, following purchasing guidance; and
 - Permitting staff that often work from home but are required to attend site visits to store a fleet vehicle overnight at their home on a temporary basis. This would allow staff members to avoid having to commute to work to collect a fleet vehicle before attending the visit.
- **Active travel and public transport.** MFRS can reduce its emissions by replacing car trips with active travel and public transport trips. Actions include:
 - Encouraging walking and cycling.
 - Cycling can be encouraged through the promotion of MFRS's existing cycle scheme. It is worth ensuring that staff are aware of the benefit and that they are encouraged to use their bicycles for business and commuting trips.
 - Ensure that staff have access to safe bicycle and e-bicycle storage, showers and e-bicycle charging spaces at all MFRS sites. MFRS can also provide frequent bicycle safety training for their staff and hold onsite bicycle repair sessions. The training and sessions may make staff feel more comfortable when cycling and may encourage them to practise it more frequently.
 - MFRS could offer staff a monetary benefit for the miles travelled by bicycle for the purpose of business trips. This would make business travel by bicycle more attractive compared to claiming for mileage travelled via private car, especially at short distances.
 - Encouraging public transport travel. Similarly to the monetary benefit offered for cycling, MFRS could offer staff a monetary benefit when staff travel via public transport for business purposes instead of opting for private vehicle use. The monetary benefit could be claimed in addition to staff claiming for the cost of the public transport fare.
 - Implementing a policy which stipulates that all travel time spent for business purposes can be taken as time in lieu or classed as overtime. This would prevent staff from being discouraged from travelling using transport options which generally take longer, such as

public transport or cycling, as they would know that the additional time spent would not be their personal time.

- MFRS has a policy which stipulates that trips longer than 50 miles must be taken by public transport. This is a good step towards encouraging more sustainable transport options. MFRS should consider shortening this distance and also implementing a minimum distance policy which stipulates that those that are able to should opt for cycling or walking when the trips are shorter than, for instance, 1 mile.
- **Electrification and efficiency gains.** MFRS can reduce its emissions by replacing petrol and diesel vehicles used for business purposes with electric vehicles and by putting the right conditions in place to make it easier for staff to purchase/use electric vehicles themselves. Actions include:
 - Ensuring that the EV charging points installed at MFRS premises can be used by staff. This would encourage staff to purchase electric vehicles as they would know they can access a location where they can charge their vehicle at an affordable rate;
 - Ensuring that staff are aware of the UK Government EV grant scheme and EV home charging grant;^{21,22}
 - Allowing staff to claim a higher mileage rate when travelling for business using an EV than when travelling for business using petrol and diesel vehicles; and
 - Encouraging car sharing by reinstating priority car parking for those that commute to work via car sharing. This action provides a suitable incentive only if there is a limited supply of car parking in the first place.

4.1.4 Waste

Waste accounts for 8% of MFRS's emissions, with 194 tonnes of waste produced per annum across 34 sites. MFRS has a relatively high influence over improvements to the waste management on these sites and therefore has a significant opportunity to reduce emissions from waste. Minimising emissions from waste can be done by shifting materials up the waste hierarchy as shown in Figure 4.2.

²¹ UK Government: Low-emission vehicles eligible for a plug-in grant, <https://www.gov.uk/plug-in-vehicle-grants>. Accessed on: 10th January 2023.

²² UK Government: Grant schemes for electric vehicle charging infrastructure, <https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles>. Accessed on: 10th January 2023.

Figure 4.2: Waste hierarchy



The following interventions and next step actions are recommended to reduce GHG emissions from MFRS's waste:

- **Waste prevention measures.** Reducing the amount of waste produced in the first place is the most favoured option on the waste hierarchy. Waste prevention can be achieved by decreasing the amount of materials and products purchased in the first place. A reduction in plastic waste generated leads to particularly significant emission savings as the incineration of plastics causes high levels of GHG emissions. Actions include:
 - Reminding staff of the existing printing policy;
 - Removing single-use cups from water dispensers and hot drink machines and providing reusable mugs/cups to staff as an alternative;
 - Removing compostable cups and trays from sites at which they are present and replacing them with reusable alternatives. Disposing of compostable trays and cups using general waste provides no benefit compared to single use cups. They should instead be disposed of using a food waste stream. However, many waste contractors and re-processors do not like when food waste streams contain large amounts of compostable packaging as the majority of the stream should be food waste. The end destination of the food waste can also determine whether compostable packaging is accepted. If the food waste goes to In Vessel Composting (IVC) they can accept compostable packaging, however, if it is sent to Anaerobic Digestion (AD) they generally do not accept compostable packaging. Compostable packaging needs specific conditions in order to break down, which IVC provides but AD does not. Therefore, if there are facilities to wash and clean reusable cups/mugs/glasses, reusable alternatives should be the preferred option; and
 - Providing dishwashing facilities where possible to enable the use of reusable cups and trays.
- **Reuse measures.** Reuse is the second most favoured option for reducing waste related emissions. It can be achieved by identifying materials that could be diverted from disposal and sent for reuse instead. Reuse schemes are commonly used for electricals and furniture. Actions include:
 - Researching local reuse schemes available and work with other fire and rescue services to share and develop reuse schemes.
- **Improved recycling.** Whilst some of MFRS's buildings produce little recycling, the benefits of recycling exist even for small streams. MFRS should expand its recycling in order to limit the emissions and adverse environmental consequences resulting from the disposal of recyclable waste streams via general waste disposal. Ensuring plastic waste is recycled correctly is

particularly beneficial as the incineration of plastics causes high levels of GHG emissions.

Actions include:

- Ensuring all sites have general waste and recycling collections. If MFRS's recycling streams are small, MFRS should liaise with its waste provider to reduce the frequency of recycling collections, allowing the recycling to accumulate. Ensuring that recycling is clean and dry allows for easier storage of accumulated recycling between recycling collections;
- Ensuring all sites have recycling collections for batteries, scrap metal and plastic;
- Ensuring all sites with canteens/ kitchens have food waste collections;
- Investigating if there are any hard to recycle items that could be collected and recycled e.g., soft plastics, crisp packets and freezer/bread bags can usually be recycled at large supermarkets;
- Commissioning a compositional study of the general waste to understand whether there are any other waste streams which could be recycled rather than disposed of via general waste;
- Liaising with the waste provider to get signage to signpost staff to the correct bins and correct recycling behaviours;
- Removing any waste bins at desks, to promote usage of recycling bins; and
- Working with other fire services, particularly neighbouring services, to develop ways to recycle the hard to recycle wastes. For instance:
 - An example of recycling hard to recycle items is a company called Elvis and Kresse that turns decommissioned and damaged fire hoses into bags and homeware. They have worked with the London Fire Brigade since 2005, turning their old hoses into bags. For over a decade, none of London's fire hoses have ended up in landfill and over 300 tonnes of material has been reclaimed.²³
 - MFRS can also investigate the applicability of textile recycling for old uniforms. A successful scheme was previously launched by the Ministry of Defence of the Kingdom of the Netherlands.²⁴
- Taking action before March 2023 as MFRS's waste contract is up for renewal at this time. This is a good opportunity to negotiate with the existing or new waste contractor in order to ensure that MFRS improves its waste collections as outlined above.

4.1.5 Procurement

Procurement is currently not captured in MFRS's GHG emissions. It is recommended that this is captured as part of MFRS's Scope 3 emissions. This is because procurement can account for a significant percentage of an organisation's emissions. In Eunomia's experience of working with public sector bodies, it is not unusual for procurement to account for 50% - 60% of the organisation's emissions. Increasing numbers of organisations are examining their supply chains and working with suppliers to reduce emissions.

- **Sustainable procurement.** Sustainable procurement is the practice of procuring goods and services in a way that limits the negative effects on the environment and communities, or even benefits the environment and communities. There are a number of useful guides and information portals that MFRS can use to help guide procurement of

²³ Elvis & Kresse, <https://www.elvisandkresse.com/>.

²⁴ Procuraplus: Procuring textiles made from recycled Fibres, https://procuraplus.org/fileadmin/user_upload/Procura_case_studies/Procuraplus_case_study_MODNL.pdf.

goods and services e.g., TCO Certified have information on sustainable IT equipment, and Procura Plus has case studies on reused and refurbished furniture.^{25,26} Actions include:

- Incorporating the “Green Public Procurement” (GPP) EU buying standards into frameworks over Government Buying Standards (GBS). MRFS has a sustainable procurement policy and MRFS’s framework agreements include the GBS. Whilst the GBS is good, it is not updated as frequently as the GPP, and it is recommended that MRFS follows GPP over GBS.
- Procuring second-hand office and IT equipment where possible. We understand there are concerns around second-hand furniture and IT equipment, however there are safe ways to procure these, and this should not be a barrier. There is guidance in the GPP and the Crown Commercial Services procurement hub which can guide MRFS. Additionally, a company called Circular Computing remanufacture and sell IT equipment to their original specification, showing how, when undertaken correctly, there should be no barriers to purchasing second hand IT equipment.²⁷
- Creating a sustainable purchasing guide for homeworking equipment, this will allow all staff to be informed on the most sustainable option when purchasing for themselves;
- Recording emissions which are a result of procurement and tracking these emissions over time, working towards the emissions decreasing in line with MRFS’s Net Zero ambition; and
- Collaborating with other fire and rescue services to share best practice on sustainable procurement.
- **Low carbon catering.** MRFS will have a high influence over its catering decisions. Emissions can be reduced by looking at the type of food purchased, its location of origin and the associated food packaging. For example, vegetarian and vegan food choices can help reduce MRFS’s GHG footprint due to the relatively high emissions associated with the production of meat and dairy. Moreover, seasonal and locally grown fruits and vegetables will have a lower GHG footprint than those that have been transported from other countries. Excess packaging or plastic packaging can also be avoided by consciously purchasing foods that are not excessively packaged or purchasing food which is contained in recyclable packaging. Actions include:
 - Working with MRFS’s catering team to produce a sustainable food policy, this could include increasing the plant-based options available and reducing meat on offer;
 - Developing an events and meetings catering policy. The policy could state that all food provided for events and meetings must be 100% vegetarian and should be sourced from a local supplier; and
 - Ensuring that the food provided for events and meetings meets the Eatwell Guidance.²⁸ The Guidance shows how to ensure that meals are balanced and contain the appropriate amount of each food group.
- **Low carbon construction.** MRFS expects to refurbish some sites and construct new buildings over the coming years, which would result in emissions stemming from both the embodied emissions of construction and the ongoing operational emissions of new buildings. Actions to reduce emissions include:
 - Assessing how the refurbishment and construction processes can be made as sustainable as possible;
 - Ensuring that, where possible, refurbishments are paired with energy efficiency improvements; and
 - Ensuring that new buildings which MRFS constructs meet high energy efficiency and sustainability standards in order to minimise future operational emissions. For instance, ensuring that the buildings which are being constructed are well insulated and derive their

²⁵ TCO Certified: Sustainable IT for Beginners, <https://tcocertified.com/sustainable-it-for-beginners>.

²⁶ Procuraplus: Reuse and refurbishment of furniture through circular economy procurement, https://procuraplus.org/fileadmin/user_upload/Procura_case_studies/Procuraplus_case_study_Public_Health_Wales.pdf.

²⁷ Circular Computing, <https://circularcomputing.com/>

²⁸ The Eatwell Guide, <https://www.nhs.uk/live-well/eat-well/food-guidelines-and-food-labels/the-eatwell-guide/>.

power from a sustainable power source (for instance a heat pump or electric heating, rather than a gas boiler).

4.1.6 Offsetting

Under an SBT trajectory, MFRS would need to balance a maximum of 10% of baseline GHG emissions by 2040 through “the permanent removal and storage of carbon from the atmosphere”. This can take place through, for example, sequestration of carbon in trees. Purchasing carbon credits on the open market will need to be considered should the offsetting requirements be substantial.

Current carbon market prices range from approximately £10 - £100+ per tCO₂e depending on whether the projects would be UK based or international, and the type of technology/approach being delivered in the project. It is important to note that market prices are evolving quickly as a result of high levels of demand for carbon credits. Given the uncertainties regarding definitions of Net Zero and expected rates of decarbonisation, it is difficult to give a detailed prediction of how prices will evolve; however, it is safe to say that demand will increase substantially, and prices will likely increase accordingly.

Several studies point to potential **future** carbon offsetting prices of £100+ per tCO₂e, and the Government’s own projected carbon prices (not strictly for carbon offsetting but a reasonable proxy) amount to beyond £300 per tCO₂e by 2040. MFRS should therefore work on the basis that carbon offsetting is unlikely to offer a solution to Net Zero at a substantially lower cost to delivering direct reductions to the organisation’s footprint.

There are therefore two key actions that MFRS should take to deliver offsets appropriately:

- 1) Identify and plan for any land-based sequestration interventions that can be taken on MFRS’s land. This action should be taken as soon as possible as it takes time for land-based solutions to reach full capacity; and
- 2) Review the progress of reduction measures and the dynamics in the offsetting markets to determine an offsetting purchasing strategy. This should be assessed periodically. We would suggest a review in 2030 which could be used to assess whether further emphasis should be placed on reductions while there is still time to make changes. A further review should be conducted in c.2038 to set the purchasing strategy based on a realistic assessment of the residual emissions that will need to be offset, and the nature of the market at that time (including prices, quality of offsets available etc.)

4.1.7 Monitoring

There are two broad categories of data which should be monitored by MFRS to record progress towards its Net Zero 2040 target: GHG emissions data, and internal KPIs. These are described in turn below.

GHG Emissions Data

The types of data that MFRS should aim to collect is outlined in the GHG Gap Analysis Report. For instance, spend data relating to purchased goods and services and fuel consumption and fuel type data on the fuel type of owned and leased vehicles. MFRS should follow an annual data collection process. This will allow MFRS to re-calculate its GHG footprint each year, allowing yearly progress to be monitored against the indicative Net Zero pathway (Figure 3.1). This is regular enough to capture salient trends, while minimising the burden on those capturing and providing data (especially if processes are standardised). However, it may be useful to monitor more granular energy consumption trends within buildings in order to guide targeted decarbonisation action.

GHG emissions results should be collected in a central spreadsheet, allowing organisational emissions to be tracked and monitored, broken down by the source asset/activity and summarised by both scope and emission sector (i.e. transport, buildings, waste). Monitoring this will assist with staff engagement and in developing updated and targeted action plans.

Internal Key Performance Indicators (KPIs)

MFRS should also track a range of internal data (KPIs) quarterly. This information can be treated as a proxy for GHG emissions results, especially in instances when interventions or actions do not lead directly to emission savings in the short term, for instance improving data collection in buildings. It will allow MFRS to *indirectly* track and report efforts to decarbonise each asset/activity.

Examples of KPIs that will allow MFRS to report on its progress of reaching Net Zero are demonstrated in Table 4-3. Examples include:

- Number of electric vehicle charging points installed;
- Percentage of fleet vehicles electrified;
- Percentage of staff (FTE) working from home;
- Number of heat pumps installed; and
- Percentage of waste generated sent to incineration.

MFRS could track any number of KPIs and should prioritise the more tangible indicators that are most directly correlated to emissions. This is likely to include things like the proportion of buildings having undergone retrofit and percentage of fleet vehicles electrified. As MFRS has ready access to this information, it should make sure its records of all KPIs are regularly updated. This can also aid in external reporting of MFRS's actions, which is often important for building a sense of momentum and generating buy-in from staff and stakeholders.

Monitoring Governance

To aid accurate monitoring of progress towards Net Zero by 2040, we suggest the following next step actions, in addition to developing the monitoring processes outlined above:

- **Create and run steering group(s) to oversee delivery and ensure accountability** - alterations to buildings, transport, procurement and waste have the potential to disrupt day-to-day operations. It is critical that key internal departmental stakeholders are involved in the planning and management of any improvement works. We recommend establishing a cross teams climate action working group. Robust communication between teams is required to enable a holistic and efficient approach to climate action. This action applies organisation wide and should be led by a senior member of staff who can take ownership of MFRS's Net Zero programme. The steering group should also be responsible for ensuring the monitoring of both GHG emissions and KPIs happens when required and assign a manager of such tasks. Based on learnings from previous working groups the vision of the steering groups needs to be clear and set out from the offset; and
- **Select best approach for getting sign-off from key decision makers** - many interventions and actions surrounding MFRS's operations will require sign-off from relevant management and staff members. We recommend establishing a system by which heads of departments can propose new climate actions/ projects monthly for sign off and approval. This system would include the bi-monthly update of existing projects/ actions through a RAG rating, i.e. green – progressing as planned, amber – some issues encountered but still on track, red – not started and/ or significant hurdles encountered, not progressing as planned. Similarly to monitoring GHG emissions and internal KPIs, we recommend a manager of project progress is assigned to coordinate the process.

4.2 Opportunities and Risks

This section contains a discussion of the opportunities and risks for MFRS in reaching its Net Zero target and identifies interventions which MFRS may wish to prioritise.

MFRS has different levels of control for each of the interventions recommended in Section 4.0. The interventions which have a **medium-high** indicative potential emission reduction and over which MFRS has a **medium-high** level of control, as laid out in Section 4.1.1, present a **good opportunity** to support MFRS in reaching its 2040 Net Zero target.

In contrast, the interventions which have a **medium-high** indicative potential emission reduction, and over which MFRS has a **low** level of control, present a risk to MFRS reaching the 2040 Net Zero target. In GHG accounting terms, the consumer of electricity and fuels accounts for GHG emissions in their Scope 1 and 2, while the owner of the building or asset accounts for GHG emissions in their Scope 3. However, in decarbonisation delivery terms, the asset owner is likely to be the party who pays for the action, in collaboration with any lessee. Therefore, in the case of **low** control interventions, their successful implementation will predominantly **rely on the action of external agents**. In these instances, MFRS's role will therefore focus on partnership creation and lobbying and influencing external agents. The associated interventions are listed below.

- Good opportunities for intervention:
 - Insulation and double glazing;
 - Low carbon heating;
 - Renewable generation and storage;
 - Renewable electricity supply;
 - Reduce travel demand for both fleet vehicles and business travel/ commuting; and
 - Sustainable procurement.
- Interventions reliant on action by external agents:
 - Reduction of incinerated waste; and
 - Electrification and efficiency gains of vehicles.

The decarbonisation of transport is heavily reliant on the technology available. There are alternative fuels and electric fire appliances which are being trialled, but it is likely to take some time for it to be possible to transition an entire fleet. Moreover, electric vehicles are currently much more expensive than diesel fuelled vehicles and it will have a significant financial impact.

MFRS will also be heavily reliant on the decarbonisation of the national grid in line with the UK government's commitment to have Net Zero electricity by 2035. There is a risk that the national grid does not decarbonise at the pace or scale required for MFRS to meet its Net Zero target by 2040. MFRS therefore may wish to take steps to limit the reliance on the national grid decarbonisation in order to increase the likelihood of MFRS reaching Net Zero by 2040 – see Section 4.1.2. Other challenges MFRS will have to overcome to meet its target is a lack of funding and supportive Government policy.

MFRS should prioritise those interventions which present a strong opportunity to support MFRS in reaching its 2040 Net Zero target. The next step actions associated with successfully implementing these interventions are described in Sections 4.1.2-4.1.5.

However, MFRS's focus on interventions over which it has a higher level of control should not deter action – especially preparatory action – being taken in other areas. This is especially true for interventions over which MFRS has a low level of control and relies on action by external agents, but which result in medium-high emission reductions. For example, the removing of plastics before incineration. A lack of action in these areas present a risk to MFRS not reaching the 2040 Net Zero target. MFRS should therefore also seek to prioritise actions which support the successful implementation of such interventions, increasing MFRS's influence and encouraging action in these areas to reduce reliance on third parties alone. The next step actions associated with these interventions are also described in Sections 4.1.2-4.1.5.

5.0

Summary



This report summarises the challenges facing MFRS to meet its 2040 Net Zero goal and provides a recommended pathway to decarbonise its core emissions sectors (buildings and energy, transport, waste, and procurement) as is deemed feasible by 2040. The Routemap considers the realities of the situation as it stands, the future conditions for success required and the opportunities and benefits associated with decarbonising.

SBTi requires that organisations reduce their GHG emissions by at least 90% compared to their baseline in order to claim Net Zero. If MFRS chooses to follow the recommended SBTi trajectory, it would need to reduce its emissions from 2,934 tCO_{2e} in 2022 to 293 tCO_{2e} in 2040. The remaining 10% (293 tCO_{2e}) of GHG emissions would then need to be offset/ balanced to enable MFRS to claim Net Zero GHG emissions.

A significant proportion of the MFRS footprint is from fuel use, which is unsurprising given the nature of its work. However, this does make it more complex to decarbonise than other organisation types and it makes MFRS reliant on procuring alternative fuel vehicles available on the market. This challenge will be common to other fire and rescue services and there will be opportunities to share learning in this area between services.

There are many opportunities available to MFRS to decarbonise emissions. Although there are challenges ahead, MFRS has a strong foundation and clear ambition which provide the conditions to successfully achieve decarbonisation. Next step actions for each sector include:

- **Buildings and Energy**
 - Implementing known energy efficiency measures, for instance following the planned energy audits at all PFI buildings;
 - Formulating the process of automatically replacing faulty lightbulbs with LED lighting; and
 - Commissioning a feasibility study for low carbon heating at each operational building, including the training buildings where electric heating (other than heat pumps), hydrogen (long-term) or heat recovery may need to be considered.
- **Transport**
 - Assessing whether the trips taken by fleet vehicles for the purpose of undertaking public safety checks can be consolidated further;
 - Investigating the viability of replacing fleet vehicles with electric alternatives and undertaking replacement in line with fleet replacement cycles; and
 - Implementing a sustainable travel policy for both business travel and commuting which aligns with the sustainable transport hierarchy.
- **Waste**
 - Ensuring all sites have general waste and recycling collections;
 - Removing single-use cups from water dispensers and hot drink machines and provide reusable mugs/cups to staff as an alternative; and
 - Removing compostable cups and trays from sites at which they are present and replacing them with reusable alternatives.
- **Procurement**
 - Procuring second-hand office and IT equipment where possible;
 - Working with MFRS's catering team to produce a sustainable food policy; and
 - Assessing how the refurbishment and construction processes can be made as sustainable as possible.

The full list of next step actions is presented in the Appendix (Section 6.3).

6.0

Appendix



6.1 Determining a Net Zero Pathway

In order to determine a Net Zero Pathway, it is first necessary to determine the Net Zero definition that the Service wishes to adhere to and the Net Zero target year the Service wishes to aim for. These are addressed below in turn.

6.1.1 Net Zero Definition

In Section 3.1, an indicative net zero pathway which aligns with the Science Based Targets recommendations is outlined. The SBTi definition of Net Zero (see Section 3.1) is the most widely referenced one, but it is not an official definition (there is no definition provided by the UK government or equivalent body) nor is it undisputed. For instance, the SBTi trajectory could be amended through a carbon budgeting approach where MFRS is assigned a certain amount of emissions it can generate within a year until its decarbonisation date. However, in Eunomia's opinion, the SBTi Net Zero definition is currently the most credible definition and, therefore, aligning with SBTi is currently best practice. This may change in the future, but it is currently not possible to predict how this area will develop. In any case, any Net Zero definition that MFRS chooses will include both emission reductions and the offsetting of emissions. This is because Net Zero refers to the balance between the amount of greenhouse gas produced and the amount removed from the atmosphere, meaning that offsetting actions are a part of achieving Net Zero.

MFRS is not obliged to align with the SBTi trajectory and could therefore choose to put more emphasis on offsetting within their trajectory (for instance, by offsetting 20% of their emissions rather than 10%) or it could choose to put less emphasis on offsetting (for example, by offsetting only 5% of their baseline emissions). MFRS could base this decision on the cost of offsetting vs the cost of decarbonisation action. However, without detailed cost analysis it is difficult to determine the costs each would incur. Especially as the price for carbon currently fluctuates between £10 - £100+ per tCO₂e and is generally increasing over time. Offsetting is discussed further in Section 4.1.6 and recommended next step actions are outlined.

Eunomia's recommendation is that MFRS should only rely on offsetting up to the boundary set by SBTi (offsetting of 10%) due to the following:

- The current offsetting market is largely unproven, and it is difficult to determine whether the offsetting in which organisations engage is credible; and
- As the market matures and as more organisations seek to reduce their emissions through offsetting, offsetting will rapidly become more expensive. In contrast reducing emissions through decarbonisation interventions will likely be more affordable in the long-term, especially if it is started early and savings are made as a result which can be accrued over a longer period of time.

6.1.2 Net Zero Target Year

Within the context of a fire and rescue service (see Section 2.2) the level of ambition set by MFRS is sensible and Eunomia recommends that MFRS continues to aim for Net Zero by 2040. We make this recommendation based on the following reasons.

MFRS can benefit from aligning with several relevant organisations.

A target date of 2040 allows MFRS to closely follow Liverpool City Region's Net Zero target. By doing so, MFRS can benefit from local decarbonisation funds and efforts. A target date of 2040 also allows MFRS to align with the UK Government's ambition of the UK achieving Net Zero by 2050 and it is likely that as 2040 approaches, there will be more UK Government initiatives which MFRS can exploit. As mentioned in Section 2.2, a 2040 target date also broadly aligns MFRS with other Fire Services which have set decarbonisation plans, meaning MFRS can collaborate with similar organisations and align with the wider ambition of the sector.

A closer target date than 2050 means that ambition within MFRS remains high.

By choosing a 2040 target date rather than, for instance, a 2050 target date, MFRS is more likely to begin its decarbonisation actions sooner rather than leaving them for some point in the future leading to greater total emissions than necessary.

A target date beyond 2030 reflects the realities of MFRS's responsibilities and operations.

In an ideal world, all organisations could decarbonise by 2030, however, this is not going to be the case where technologies are limited and there are statutory responsibilities such as those held by MFRS. Our assessment is that trying to meet a 2030 target could well compromise statutory responsibilities which is not legal, and therefore, despite the LCC target date being 2030, a 2040 target is a better reflection of the realities of MFRS.

It aligns with MFRS's critical decision points

Finally, a 2040 target date aligns with MFRS decarbonisation opportunities as the majority of MFRS's critical decision points are before 2030, allowing MFRS to decarbonise swiftly, whilst some are later on meaning that 2030 would be too soon to reach Net Zero when taking embodied emissions into account.

Should MFRS wish to demonstrate its ambition, it could decide on a 2030 interim target. The interim target would help MFRS drive action in advance of the 2040 Net-Zero target.

6.2 Further Reading

- Estimating Energy Consumption & GHG Emissions for Remote Workers
 - https://www.anthesisgroup.com/wp-content/uploads/2021/02/Anthesis_-_Remote-Worker-Emissions-Methodology_Feb-2021.pdf
- Elvis and Kresse – Fire hoses recycled into bags and homeware
 - <https://www.elvisandkresse.com/pages/about-us-2>
- Circular Computing – Carbon neutral remanufactured laptops
 - <https://circularcomputing.com/>
- Procuring textiles made from recycled fibres
 - [Procuraplus case study MODNL.pdf](#)
- Good Energy – Information on green tariffs
 - <https://www.goodenergy.co.uk/not-all-green-tariffs-are-created-equal/>
- Science Based Targets initiative
 - <https://sciencebasedtargets.org/>
- Greenhouse Gas Protocol
 - <https://ghgprotocol.org/>

6.3 Next Step Actions

- **Buildings and Energy - Insulation and double glazing:**
 - Implementing known energy efficiency measures, for instance following the planned energy audits at all PFI buildings;
 - Commissioning an energy audit of each non-PFI operational building including comms room and training buildings to reduce excess heating/cooling required;
 - Consider plastic curtains and/or roller shutter doors for appliance buildings to help with insulation and temperature control; and
 - Developing and implementing a staff behaviour change programme to drive reduction in overall consumption (see Further Reading – Energy Efficiency Guides).
- **Buildings and Energy - Lighting:**
 - Formalising the process of automatically replacing faulty lightbulbs with LED lighting;
 - Developing a pro-active lightbulb replacement programme for priority buildings i.e. high emitting;
 - Ensuring opportunities for automatic lighting are considered within planned/future energy audits; and

- Conducting a performance review of automatic lighting already in place to ensure timings are effective. Feedback received during the stakeholder workshops indicated some automatic lighting already in place does not turn off.
- **Buildings and Energy - Energy:**
 - Undertaking an inventory of current gas boilers likely replacement date;
 - Commissioning a feasibility study for low carbon heating at each operational building, including the training buildings where electric heating (other than heat pumps), hydrogen (long-term) or heat recovery may need to be considered;
 - Commissioning a heat recovery feasibility study for the training buildings and comms room. The excess heat used in the training buildings could be recovered for use as on-site thermal storage to heat water tanks or could be used off-site as part of a local heat network. Equally, the comms room may be suitable for ambient cooling; and
 - Surveying the cooling system in the comms room for leaks assessing both whether an updated system is required and/or a refrigerant with a lower emissions intensity can be utilised.
- **Buildings and Energy - Provision of renewable energy generation technology (e.g. solar PV) and battery storage.**
 - Commissioning a solar feasibility study across MFRS's estate, including possible finance options; and
 - Commissioning a battery storage feasibility study, whilst acknowledging the potential fire risks
- **Buildings and Energy - Procuring a true green electricity tariff:**
 - Reviewing proposed REGO backed option for 2023 to understand its energy composition; and
 - Creating a business case for procuring a true green electricity tariff (if necessary).
- **Buildings and Energy - Improved data collection:**
 - Increasing metering and reporting across operational buildings. When MFRS's leases are up for renewal, or new sites are being considered, the following measures should be discussed with managing agents:
 - **Lighting Systems** – this can account for between 65-75% of energy usage in offices, retail stores and warehouses. Ensure new sites come with LED lighting as standard, with passive infrared sensors to automate controls.
 - **Heating Systems** – legacy heating systems are likely to have high losses and are expensive to operate. Ensure new sites have efficient heating systems which do not rely on natural gas.

- **Building insulation and airtightness** should also be a key priority as these are key causes of heat loss, especially in warehouses.
- Use **established rating systems** to assist the decision making process, ones to look out for include BREEAM, Passivhaus and SKA.^{29,30,31} Develop sustainable buildings criteria and use this to influence rental decisions.
- **Transport - Fleet vehicles - Reduced travel demand:**
 - Assessing whether the trips taken by fleet vehicles for the purpose of undertaking public safety checks can be consolidated further. This can be accomplished through efficient route planning. For instance, MFRS can ensure that, where possible, multiple public safety checks in one area are undertaken within one trip This would limit the need to travel from an MFRS site to the area multiple times; and,
 - Assessing whether there are other opportunities for fleet vehicle trip consolidation aside from the example of public safety checks.
- **Transport - Fleet vehicles - Electrification and efficiency gains:**
 - Investigating the viability of replacing fleet vehicles with electric alternatives and undertaking replacement in line with fleet replacement cycles; and
 - Considering the viability of hydrogen and biofuel fleet vehicle alternatives. Hydrogen and biofuel alternatives are not commercially available at this point in time, but they may become so in the coming years. It is likely that these types of vehicles will primarily enter the market as replacements for heavier vehicles such as the fleet vehicles operated by MFRS.
- **Transport - Business travel and commuting - Reduced travel demand:**
 - Implementing a sustainable travel policy for both business travel and commuting which aligns with the sustainable transport hierarchy. For instance, a sustainable business travel policy may advise employees to prioritise active travel and public transport over car travel when choosing how to travel for business purposes. MFRS can also stipulate that staff must communicate the transport modes they wish to utilise for business travel to MFRS's sustainable transport lead (a role MFRS can assign to one of its employees) and that the sustainable transport lead must approve the staff's choices;
 - Stipulate that staff must include the travel mode and fuel type within their mileage claim. This would aid the monitoring of business travel emissions. These processes may already be set up should MFRS choose to grant different mileage claims depending on the mode of travel and fuel used, as suggested in actions below;

²⁹ BREEAM, <https://bregroup.com/products/breeam/>.

³⁰ Passivhaus, <https://www.passivhaustrust.org.uk/>.

³¹ SKA, <https://www.rics.org/uk/about-rics/responsible-business/ska-rating/>.

- Exploring the emission reduction benefits of allowing staff to work remotely. This can be achieved as part of MFRS's remote working trial in 2023;
 - Ensuring that all employees have adequate home working equipment, either by procuring the equipment on behalf of the employees or by assigning a home-working allowance to each employee to allow them to buy their own equipment, following purchasing guidance; and
 - Consider permitting staff that often work from home but are required to attend site visits to store a fleet vehicle overnight at their home on a temporary basis. This would allow staff members to avoid having to commute to work to collect a fleet vehicle before attending the visit.
- **Transport - Business travel and commuting - Active travel and public transport:**
 - Encouraging walking and cycling.
 - Cycling can be encouraged through the promotion of MFRS existing cycle scheme which allows MFRS's employees to receive a discount on a bicycle equipment purchase. It is worth ensuring that staff are aware of the benefit and that they are encouraged to use their bicycles for business and commuting trips.
 - Ensure that staff have access to safe bicycle and e-bicycle storage, showers and e-bicycle charging spaces at all MFRS sites. MFRS can also provide frequent bicycle safety training for their staff and hold onsite bicycle repair sessions. The training and sessions may make staff feel more comfortable when cycling and may encourage them to practise it more frequently.
 - MFRS could offer staff a monetary benefit for the miles travelled by bicycle for the purpose of business trips. This would make business travel by bicycle more attractive compared to claiming for mileage travelled via private car, especially at short distances.
 - Encouraging public transport travel. Similarly to the monetary benefit offered for cycling, MFRS could offer staff a monetary benefit when staff travel via public transport for business purposes instead of opting for private vehicle use. The monetary benefit could be claimed in addition to staff claiming for the cost of the public transport fare.
 - Implementing a policy which stipulates that all travel time spent for business purposes can be taken as time in lieu or classed as overtime. This would prevent staff from being discouraged from travelling using transport options which generally take longer, such as public transport or cycling, as they would know that the additional time spent would not be their personal time.
 - MFRS has a policy which stipulates that any trips longer than 50 miles must be taken by public transport. This is a good step towards encouraging more sustainable transport options. MFRS should consider shortening this distance and also implementing a minimum distance policy which stipulates that those that are able to should opt for cycling or walking when the trips are shorter than, for instance, 1 mile.

- **Transport - Business travel and commuting - Electrification and efficiency gains:**
 - Installing EV charging points at MFRS premises which can be used by staff. This would encourage staff to purchase electric vehicles as they would know they can access a location where they can charge their vehicle at an affordable rate;
 - Ensuring that staff are aware of the UK Government EV grant scheme and EV home charging grant;^{32,33}
 - Allowing staff to claim a higher mileage rate when travelling for business using an EV than when travelling for business using petrol and diesel vehicles; and
 - Encouraging car sharing by providing priority car parking for those that commute to work via car sharing. This action provides a suitable incentive only if there is a limited supply of car parking in the first place.

- **Waste - Waste prevention measures:**
 - Remind staff of the existing printing policy;
 - Remove single-use cups from water dispensers and hot drink machines and provide reusable mugs/cups to staff as an alternative;
 - Remove compostable cups and trays from sites at which they are present and replacing them with reusable alternatives. Disposing of compostable trays and cups using general waste provides no benefit compared to single use cups. They should instead be disposed of using a food waste stream. However, many waste contractors and re-processors do not like when food waste streams contain large amounts of compostable packaging as the majority of the stream should be food waste. The end destination of the food waste can also determine whether compostable packaging is accepted. If the food waste goes to In Vessel Composting (IVC) they can accept compostable packaging, however, if it is sent to Anaerobic Digestion (AD) they generally do not accept compostable packaging. Compostable packaging needs specific conditions in order to break down, which IVC provides but AD does not. Therefore, if there are facilities to wash and clean reusable cups/mugs/glasses, reusable alternatives should be the preferred option; and,
 - Providing dishwashing facilities where possible to enable the use of reusable cups and trays.

- **Waste - Reuse measures:**
 - Researching local reuse schemes available and work with other fire and rescue services to share and develop reuse schemes.

³² Low-emission vehicles eligible for a plug-in grant, <https://www.gov.uk/plug-in-vehicle-grants>.

³³ Grant schemes for electric vehicle charging infrastructure, <https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles>.

- **Waste - Improved recycling:**

- Ensuring all sites have general waste and recycling collections. If MFRS's recycling streams are small, MFRS should liaise with its waste provider to reduce the frequency of recycling collections, allowing the recycling to accumulate. Ensuring that recycling is clean and dry allows for easier storage of accumulated recycling between recycling collections;
- Ensuring all sites have recycling collections for batteries, scrap metal and plastic;
- Ensuring all sites with canteens/ kitchens have food waste collections;
- Investigating if there are any hard to recycle items that could be collected and recycled e.g., soft plastics, crisp packets and freezer/bread bags can usually be recycled at large supermarkets;
- Commission a compositional study of the general waste to understand whether there are any other waste streams which could be recycled rather than disposed of via general waste;
- Liaising with the waste provider to get signage to signpost staff to the correct bins and correct recycling behaviours;
- Removing any waste bins at desks, to promote usage of recycling bins; and
- Working with other fire services, particularly neighbouring services, to develop ways to recycle the hard to recycle wastes. For instance:
 - An example of recycling hard to recycle items is a company called Elvis and Kresse that turns decommissioned and damaged fire hoses into bags and homeware. They have worked with the London Fire Brigade since 2005, turning their old hoses into bags, For over a decade, none of London's fire hoses have ended up in landfill and over 300 tonnes of material has been reclaimed.³⁴
 - MFRS can also investigate the applicability of textile recycling for old uniforms. A successful scheme was previously launched by the Ministry of Defence of the Kingdom of the Netherlands.³⁵

- **Procurement - Sustainable procurement:**

- Incorporate the GPP into frameworks over GBS. MFRS have a sustainable procurement policy and MFRS's framework agreements include the GBS. Whilst the GBS is good, it is not updated as frequently as the GPP EU buying standards, and it is recommended that MFRS follows GPP over GBS.
- Procure second-hand office and IT equipment where possible. We understand there are also concerns around second-hand furniture and IT equipment, however there are safe ways to procure these and this should not be a barrier. There is guidance in the GPP and

³⁴ Elvis & Kresse, <https://www.elvisandkresse.com/>.

³⁵ [Procuraplus case study MODNL.pdf](#)

the Crown Commercial Services procurement hub which can guide MFRS. Additionally, a company called Circular Computing remanufacture and sell IT equipment to their original specification, showing when undertaken correctly there should be no barriers to purchasing second hand IT equipment.³⁶

- Creating a sustainable purchasing guide for homeworking equipment, this will allow all staff to be informed on the most sustainable option when purchasing for themselves;
- Recording emissions which are a result of procurement and track these emissions over time, working towards the emissions decreasing in line with MFRS's Net Zero ambition.
- Collaborating with other fire and rescue services to share best practice on sustainable procurement.
- **Procurement - Low carbon catering:**
 - Working with MFRS's catering team to produce a sustainable food policy, this could include increasing the plant-based options available and reducing meat on offer;
 - Developing an events and meetings catering policy. The policy could state that all food provided for events and meetings must be 100% vegetarian and should be sourced from a local supplier;
 - Ensuring that the food provided for events and meetings meets the Eatwell Guidance.³⁷ The Guidance shows how to ensure that meals are balance and contain the appropriate amount of each food group.
- **Procurement - Low carbon construction:**
 - Assessing how the refurbishment and construction processes can be made as sustainable as possible.
 - Ensuring that, where possible, refurbishments are paired with energy efficiency improvements.
 - Ensuring that new buildings which MFRS constructs meet high energy efficiency and sustainability standards in order to minimise future operational emissions. For instance, ensuring that the buildings which are being constructed are well insulated and derive their power from a sustainable power source (for instance a heat pump or electric heating, rather than a gas boiler).
- **Monitoring:**
 - Create and run steering group(s) to oversee delivery and ensure accountability
 - Select best approach for getting sign-off from key decision makers

³⁶ Circular Computing, <https://circularcomputing.com/>

³⁷ The Eatwell Guide, <https://www.nhs.uk/live-well/eat-well/food-guidelines-and-food-labels/the-eatwell-guide/>.

