



Cheshire
Fire & Rescue Service
75 YEARS OF SAVING LIVES



Carbon Emissions Calculation Report

April 2022 – March 2023

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Environment & Sustainability





Carbon Emissions Report

Executive Summary

The purpose of this report is to provide Cheshire Fire and Rescue Services with update of progress against the organisations carbon emissions reduction target.

The baseline set against the organisations carbon emissions in 2017¹.

The 2021/22 carbon report detailed a reduction of 53% from a base-line figure from 2017.

The report focuses on reduction within Cheshire Fire and Rescue Services premises and vehicles fleets.

This report utilises a combination of building energy consumption data, fleet vehicle fuel consumption records and finance data as recorded by Cheshire Fire and Rescue Service. All the consumption data provided was verifiable to the source. There was no use of estimated data in the 2022/23 period.

The baseline carbon emissions from 2017/18 were confirmed at 2,057 Tonnes CO₂e on the Fire Service Carbon Emissions Report 2017-18

The normalised carbon emissions from 2022/23 were calculated at 833 Tonnes CO₂e.

The reduction in carbon emissions from baseline levels is therefore 1,224 Tonnes CO₂e.

This represents a 59% reduction from baseline.

Government expectations of public bodies was to achieve a reduction of 30% by 2020. Cheshire Fire and Rescue Service did set a target of a reduction of 40% by 2020 from a baseline in 2009 and this was achieved.

There is a future Government expectation of achieving 50% reduction in Carbon Emissions by 2032. Government focus on this will evolve because of the focus on Carbon Emissions and the Climate Change net zero commitments nationally by 2050.

We have set aspirational goals to achieve 60% reduction by 2025 and 80% reduction by 2030 and this focus will be led by the Environment and Climate Change Strategy 2020 to 2025 and the Environment and Sustainability Working Group initiative set up in 2021.

Key Milestones from current government policy must be considered in strategic decisions.

¹ This is change from the previous base-line of 2009 due to government changes in recording emissions reductions.





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- Reduction of national emissions by 78% by 2035 from 1990 levels is now enshrined in UK Law – Carbon Budget Order 2021.
- Sale of petrol/diesel and fossil fueled vehicles ceases in 2030.
- Public Authority emissions cut by 50% by 2032 from a base-line of 2017 emissions.

1 Background

In 2008, Cheshire Fire and Rescue Service joined the Carbon Trust Local Authority Carbon Management Scheme to develop a Carbon Management Plan designed to reduce the service carbon emissions.

To achieve this reduction target, a range of carbon abatement schemes were developed to reduce carbon emissions from Fire Service premises and its vehicle fleet.

Since 2017 Cheshire Fire and Rescue Service have engaged ESOS Energy to review and verify its annual carbon emissions and for the fiscal year of 22/23 provided a progress update report. This data will be used to track performance against target, and to develop further carbon reduction strategies.

2 Carbon Emission Performance

2.1 Overview

ESOS Energy have completed a carbon emission verification covering all building energy consumption carbon emissions (gas, electricity etc) and all fleet vehicle carbon emissions (petrol, diesel etc) for the year 2022/23.

Building energy consumption data and fleet mileage data was provided by Cheshire Fire & Rescue Service and was processed, analysed, and reported by ESOS Energy. The accuracy of the calculation relied on collating consumption data for all the emission sources. For gas and electricity, data was provided in kilowatt hours (kWh) from meter readings or bills.

Fleet and transport emissions, this was provided by fuel type.

Since April 2020, Cheshire Fire and Rescue Service has been supplied by 100% renewable electricity from their providers Total Gas and Power. Please see Appendix A for Pure Green Certification.

Fuel Type	kgCO ₂ e
Natural Gas	0.183
Electricity	0.000
Burning Oil	0.247
LPG	0.214
Diesel Miles	0.270
Petrol Miles	0.294
Diesel Litres	2.558
Petrol Litres	2.162

The carbon emissions are calculated using the activity data collated multiplied by standard emissions factors. Conversion of energy and mileage data to tCO₂e was conducted using, **Greenhouse gas reporting: conversion factors 2022.**





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2.2 Results Building Stock

The table below summarises the Fire Service building stock carbon emissions:

*The Zero CO₂e figure is a direct result of moving to a renewable power supply.

Summary of Building Stock 2022-2023		
Fuel	kWh	Tonnes CO ₂ e
Natural Gas	2,452,101	506
Electricity	2,216,174	0*
Oil	0	0
TOTAL		506

2.3 Results Red Vehicle Fleet

The table below summarises the Fire Service vehicle fleet carbon emissions:

Summary of Vehicle Fleet 2022-23		
Fuel	Total Miles	Tonnes CO ₂ e
Unleaded	43,783	13
Diesel	764,867	207
TOTAL	808,650	220

2.4 Results Grey Vehicle Fleet

The table below summarises the Fire Service vehicle fleet carbon emissions:

Summary of Vehicle Fleet 2022-23		
Fuel	Total Litres	Tonnes CO ₂ e
Unleaded	11,906	26
Diesel	31,993	82
TOTAL	43,898	108





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2.5 Current Performance Against Baseline

The table below summarises Cheshire Fire and Rescue Service performance for the year 202/23 against the baseline year of 2017/18:

Year	Carbon Emissions (Tonnes CO ₂ e)	Variation %
2017/18	2,057	-
2018/19	2,056	-0%
2019/20	1,754	-15%
2020/21	835	-59%
2021/22	962	-53%
2022/23	833	-59%

2.6 Historic Performance (For Reference Only)

The table below details the historic performance from the baseline of 2009 and the progress made before the change in guidelines by central government.

Year	Carbon Emissions (Tonnes CO ₂ e)	Variation %
2010/11	2,862	-3.6%
2011/12	2,734	-7.9%
2012/13	2,479	-16.5%
2013/14	No Data	No Data
2014/15	No Data	No Data
2016/17	2,164	-27%
2017/18	2,057	-31%
2018/19	2,056	-31%
2019/20	1,754	-41%

2.7 Conclusion

The reduction in carbon emissions from baseline levels is 1,224 Tonnes CO₂e. This represents a 59% reduction from baseline, which is an average reduction of 279 Tonnes per annum.

Cheshire Fire and Rescue Service has decreased carbon emissions by 129 Tonnes CO₂e since the previous year's assessment in 2020/21. This is around a 15% decrease in emissions from the previous year.

This result and decreased in carbon emissions returns us to our performance measure reported in 2020/21.





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A year-on-year emissions comparison table provides insight into this performance improvement. The reduction in our most carbon intensive fuel, diesel, is showing the benefits of the introduction of more electric vehicles to the fleet.

Gas calculations show a fall of 609,191kWh against the previous year as more electric fuelled solutions are introduced in the modernisation program to replace fossil fuelled heating systems.

Fuel	Last Year Tonnes	This Year Tonnes	Variance	% Variance
Normalised Natural Gas	560	506	54	-10%
Electricity	0	0	0	-
Unleaded	24	39	15	63%
Diesel	378	289	89	-24%

CFRS need to continue to implement carbon abatement schemes – with a particular focus on vehicle emissions.

Cheshire Fire and Rescue Service is still on track to meet its aspirations and targets in terms of carbon emissions. Some of the investments in environmental improvements as part of the modernisation project need to be maintained and fully funded to continue to meet our strategic objectives of carbon neutrality.

In 2023/24 we will begin the process of identifying and understanding our embedded carbon as part of our scope 3 emissions. A paper will be considered at a meeting of the Environment and Climate Change working group to start detailed analysis. The results will sign-post where further actions need to be taken towards net zero as an organisation.

Carbon abatement and sustainable practices need to be the platform of all business and operational decisions moving forward. Every project and business initiative should be mandated to have completed a full environment and sustainability impact assessment before progressing from scope stage.





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Appendix 1



Pure Green Supply Certificate

This is to certify that

Cheshire Fire and Rescue

Uses electricity that is **100%** generated from
wind, solar and hydro sources

Supply Period 01/04/2022 – 31/03/2023

Signed *Mark Rose*

Mark Rose, Director, Sales & Marketing
on behalf of **TotalEnergies Gas & Power**

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Date 18/08/2022



Our independent assurance report was created by Deloitte and assures whether the renewable electricity supplied by TotalEnergies under our Pure Green product is backed by relevant Renewable Energy Guarantees of Origin (REGOs) certificates from solar, wind, tidal and hydroelectric generation sources. This means that your electricity usage can be reported as zero carbon under a market-based emissions reporting approach in accordance with Greenhouse Gas Protocol Scope 2 Reporting Guidance

