Ymddiriedolaeth GIG
Gwasanaethau Ambiwlans Cymru
Welsh Ambulance Services
NHS Trust

Welsh Ambulance Services NHS Trust

# Sustainability Report

2022-23

Version 3.0 21.08.2023

# PREFACE

This report provides a detailed and comprehensive breakdown of Welsh Ambulance Services NHS Trust (WAST) carbon emissions arising in 2022-23 from across WAST's operations and estate. WAST has used Welsh Government (WG) carbon calculation methodology, as instructed via the Public Sector Net Zero Reporting Guide

This report also provides a comparative analysis of performance in relation to the previous years' data and to the updated baseline year of 2018. It has been prepared following a review of internal and external documentation, interrogation of source data and data collection systems.

WG Sustainability Report writing guidance as detailed in the NHS Wales 2022-2023 Manual for accounts, chapter 3, has been followed with consideration given to HM Treasury reporting guidance.

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# 1.0 EXECUTIVE SUMMARY

The Welsh Ambulance Service (WAST) is aware of its obligation to reduce its effect on the environment, and as such shares a common ambition with Welsh Government (WG) to be a key player in meeting the public sector net zero carbon status by 2030.

To support this journey, WG published the NHS Wales Decarbonisation Strategic Delivery Plan (NHSW-DSDP) in 2020. This plan sets out goals and milestones for NHS bodies in order to deliver a carbon reduction target of 34%, of the combined 2018-19 annual baseline of 1,001,378 $tCO_2e$ by 2030. In order to understand the effectiveness of the plan both qualitative and quantitative reporting is produced and reported to WG, identifying both positive and negative outcomes. A decarbonisation action plan (DAP) has been published by WAST, to identify actions and action owners to meet the required outcomes.

| WAST Emissions (*Units of $tCO^2e$*) | |
|---|---|
| 2022-23 | 773,379 |
| 2021-22 | 32,342 |

WAST's calculated carbon (equivalent) emissions for 2022-23 are over 773,000 $tCO_2e$, a substantial increase on 2021-22 reported emissions, and those calculated to develop the NHS accumulative 2018-19 baseline. However, it should be noted that changes to WG carbon calculation methodology for quantitative reporting, between strategic plan conception and current public sector carbon reporting, has brought about challenges, not least being the inability to advise on carbon reduction/ increase in comparison to baseline. This has further been affected by additional reported emission areas being included within reported data, from both baseline and the previously reported emissions. Therefore, for WAST to have some understanding of its carbon footprint, data from 2018-19 until 2020-21 has been converted into carbon emissions, using 2021-22 carbon reporting methodology. Presenting an effective comparison carbon emissions journey. This report provides a comprehensive explanation of report factors and reported guideline differences, including the change to reporting emissions in Kg's rather than tonnes, plus additional comparison data, allowing the reader to further understand the Trust's carbon reduction journey. This however does not include supply chain emission.

Work is ongoing to mitigate the trusts carbon emissions within the existing Estate by installing Solar Panels and Battery Storage with the addition of low carbon heating

systems such as Air Source Heat Pumps where appropriate, a move away from high emitting fossil fuel heating. New additions to the Trust's Estate have been designed to maximise operational carbon emissions, including renewable technology as standard. To support the capital development team a sustainable retrofit guide, specific to WAST estate has been written, with NWSSP framework guidance on new builds and major refurbishment due imminently. Waste use requires attention, with the use of this finite resource showing little change since baseline. Design changes to the Trust fleet and transition to low emission vehicles, supported by a new electric vehicle charging network across the trust has seen a positive effect on fleet emissions, assisted by active travel response by the Trusts CRU Team. Business travel remains low compared to baseline figures, however a published Green Travel Plan for all trust activities is a required action under the DAP, therefore a travel hierarchy must be established within the next 2 years to reduce these emissions further. Waste emissions, both domestic and clinical remains comparatively low, however recycling targets set by WG are not being met at the majority of sites, which will be further impacted by new legislation set to come into force in April 2024. A focused waste reduction plan is to be developed to support change to new legal compliance. Additional reporting avenues within scope 3 emissions include commuting and homeworking which, at this time, cannot be successfully quantified. Additional workstreams will have to be resourced and agreed. Supply chain emissions have been calculated by NWSSP Procurement. Challenges to procurement streams related to both environmental and financial impacts are imperative. Product lifecycle assessments should be prioritised to ensure a true cost is identified. New emissions reported for 2022-23 include medical gasses and fluorinated gases. Limited emission factor options for Entonox has in all probability increased emissions by more than required, however as both types of gas have high emission factors the Trusts emissions would have increased on last year's figures significantly.

In addition to these decarbonisation aspects the Trust has retained its ISO14001 accreditation, the only ambulance service in the UK to hold this environmental accreditation standard.

# 2.0 INTRODUCTION

The Welsh Government (WG) have committed to reducing national carbon emissions, with the ambition to meet a net zero target by 2050. The Welsh public sector have been identified as releasing 1% of the national calculated carbon emissions. WG have enshrined in law the need for the public sector, as a collective to be carbon neutral by 2030. To support this aim, the WG have instructed all public bodies to reduce their carbon emission, with varying percentages of reduction per service, dependent on their current impact. Carbon sequestration offsetting will be included in the public service reduction target.

## 2.1 NHS WALES DECARBONISATION STRATEGIC DELIVERY PLAN

In 2021, WG, aided by the Carbon Trust, published the NHS Wales Decarbonisation Strategic Delivery Plan (NHSW-DSDP). This plan sets out goals and milestones for the Welsh NHS to achieve by 2030. The strategy is structured into six activity streams.

- *Carbon management*
- *Buildings*
- *Transport*
- *Procurement*
- *Estate Planning & Land Use*
- *Approach to Healthcare*

These streams include 46 ambitious initiatives and over 130 actions with various dates of implementation and completion. WAST has been instructed within the strategy to meet initiatives and actions beyond those asked of other health boards and Trusts. WAST are the only NHS Wales organisation specifically named, apart from NHS Wales Shared Services Partnership.

The NHS in Wales, including WAST, have been set the target of reducing its combined annual carbon emissions of 1,001,378 $tCO_2e$ by 34% by 2030, on 2018-19 baseline figures, with an incremental date of 2025, where a reduction of 16% is required. (Carbon Trust , 2021). Emissions have been attributed to the three scopes as defined by the Green House Gas Protocol (GHGP). *Figure 1*.

In 2018-19 WAST contribution using 2018-19 calculation methodology was 12,254 tCO2e (excluding supply chain scope 3 emissions).

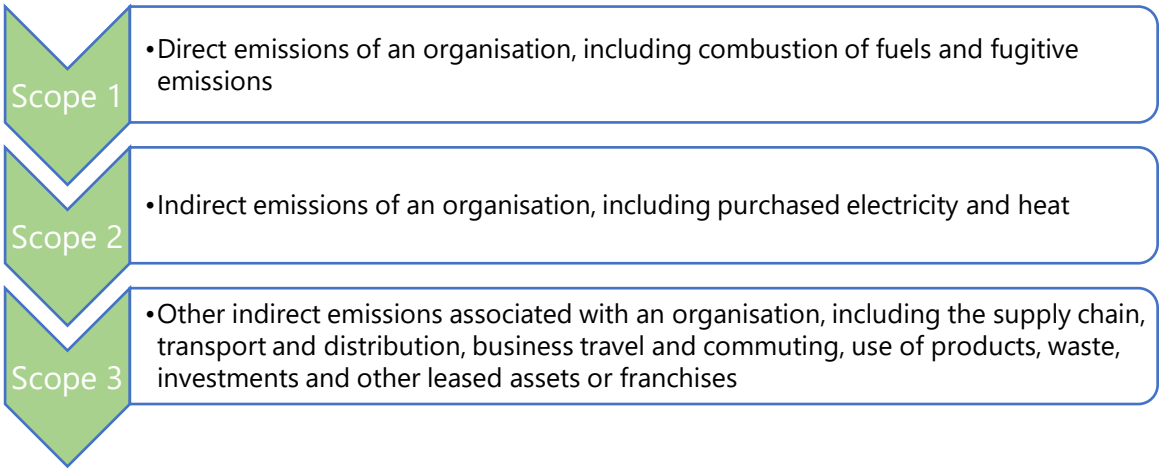


*Figure 1: Emission scopes as defined by the Green House Gas Protocol (GHGP).*

The following charts detail the emissions attributed to each scope & carbon footprint category.

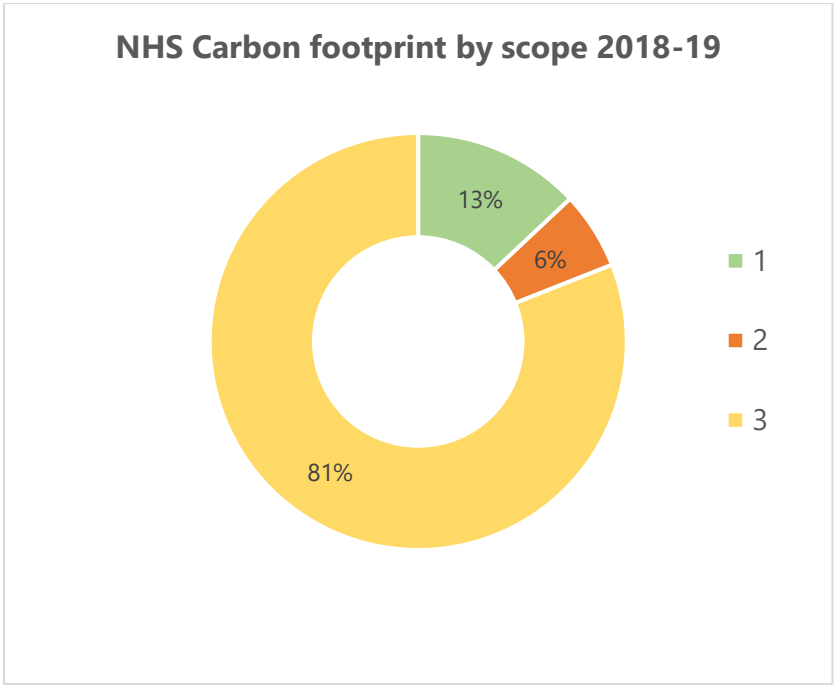


*Figure 2: NHS carbon footprint by scope 2018-19 (Carbon Trust , 2021)*

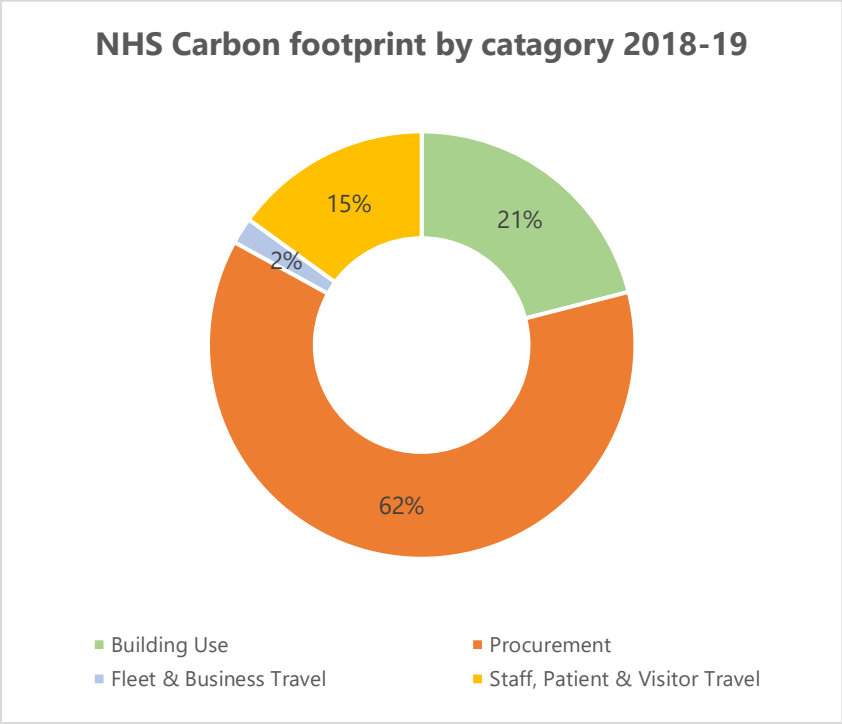


*Figure 3: NHS Carbon footprint by category, 2018-19 (Carbon Trust , 2021)*

To deliver the requirements of this strategy, a Decarbonisation Project Board and supplemental project teams have been assembled, alongside a Decarbonisation Action Plan (DAP), detailing specific actions and action owners.

## 2.2 PUBLIC SECTOR NET ZERO CARBON REPORTING.

Following the publication of the NHSW-DSDP changes to benchmarking, reporting and response were directed. In previous years NHS bodies reported carbon emissions following HM Treasury guidance, however, due to the collective nature of a net zero public sector ambition, in 2021 WG, supported by Aether, a climate change specialist consultancy, produced an annual carbon reporting data set for all public bodies to complete and report. Changes to reporting guidance and previous benchmarking data calculation methodology has been challenging, this includes excluding previously agreed carbon emissions benefits, such as Renewable Energy guarantees of Origin (REGO) certificate purchased energy, which previously was reported as renewable energy, now cannot. In 2022-23 this data set was expanded to include medical gasses and F-gas (a/c systems), this addition has significantly increased reporting emissions. To this end it has been noted by WG that the initial NHS 2018 baseline of 1,001,378 $tCO_2e$ is insufficient, and therefore requires revisiting. Calculation factors are published annually by DEFRA for the previous

financial year, factors do not stay stagnant, they increase/decrease dependent on new research and guidance.

The reported data for each carbon element is categorised in scope, but also quality. A tier system was included to quantify the data value, plus its ease of collation, tier 1 has the lowest form of accuracy, tier 2 an intermediate choice where some data is available and tier 3 for accurate quantifiable data.

*Table 1: Carbon reporting, category, and tier.*

| Category | Tier | Metric | Data used |
|---|---|---|---|
| Electricity | 3 | kWh | Direct and indirect billing using smart meter reads & 3rd party invoicing. Some minor estimates are also included. Previous years usage taken from Sustainability Report and EFPMS report 2018-19 to present |
| Natural Gas /LPG | 3 | kWh/Litre | Direct and indirect billing using smart meter reads & 3rd party invoicing. Some minor estimates are also included Previous years usage taken from Sustainability Report and EFPMS report 2018-19 to present |
| Fleet Fuel – Diesel, Petrol & EV | 3 | Litre | Direct billing. Previous years usage taken from Sustainability Report and EFPMS report 2018-19 to present |
| Water | 3 | $M^3$ | Direct billing- water meters. Some minor estimates are also included Previous years usage taken from Sustainability Report and EFPMS report 2018-19 to present |
| Medical Gas | 3 | Kg | Direct billing. |
| Fgas | 3 | Kg | Unit volume taken from F-Gas register for the Trust. Estates Shared Drive. |
| Business Travel | 2 | £/miles & km | Some mileage is reported for car use, public transport totals calculated using public transport benchmarking methodology via reporting guidance. Previous years usage taken from Sustainability Report and EFPMS report 2018-19 to present |
| Commuting | 1/2 | Number of employees | Calculated using commute methodology via reporting guidance. |
| Homeworking | 1/2 | Number of employees | Calculated using homeworking methodology via reporting guidance |

| | | | |
|---|---|---|---|
| Waste | 3 | Tonne/Kg | Direct billing – national tender includes instruction to weigh waste at collection. Previous years usage taken from Sustainability Report and EFPMS report 2018-19 to present |
| Land Use | 3 | Hectares | Land volume information already available – reported data is Flintshire AAC /Dobshill |
| Supply Chain | 1 | £ | Supplied by NWSSP procurement and reported by SIC code. |
| Renewables | 3 | kWh | Generation information via solar edge portal and PV meter reads. |

# 3.0 CARBON REPORTING DATA

2022-23 carbon reporting calculations have seen a significant increase on 2021-22 figures. *Table 2*. This increase is due to changes on reporting metrics and the inclusion of medical gasses and estate F-gas emissions to total emission values. 2022-23 calculations have included carbon sequestration from Trust land, mainly AAC Flintshire (Dobshill), meaning a carbon offset of -14535KgCO$^2$e has been subtracted from the overall emissions total. *Table 3*.

*Table 2: WAST total carbon emissions by scope - 2021-22 & 2022-23: Public Sector Carbon Reporting*

| Units of $kgCO_2e$ | | | | |
|---|---|---|---|---|
| | **Direct** | **Indirect** | **Indirect** | **Total** |
| | **Scope 1** | **Scope 2** | **Scope 3** | |
| **2022-23** | **751,882,544** | **640,622** | **20,855,684** | **773,378,850** |
| 2021-22 | 11,127,456 | 693,427 | 20,520,833 | 32,341,716 |

In order to understand if WAST has improved on its 2018-19 benchmarking position, 2021-22 carbon reporting metrics have been used to calculate the 2018-19, 2019-20 and 2020-21 emissions, using the Aether amended calculation methodology, utilising the annual EFPMS returns. This information and method of benchmarking will provide an efficient system of emission comparison. Reported categories have been segregated to show individual category reported data, plus additional benchmark categories, bespoke to WAST.

To conform with the WG requirement for sustainability reporting the following mandatory tables have been included within the report:

- Greenhouse Gas Emissions
- Waste

- Use of Resources

*Table 3: Trust emissions by category 2021-22 & 2022-23*

| Category | 2022-23 | 2021-22 | Difference +/- |
|---|---|---|---|
| | Kg $CO^2e$ | Kg $CO^2e$ | Kg $CO^2e$ |
| Medical Gasses | 739,904,200 | n/a | n/a |
| FGas | 971,686 | n/a | n/a |
| Fleet Fuel | 13,039,762 | 13,066,596 | -26834 |
| Electricity | 855,981 | 951,327 | -95346 |
| Water | 2,654 | 2,604 | 50 |
| Gas/LPG | 605,076 | 732,989 | -127914 |
| Business Miles | 543,227 | 503,687 | 39540 |
| Domestic Waste | 39,767 | 48,751 | -8984 |
| Fleet Waste | 781 | 639 | 142 |
| Commuting & homeworking | 283,737 | 275,193 | 8544 |
| Land sequestration | -14,535 | n/a | -14535 |
| Supply Chain | 17,146,514 | 16,759,929 | 386,585 |
| **Total** | **773,378,849** | **32,341,716** | |
| | | | |
| Renewables | -27312 | -4117 | -23195 |

Additional narrative will be included in connection to performance and targets, with any issues relating to data availability already noted within Table 1. HM Treasury guidance on sustainability reporting has been reviewed for consideration of incorporation, some aspects of which have been included. This report will be made available on the WAST website, under publications via the following link. https://ambulance.nhs.wales/about-us/publications/

*Table 4: Greenhouse gas emissions table: WG: Sustainability Report Guidance*

| Greenhouse Gas Emissions | | 2021-22 | 2022-23 |
|---|---|---|---|
| Non-Financial Indicators (Kg $CO^2e$) | **Total Gross Emissions** | **32,341,716** | **773,378,849** |
| | Gross Emissions - Fleet Fuel | 13,066,596 | 13,039,762 |
| | Gross Emissions - Natural Gas & LPG | 732,989 | 605,076 |
| | Gross Emissions - Electric | 951,327 | 855,981 |
| | Gross Emissions - Business Travel | 503,687 | 543,227 |
| | Gross Emissions- Clinical & domestic Waste | 48,751 | 38,561 |
| | Gross Emissions – Medical Gas | n/a | 739,904,200 |
| | Gross Emissions- FGas | n/a | 971,686 |
| | Gross Emissions- Water | 2,604 | 2,654 |
| | Gross Emissions- Fleet Waste | 639 | 781 |
| | Gross Emissions - Commuting & homeworking | 275,193 | 283,737 |
| | Gross Emissions- Supply Chain | 16,759,929 | 17,146,514 |
| | Gross Emissions- Land sequestration. | n/a | -14535 |
| Related Energy Consumption (KwH) | Electricity - Non-renewable | 3,265,800 | 3,272,725 |
| | Electricity- Renewable | 14,132 | 104,425 |
| | Gas | 3,417,040 | 3,083,010 |
| Energy consumption in litres*/kWh** | Fleet Fuel- Diesel* | 4,010,878 | 3,963,344 |
| | Fleet Fuel – Petrol* | 193,653.00 | 8,911.13 |
| | Fleet Fuel- Electricity** | 0 | 40,037 |
| Financial Indicators (£) *** | Expenditure on Energy | £1,156,991 | £1,543,566 |
| | Expenditure on Official Business travel | £538,089 | £697,353 |

*** Taken from EFPMS report 2021-22 & 2022-23

## 3.1 ELECTRICITY

With the exception of 2020-21, electricity has achieved a gentle reduction in use. Considering however the increase estate portfolio, increased numbers of building-based roles and associated electronic equipment required, plus a significant increase in workforce on 2018-19 figures, this reduction shows movement in the right direction.

Disposal of ineffective estate and inclusion of newer more efficient buildings has supported this downward trend, alongside increased energy efficiency of electronic

hardware. With the financial support of the WG, via the Estates Funding Advisory Board (EFAB), installation of direct renewable energy systems at 12 sites across Wales was achieved. This has shown a positive effect on external power requirements, generating 104,425 kWh of renewable power during 2022-23, a saving of over 27,000 Kg $CO^2e$ and £43k on average gross cost rates.


*Figure 4: PV installations Lampeter Ambulance Station, Bennett Street and Beacon House 2022-23.*

Electric vehicle charging point (EV) related electricity usage, is reported outside of this category. Increased costs due to energy uncertainty globally has seen an overall energy cost increase per kWh on previous years values.

Calculated baseline comparison shows:

**18%** reduction of electricity use since 2018-19. *(Figure 5)*

**22%** reduction of electricity per $m^2$ since 2018-19. *(Figure 6)*

**18%** reduction of electricity per employee (WTE) since 2018-19. *(Figure 7)*

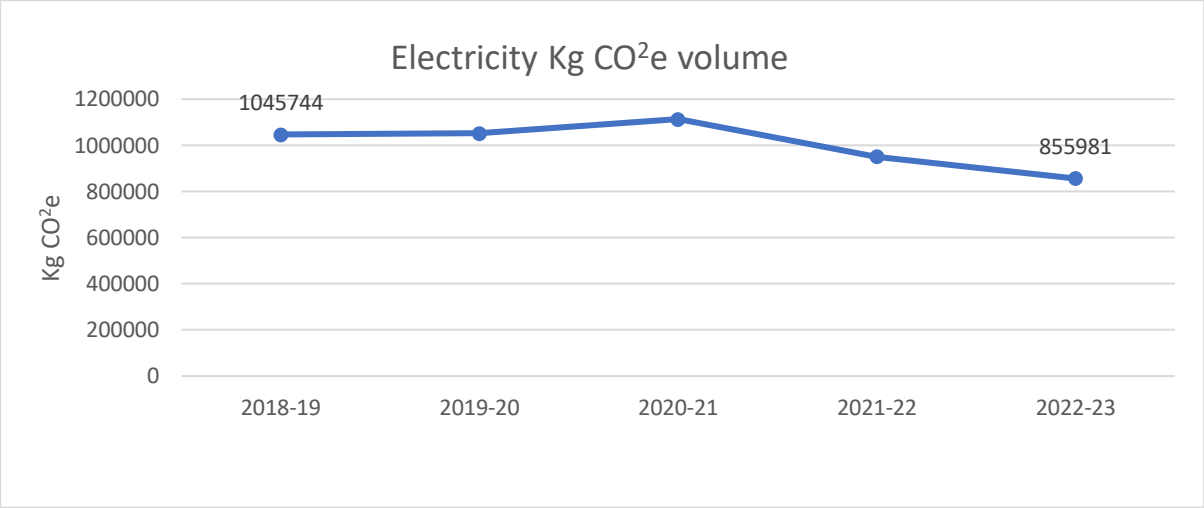


*Figure 5; Electricity use in volume (per Kg $CO^2e$) 2018-19 to 2022-23*

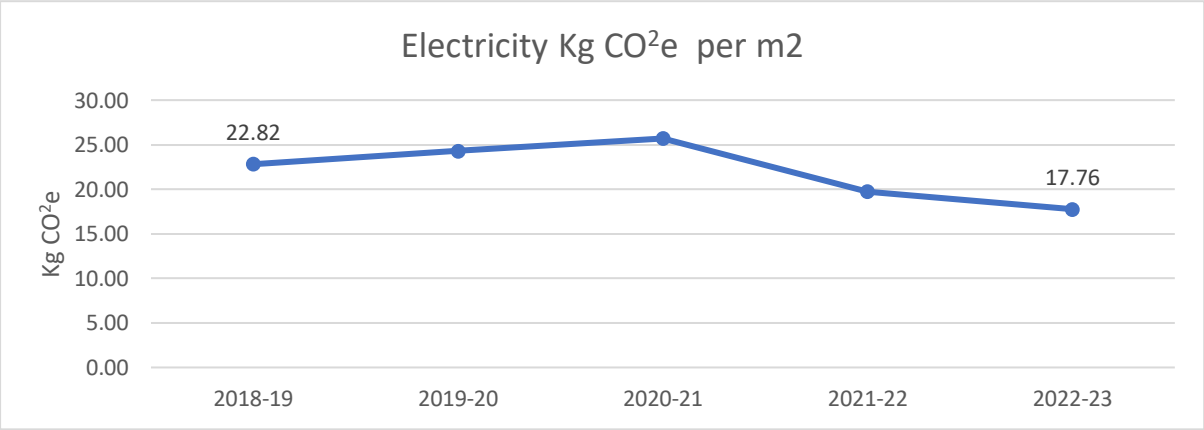


*Figure 6: Electricity per $m^2$ of WAST estate (Kg CO2e) 2018-19 to 2022-23*

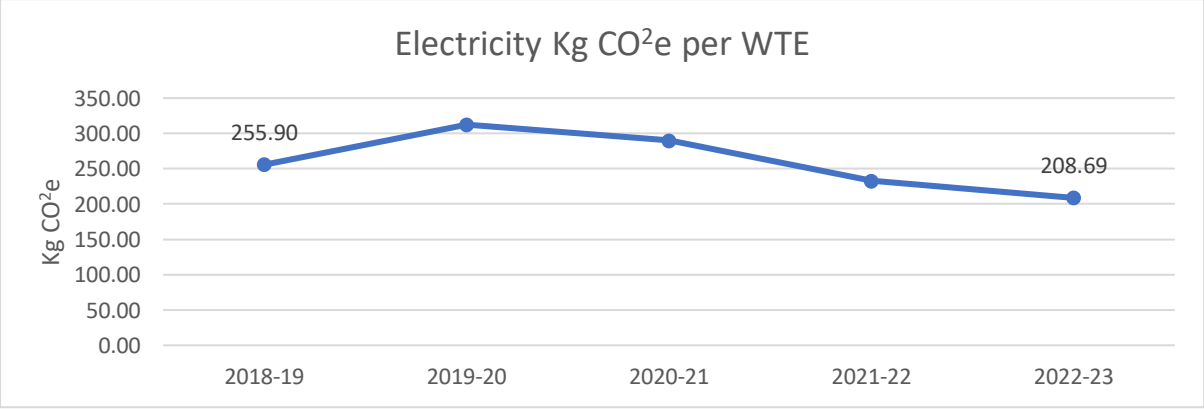


*Figure 7 , Electricity use per employee, whole time equivalent (WTE) ( Kg CO2e) 2018-19 to 2022-23*

## 3.2 HEATING – NATURAL GAS/ LPG

Similar to electricity, heating fuel has achieved a gentle reduction in use across the Trust, again considering the increase estate portfolio, plus a 27% increase in workforce on 2018-19 figures, this reduction shows movement in the right direction.

Disposal of ineffective estate and inclusion of newer more efficient buildings has supported this downward trend, alongside the installation of air source heat pumps (ASHP) as an alternative to natural gas or LPG boilers (*Fig 8*). Plus, replacement glazing, from single to double glazed units at Port Talbot and Crickhowell Stations, help to support a secure building envelope requiring less heating.

*Figure 8: Air Source Heat Pump: AAC Flintshire Dobshill*

Increased costs due to energy uncertainty globally has seen an overall energy cost increase per kWh on previous years values.

Calculated baseline comparison shows:

**24%** reduction of heating fuel use since 2018-19. *(Figure 9)*

**28%** reduction of heating fuel per $m^2$ since 2018-19. *(Figure 10)*

**23%** reduction of heating fuel per employee (WTE) since 2018-19. *(Figure 11)*

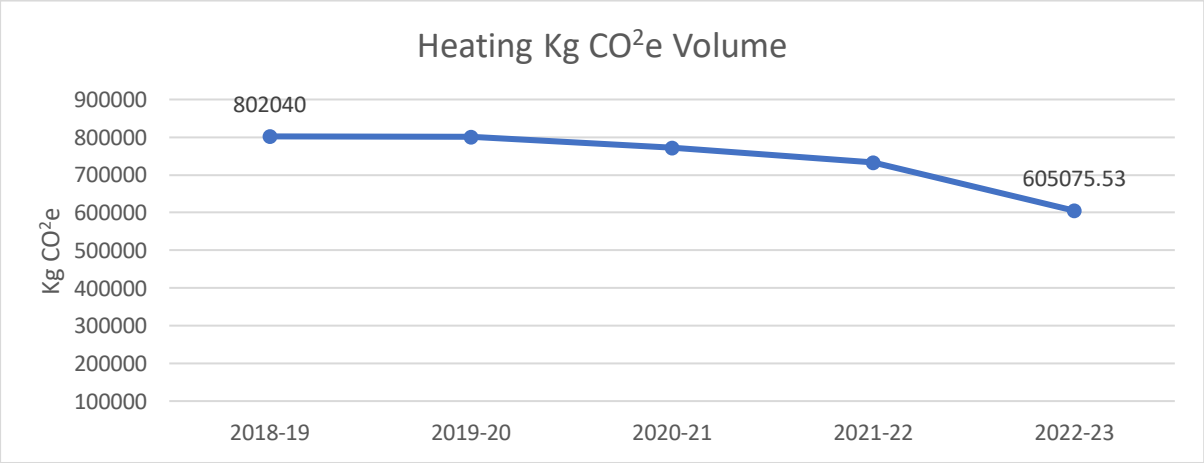

*Figure 9: Heating Fuel use in volume (per Kg CO2e) 2018-19 to 2022-23*

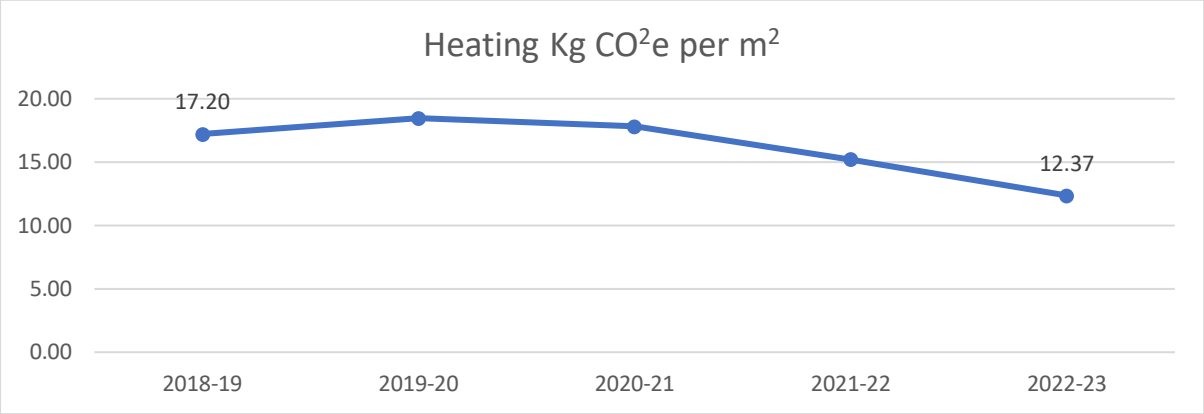


*Figure 10: Heating fuel per m² of WAST estate ( Kg CO2e) 2018-19 to 2022-23*

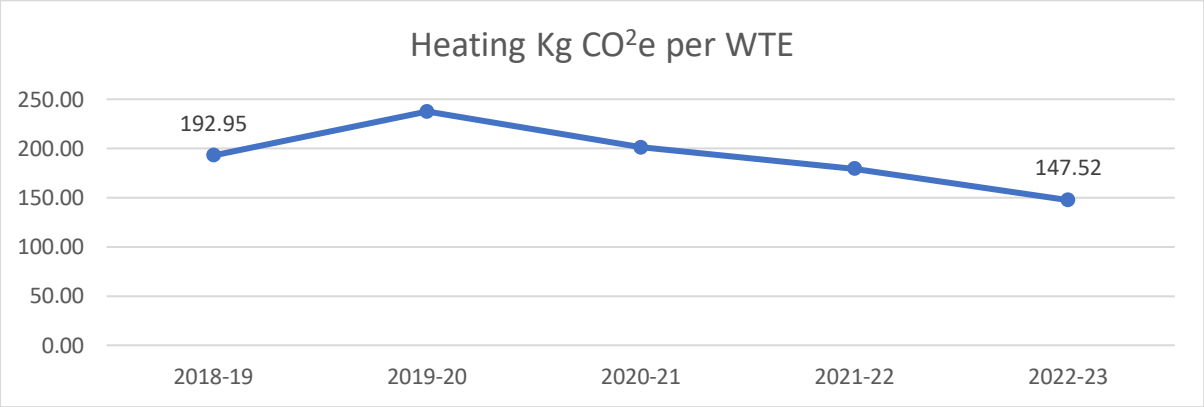


*Figure 11; Heating fuel use per employee, whole time equivalent (WTE) (Kg CO2e) 2018-19 to 2022-23*

## 3.3 WATER USE

*Table 5: Finite resource data - 2021-2023: Utility invoices, various suppliers.*

| Finite Resource Consumption | | | 2021-22 | 2022-23 |
|---|---|---|---|---|
| Non-Financial Indicators ($m^3$) | Water Consumption (All Estate) | Supplied | 17479 | 17809 |
| | | Abstracted (Bore Hole) | 0 | 0 |
| | | Sewerage | 12385 | 13755 |
| | | Annual water consumption per FTE | 4.28 | 4.34 |
| Non-Financial Indicators (Kg $CO^2e$) | Water Consumption (All Estate) | Total emissions | 2604 | 2654 |
| | | Annual water emissions per FTE | 0.64 | 0.65 |
| Financial Indicators (£million) | Water Consumption Costs (All Estate) | Water Supply Costs (All Estate) | £32,968 | £35,407 |
| | | Sewerage Cost (All Estate) | £31,974 | £34,772 |

With the exception of 2020-2021, water use emissions have remained constant since 2018-19. An increased focus on water saving should be seen as a priority for this finite resource. Changes to water saving devices, such as low flush toilets and push button taps, will support a reduction, however vehicle washing remains the significant focal point of usage. Ensuring effective equipment is used will support a downward usage trend, alongside practical controls of its use.

Calculated baseline comparison shows:

**2%** reduction of water use since 2018-19. *(Figure 12)*

**7%** reduction of water use per $m^2$ since 2018-19. *(Figure 13)*

**1.5%** reduction of water use per employee (WTE) since 2018-19. *(Figure 14)*

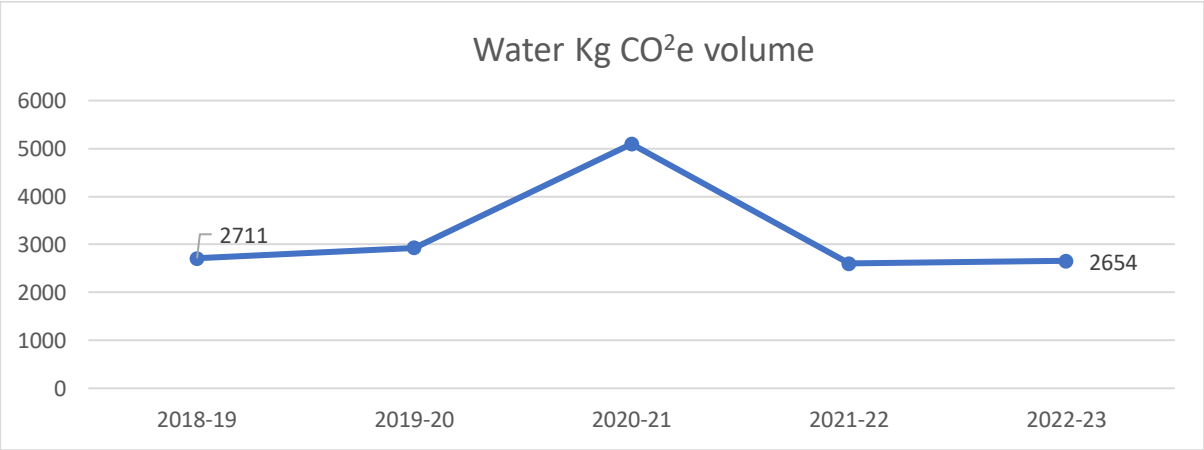


*Figure 12 :Water use volume (Kg CO2e) 2018-19 to 2022-23*

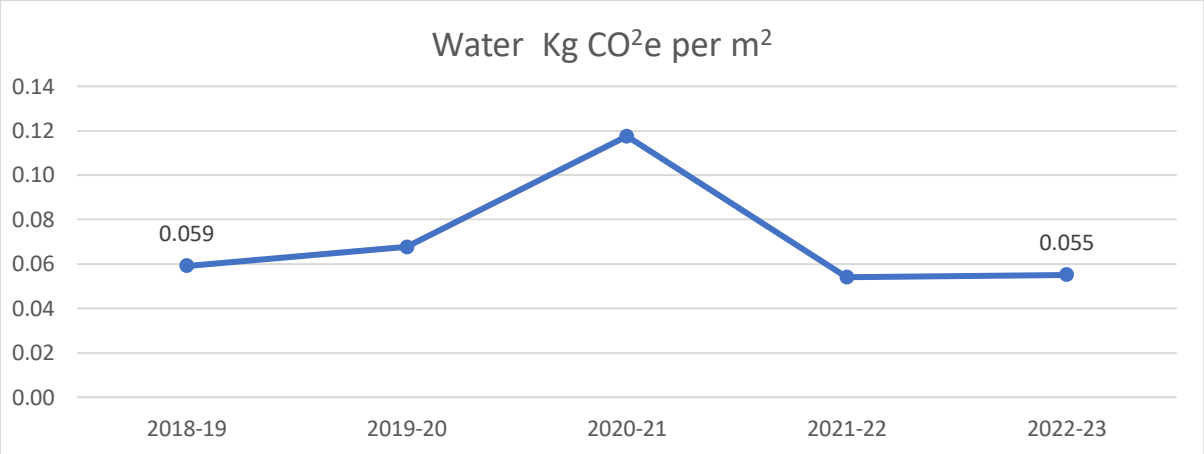


*Figure 13 : Water use per m² (Kg CO2e) 2018-19 to 2022-23*

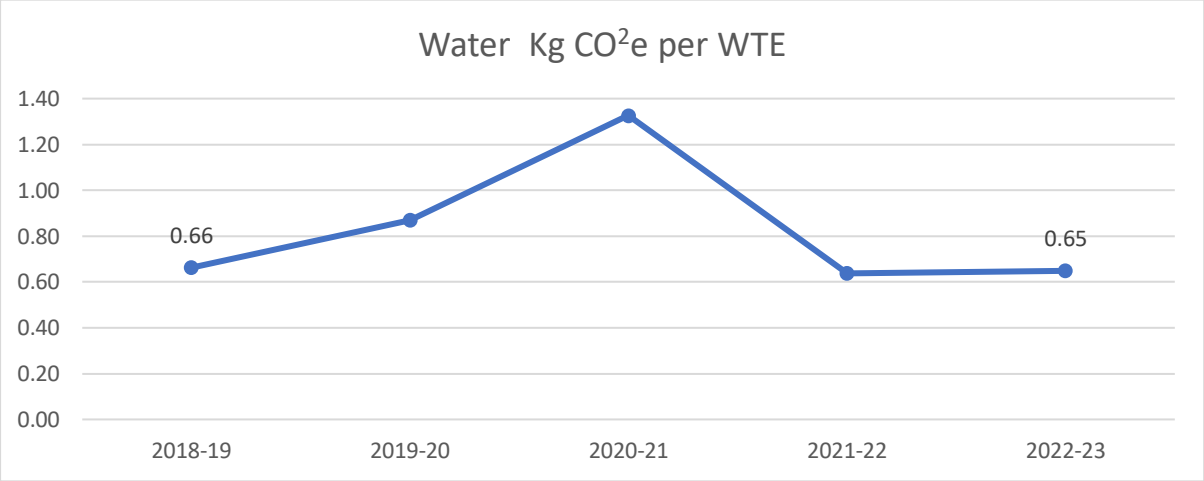


*Figure 14: Water use per employee, whole time equivalent (WTE) in (Kg CO2e) 2018-19 to 2022-23*

## 3.4 F-GAS (NEW FOR 2022-23)

The addition of reported Fluorinated gases (Fgas) emissions has significantly increased the Trust's reported carbon footprint by nearly 1 million Kg $CO^2e$. F-gasses are used in various industrial applications, within WAST this includes air conditioning and heating, ventilation, and cooling (HVAC). F-gasses are greenhouse gasses with high global warming potential (GWP). GWP was developed to allow comparisons of the global warming impacts of different gases, specifically it is a measure of how much energy the emissions of 1 tonne of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide ($CO_2$) (Epa.gov, 2023).

*Table 6: Global Warming Potential compassions of Fgas. .*

| F Gas | GWP |
|---|---|
| $CO^2$ comparison | 1 |
| R407C | 1774 |
| R401A | 1182 |
| HFC-32 | 677 |

Changes to retrofit of new and current estate will see a shift change, with the potential for passive ventilation use as an option, rather than initial move to mechanical ventilation. Therefore, removing potential increases in emissions alongside financial review costs for servicing and maintenance, required for currently used systems.

## 3.5 FLEET FUEL

In line with a fleet growing in numbers, and increased numbers of patient transfers, emissions from fleet fuel has grown significantly from 2018-19 baseline data. Apart from 2020-21, which is in all probability related to the COVID 19 pandemic. However, a promising downturn in emissions can been seen between 2021-22 and 2022-23. Efficient vehicles, increased servicing, and the introduction of hybrid vehicles have supported this downward trajectory. Unfortunately, due to funding constraints the replacement fleet programme will not see further electric vehicles purchased in the 2023-24 financial period, with the 2024-25 period unknown. The effect on emissions totals for WAST fleet will be monitored during the 2023-24 period.

During 2022-23, twenty-four electric plug in hybrid vehicles (PHEV) were purchased from Toyota, to replace older diesel rapid response vehicles. Changes to vehicle

commissioning has also seen a reduction in weight of the vehicles by nearly 100kg, with a redesign of the auxiliary electrical system requiring less charging connectivity. Solar panels have also been fitted to the vehicles to maximise on available renewable energy. The combined electrical charging and regenerative vehicle braking system delivers a 45-mile travel distance on electrical charge.

To support the new PHEV fleet, 66 electric vehicle (EV) charging points were installed across 52 sites, this will increase in 2023-24 with an additional 8 charging points being installed, includes 2 x 75kWh super chargers. The choice of Pod Point, as hardware provider for this service was determined in order to provide consistency with other NHS bodies.

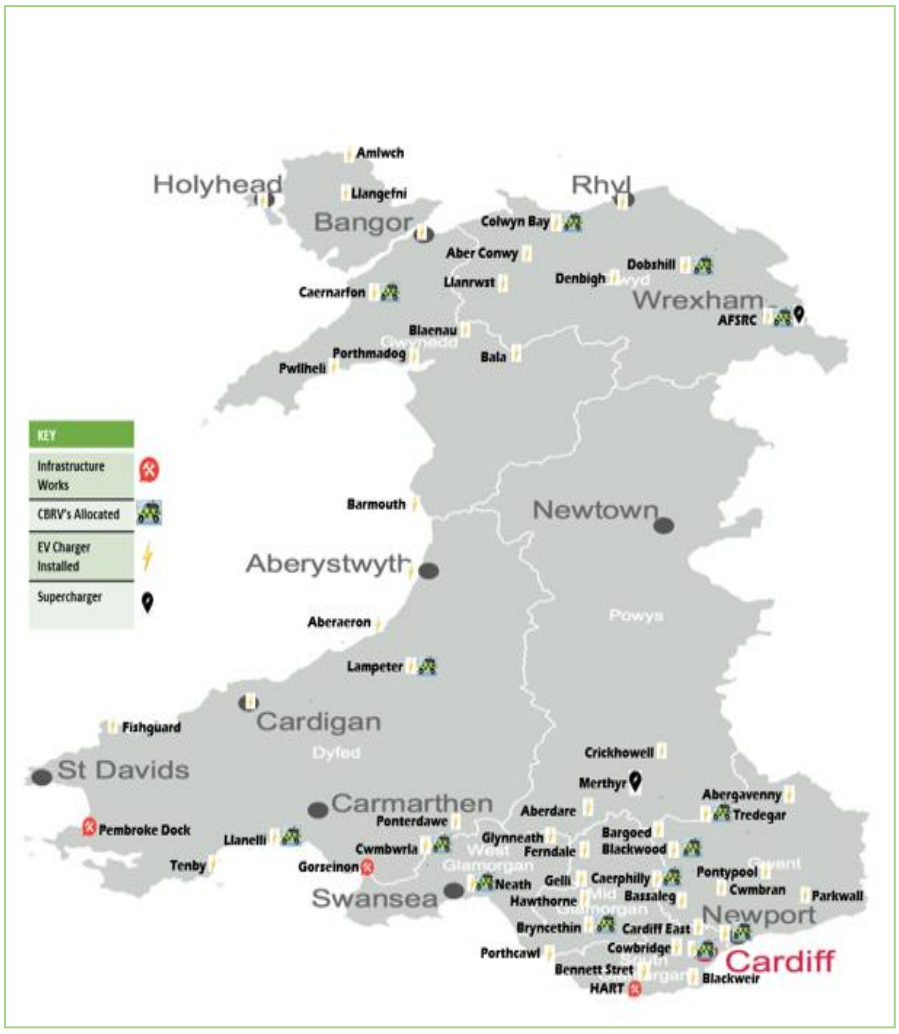


*Figure 15: Electric Vehicle charging points within WAST estate 2022-23*

Calculated baseline comparison shows:

**6%** increase of fuel emissions since 2018-19. *(Figure 16)*

**5%** reduction of fuel emissions per vehicle since 2018-19. *(Figure 17)*

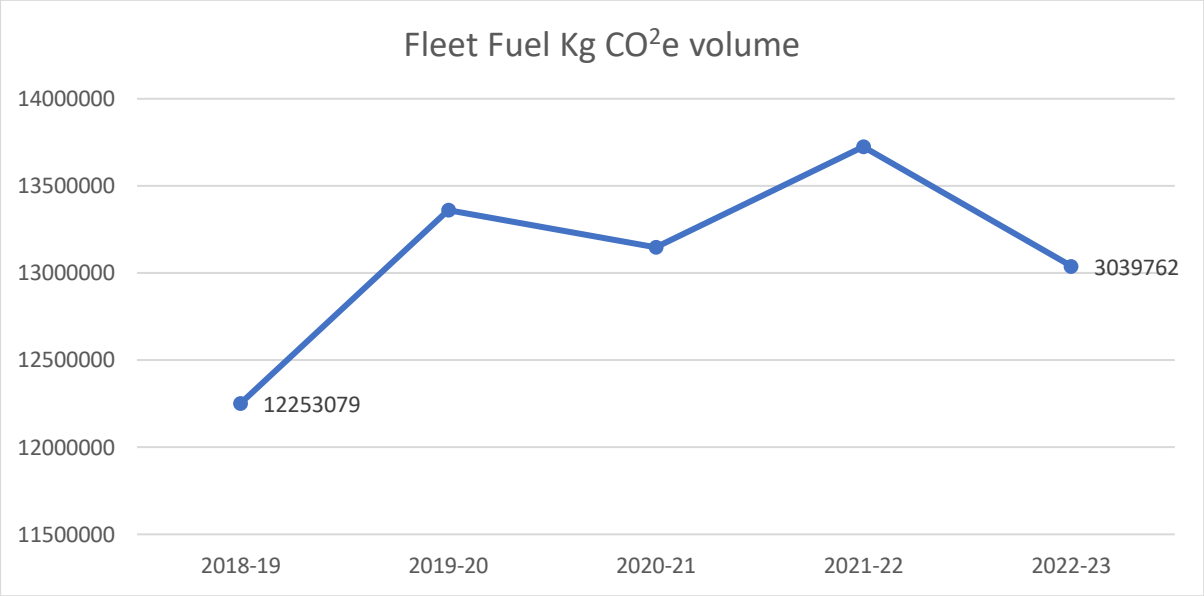


*Figure 16 Fleet fuel volume of use in (Kg CO2e) 2018-19 to 2022-23*

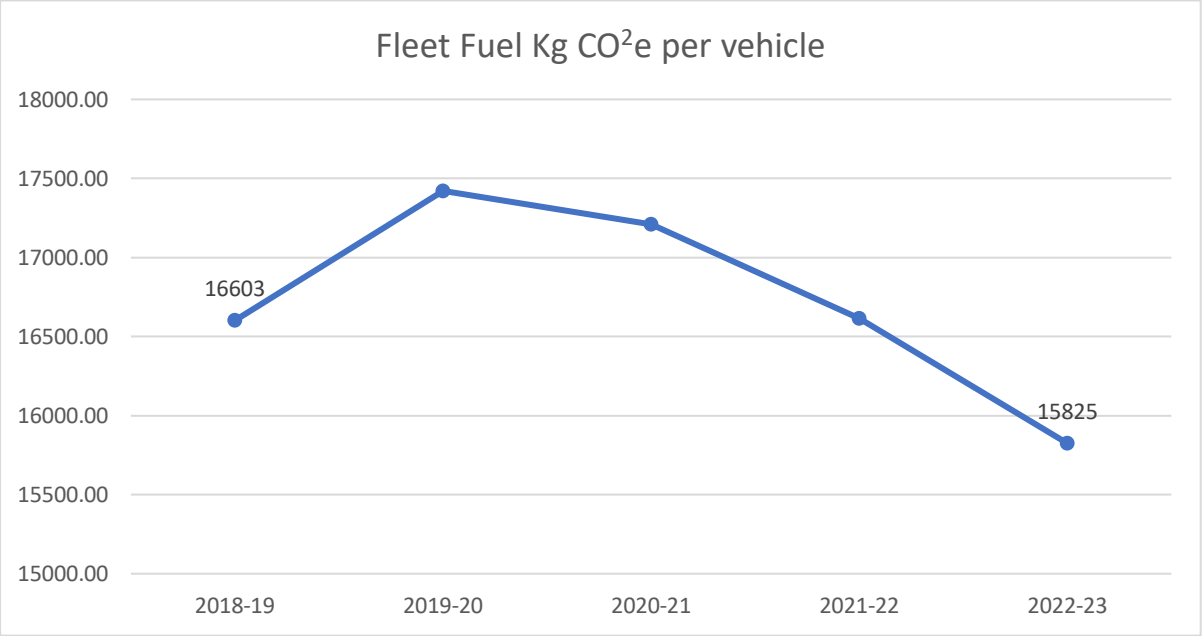


*Figure 17 Fleet fuel emissions per vehicle in (Kg CO2e) 2018-19 to 2022-23*

## 3.6 BUSINESS MILES

2020-21 saw business miles emission plumet during travel restrictions of the COVID 19 pandemic, however since this time business miles have increased significantly, although, not to benchmark levels. Progression of a Trust Sustainable Travel Plan has been slow due to lack of resource, be that as it may, agreement to prioritise active travel, public transport and low emissions pool car use using a travel hierarchy will support a business mile emissions reduction, alongside financial savings.

Calculated baseline comparison shows:

**35%** reduction of business mile emissions since 2018-19. *(Figure 18)*

**49%** reduction of business mile emissions per WTE since 2018-19. *(Figure 19)*

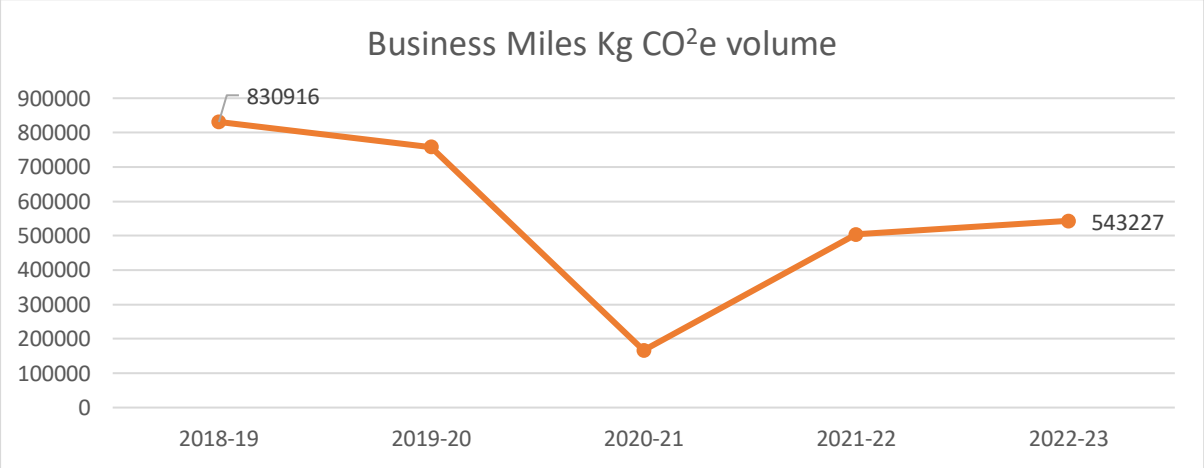


*Figure 18 Business miles volume of use in (Kg $CO^2e$) 2018-19 to 2022-23*

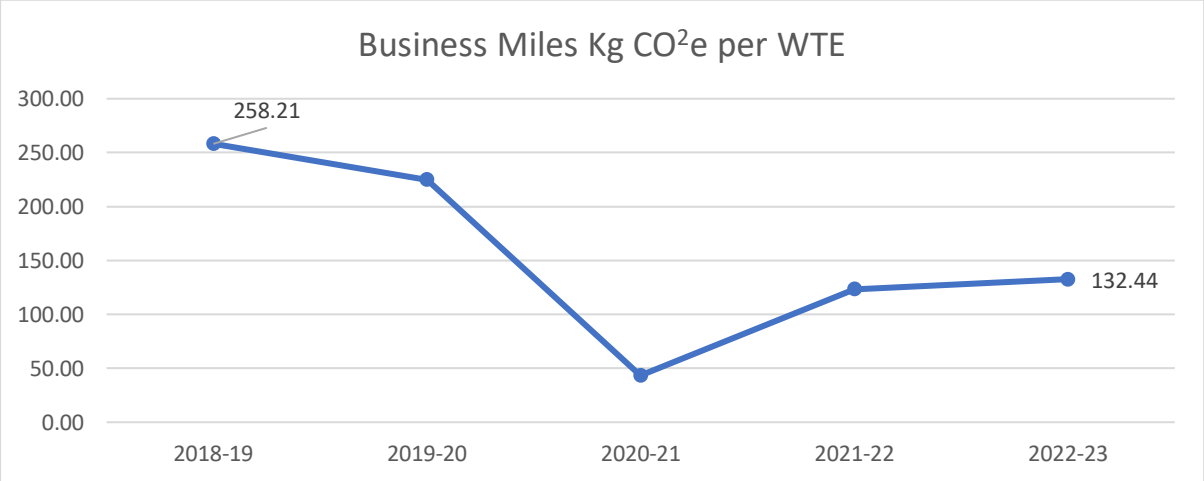

*Figure 19 Business miles per WTE in (Kg $CO^2e$) 2018-19 to 2022-23*

## 3.7 MEDICAL GASSES

The addition of reported medical gas emissions has significantly increased the Trust's reported carbon footprint by over 730 million Kg $CO^2e$. It should be noted however that this figure may not be completely correct. The carbon factor for Entonox has not been made available for reporting, therefore the carbon calculation for pure nitrous oxide has been used. A request has been made to amend the reporting factors for future years to ensure correct emission calculations are achieved. As with F-Gas nitrous oxide ($NO^2$) emissions are directly related to its GWP. Even though the individual GWP score is much lower than F-gas scores, the volume of Entonox used and released during bottle servicing, consequentially means the carbon footprint of the Trust has increased significantly. The introduction of Penthrox during 2023-24, will hopefully support a reduction in these specific emissions as Penthrox has a significantly lower GWP.

*Table 7 Table 5: Global Warming Potential compassions of medical gasses*

| F Gas | GWP |
|---|---|
| $CO^2$ comparison | 1 |
| Nitrous oxide | 298 |
| Penthrox | 4 |

## 3.8 DOMESTIC & CLINICAL WASTE

*Table 8: Waste data - 2021-2023: various disposal contractors.*

| **Waste** | | **2021-22** | **2022-23** |
|---|---|---|---|
| **Non-Financial Indicators (tonnes)** | Total Waste | 321.64 | 252.73 |
| | Landfill | 1.19 | 1.93 |
| | Composted | 0 | 0 |
| | Recycling | 108.00 | 74.32 |
| | Incinerated with energy recovery | 212.45 | 176.48 |
| | Incinerated without energy recovery | 0 | 0 |
| **Non-Financial Indicators (Kg $CO^2e$)** | Domestic Waste | 5,251 | 4,577 |
| | Clinical Waste | 43,500 | 35,190 |
| | Total Disposal Cost | £106,812 | £99,121 |

| | | | |
|---|---|---|---|
| **Financial Indicators (£million)** | Landfill | £323 | £650 |
| | Reused/Recycled | £25,382 | £26,219 |
| | Composted | 0 | 0 |
| | Incinerated with energy recovery | £81,107 | £72,252 |
| | Incinerated without energy recovery | 0 | 0 |

With the exception of 2020-2021, domestic and clinical waste emissions has seen a progressive reduction in emissions. This is largely due to alternative treatments for the majority of waste, which in the past, was sent to landfill. Recycling waste sits at approximately 49% of the domestic waste produced within the Trust. This percentage must be increased to meet the targets set by WG for this strategy and other public body requirements. New waste legislation for Wales, due to be implemented by April 2023, will see the removal of current recycling processes of dry mixed recycling and cardboard, replaced with 6 different waste streams, segregating waste at source will be a challenge for some site, not just due to lack of space for additional bins both internally and externally, but also extremely small recycling percentages at some buildings, as low as 14%. This new legislation also provides for fines relating to non-compliance therefore building and locality managers will be advised monthly of their recycling rates, with support for those who's percentages fall short of expectations.

Calculated baseline comparison shows:

**29%** reduction of waste volume emissions since 2018-19. *(Figure 20)*

**32%** reduction of waste emissions per $m^2$ since 2018-19. *(Figure 21)*

**44%** reduction of waste emission per employee (WTE) since 2018-19. *(Figure 22)*

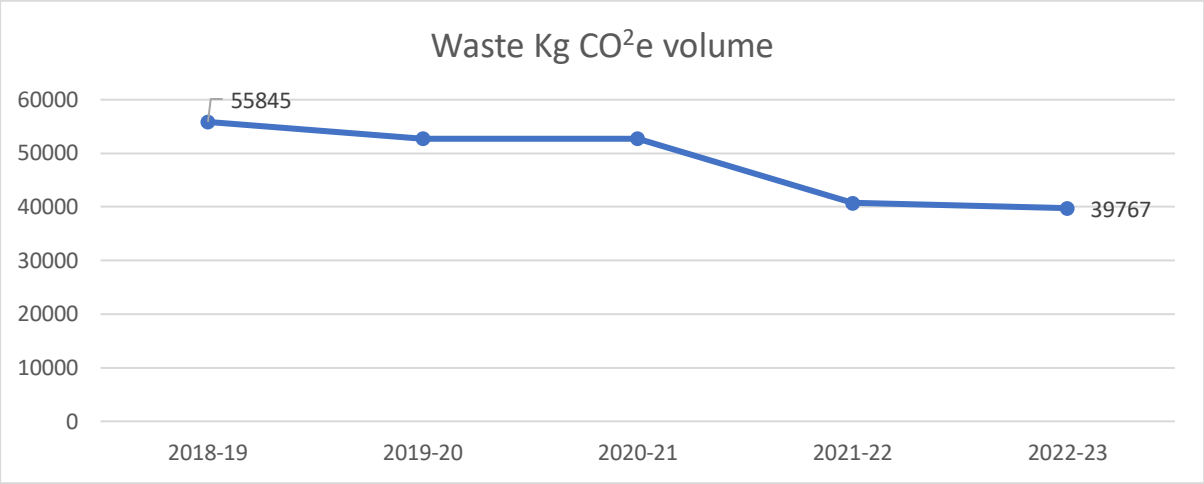


*Figure 20: Waste emissions in volume. (Kg $CO^2e$.) 2018-19 to 2022-23*

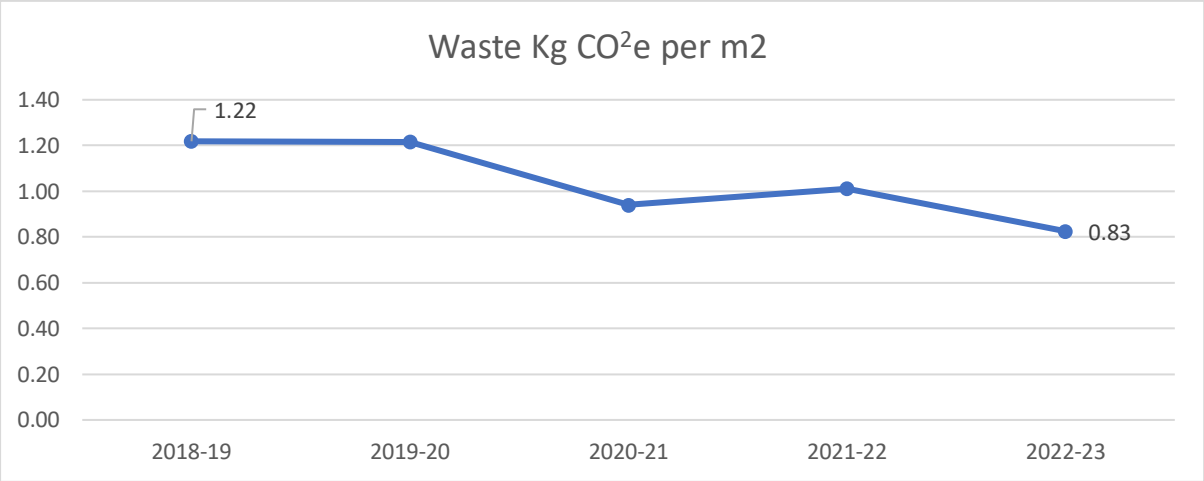


*Figure 21 Waste emissions per $m^2$ in Kg $CO^2e$. 2018-19 to 2022-23*

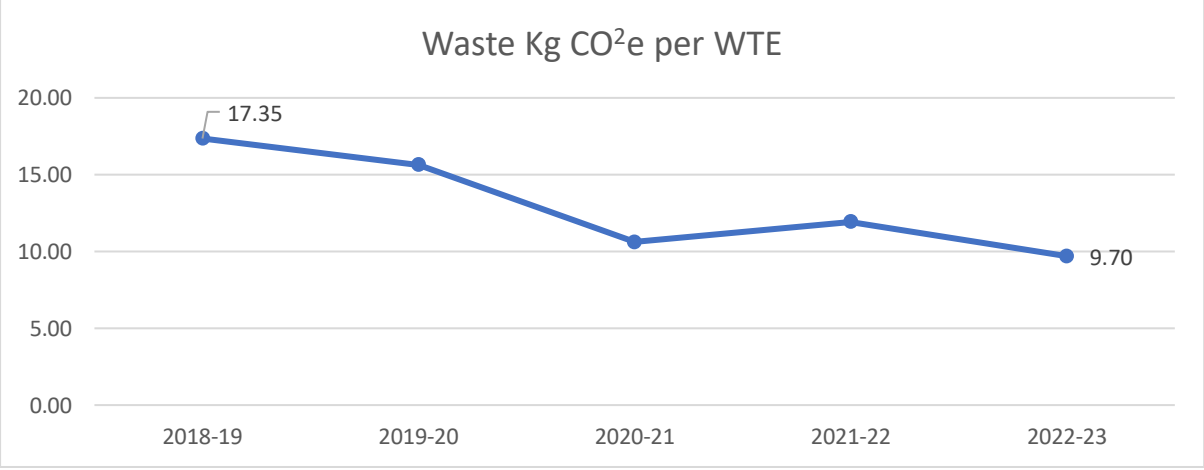


*Figure 22 Waste emissions per WTE, in Kg $CO^2e$. 2018-19 to 2022-23*

It should be noted that fleet waste is also reported as an emission. This waste has seen an increase in emissions on last years reported data by 142 Kg $CO^2e$, yet WAST fleet numbers for 2022-23 were down on 2021-22 figures. It should however be noted that WAST workshops maintain vehicles for HCS (NWSSP) who's numbers may have increased, plus better reporting structures within the Team has provided better understanding of waste than on the previous year.

## 3.9 MISCELLANEOUS REPORTED EMISSIONS

Various additional emissions are reported under scope 2 using calculation methodology as indicated via the reporting guidance document, this includes:

### 3.9.1 Commuting and Homeworking

Both commuting and homeworking are calculated using a tier 1 approach. Guidance has been provided for average percentage and calculation factors. Emissions have increased from 2021-22 figures due to an increase in workforce. To ensure correct reporting additional work will be required to understand number of hybrid working staff, plus their working patterns, and all employee commuting transport options.

### 3.9.2 Land Use

2022-23 reporting has included the carbon sequestration emission reduction for land use. The Trust has little unused land, however the additional of 2500 native trees to AAC Flintshire Dobshill has seen an offset subtracted from the Trusts emission total. 2023-24 will see potential biodiversity works at sites such as Ty Elwy and Blaenau Ffestiniog Station.



*Figure 23: AAC Flintshire Dobshill- Gardd Gobaith. Images by author*

### 3.9.3 Supply Chain

Due to the significant percentage of emissions related to procurement found during benchmarking calculations, supply chain emissions are reported as Scope 3. These emissions are calculated using standard industry classification codes (SIC) which relates to their waste stream, plus supply cost. This information is supplied by NWSSP procurement on an annual basis. Scrutiny of this data is challenging due to limited item description. Discussions are ongoing with NWSSP procurement relating to a streamlined process for data collection with more robust descriptions, allowing the Trust to investigate any changes that could be made to particular procurement streams.

# 4.0 SUSTAINABILITY UPDATES

## 4.1 ISO14001

The Welsh Ambulance Services NHS Trust (WAST) is the only ambulance service in the UK to have achieved ISO14001 accreditation for all of its activities. This accreditation has been held for 9 years.

The certification was originally awarded on the basis of the audit findings from sample sites in North Wales in August 2015, with the balance of the remaining qualifying sites to be visited by BSI in 2016 and 2017. This 3-year rolling programme has continued, with recertification completed in 2023 by BSI, with all previous non-conformances closed, and no new non-conformances raised.

An integral part of ISO14001 is the environmental management system, known as environmental governance system (EGS) within WAST. The EGS commits the Trust to reducing its impact on the environment by:

- Reducing risk of pollution to Air, Land and Water
- Upgrade utility monitoring and targeting all properties.
- Reduce carbon emissions and demands on natural resources by improving building thermal insulation.
- Reduce pollution potential in emergency situations.
- Reduce carbon footprint by closing buildings and relocating services.
- Increasing Recycling
- Reducing waste
- Improve staff awareness training.
- Disposal of poor estate
- Introducing renewable technology such as PV as well as energy storage where appropriate.

To support the EGS initiatives linked with the NHSDSDP, continue in the following areas.

- Thermally efficient new builds
- Retro-fitting energy efficient controls, plant, and equipment
- Improving the thermal performance of the fabric of existing buildings
- Retrofitting zero and low carbon technologies (includes on-site renewables)
- Partnership projects with other public bodies (Local Councils, Fire, Police etc.) in sharing buildings or facilities and rationalisation of their respective estates
- Improving drainage systems to facilitate vehicle washing.

## 4.2 CYCLE RESPONSE

Since conception the Cycle Response Unit (CRU) has grown significantly, both with the number of trained staff and the number of cycles used. The CRU now consists of 10 hybrid cycles, 4 specialised pitch and 6 genesis longitude, the latter being designed and built in Wales. With 24 trained staff of which include, Senior Paramedics, Advanced Paramedic Practitioners. Due to its success and associated expansion, the unit has now

moved to a purpose-built facility within the new ambulance complex in Pentwyn, Cardiff

The unit operates most Saturdays within Cardiff, covering between 10 to 20 miles a shift, within a 1.5 mile of the city centre.

The use of this active travel team not only means increased levels of response for patients, but also reducing the need for road-based response, reducing vehicle miles and corresponding fossil fuel emissions.


*Figure 24: Cycle Response Unit (CRU) Pentwyn Cardiff*

## 4.3 NEPTS PAPERLESS LIAISON BOOKING SYSTEM

The NEPTS liaison booking system completely transitioned during spring 2022, from paper via fax, to electronic booking. Paper and printing savings will be monitored over the next 12 months in order to quantify the volume of supplies saved, and their associated carbon emissions.

## 4.4 COMMUNITY SWAP SHOP

An internal WAST Community Swap Shop was introduced to support environmental goals and financial requirements of the Trust. Items that were no longer required, but are still serviceable such as:

- Furniture
- Consumables / Stationary
- Uniform
- Response Bags
- Clinical consumables/equipment.

WAST staff are able to view and add items on to the swap shop list, contacting the owner for collection. Supporting the waste hierarchy and saving supply chain costs.