South East Coast Ambulance Service NHS
NHS Foundation Trust

Green Plan

2025 to 2032

Document Control:

Please record all key changes made to the document and how these have been approved (either person or committee				
Version	Date	Author and title	Summary of key changes	Approval by
0.1	30.04.2025	Jonathan Guppy Head of Sustainability SCAS Lee-Ann Witney - Fleet Business Support Manager/Interim Sustainability Lead	First Draft	
0.2	22.06.2025		Second draft Amendments David Ruiz Celada and Forward Dan Garratt	
1.0	24.07.2025		Approved	Finance Investment Committee

Foreword

Why Net Zero Action, Why Now?

At South East Coast Ambulance Service NHS Foundation Trust, we recognise that climate change is not a distant challenge for future generations. It is the greatest health emergency of our time, and the time for action is now. As an organisation rooted in serving our communities, we feel a deep responsibility not only to provide high-quality care but to protect the environment in which our patients, staff and future generations will live and thrive.

Our refreshed Green Plan sets out how we will rise to this challenge. It provides a clear and practical roadmap for how we will reduce our carbon emissions, decarbonise our fleet and estate, and work with our suppliers to influence change beyond our direct control. It aligns with the NHS's legally binding commitments and the national drive to build a greener, fairer and healthier future.

But this plan is more than just a list of actions. It is a call to all of us: staff, partners, suppliers and the wider community, to work together to deliver meaningful change. By doing so, we not only safeguard the health of our patients and communities, but we lead by example as an ethical, responsible and resilient ambulance service.

I am proud of the commitment already shown across SECAmb. Together, with determination and collaboration, we can achieve our shared vision for a sustainable net zero future.

Daniel Garratt

Associate Director Operational Support

Contents

1 Executive Summary

Climate change has been identified as the greatest threat to human health this century. Such is the scale of the problem, several local authorities within the SECAmb region have already declared a Climate Emergency. As a front-line service provider, SECAmb will be directly impacted by climate change. Although our organisation successfully handles thousands of emergencies daily, global warming will add a significant additional burden, whilst the effects of increased flooding and heatwaves will hamper our operations and disrupt our ability to respond.

As a major consumer of diesel, we are a large contributor to global warming from carbon dioxide emissions, but we also pollute the air in the communities we serve with toxic gases and particulates, causing harm to patients and staff.

We have an ethical duty to respond accordingly, to protect our patients, staff and wider society from pollution and the impacts of climate change.

The Government has enshrined this in law. The NHS became the first health system to embed net zero in legislation, through the Health and Care Act 2022. Statutory guidance mandates the NHS to achieve:

1) for the emissions we control directly (the NHS Carbon Footprint), net zero by 2040, with an ambition to reach an 80% reduction by 2028 to 2032

2) for the emissions we can influence (our NHS Carbon Footprint Plus), net zero by 2045, with an ambition to reach an 80% reduction by 2036 to 2039.

This Green Plan is a refreshed version of an original that was commissioned by SECAmb following the approval of SECAmbs Green Strategy by the Executive Board in January 2022 and it sets out the scale of the challenge facing SECAmb and how we will reach our Net Zero targets. By measuring our carbon footprint and identifying its sources, we can see that:

- Our Fleet and Business Travel is responsible for 77% of the emissions we control directly (our Carbon Footprint).

The measured data shows that, for the financial year 2024/25 we are 34% higher than the target trajectory, which will require further annual reductions against the 2019/20 baseline. Currently we are unable to measure the emissions we can only influence in our procurement/supply chain (our Carbon Footprint PLUS) so we are unable to report on this. However, using the data from our collaborative colleagues South Central Ambulance Service this may increase our total carbon emissions by a factor of 4. It is likely this has been rising each year, entirely due to a large increase in transport-related emissions from the goods and services we purchase.

This Green Plan details the specific measures we need to implement to meet our Net Zero targets. It prioritises the need for the Trust to reduce its vehicle emissions by fleet electrification. This plan also seeks to ensure that our procurement process compels

suppliers to reduce their carbon footprint through similar means and contribute to other sustainable measures.

Other actions that contribute to sustainability and carbon reduction have also been identified. These have a comparatively smaller impact than transport but also need to be addressed if we are to reach Net Zero.

The plan aligns with wider Trust strategies and policies particularly the Strategy 2024 – 2029[1]:

This refreshed Green Plan provides specific, measurable steps to show how SECAmb can remain on course to meet its Carbon Footprint Net Zero targets of an 80% reduction by 2028-32, compared to 2019 emissions.

The most important steps are:

Travel and Transport

1) 100% Electric Vehicle Fleet by 2028 (excluding Double Crewed Ambulances; these will come later potentially before 2040).

2) Installation of sufficient electric vehicle chargers to support the entire Fleet at an approximate cost of **£27,250,000** (currently not identified in funding plans)

Estates

3) Installing Solar PV with Battery Energy Storage Systems to generate our own electricity and create significant financial savings at an approximate cost of **£5,500,000 (**currently not identified in funding plans)

4) Implement mandatory Carbon Reduction Plan requirements to all Procurement contracts, along with other Social Value Theme clauses

Medicines

5) Phasing out high impact medicines

Funding the Green Plan requires upfront capital investment, which are currently not identified in funding plans but which will be recouped long term from the reduced lifetime operating costs of adopting an electric fleet, particularly the fuel and maintenance savings, as well as savings from Solar PV and smart LED systems. NHS England expect the cost of new electric vehicles to reach parity with diesel and petrol models soon, whilst reforms to the way new grid connections are funded means the charging infrastructure requirements represent a more modest capital investment than previously. Nationwide, fully implementing the NHS Net Zero Travel and Transport Strategy will result in over £59 million saved every year, with Ambulance trusts being the main beneficiaries.

[1] secamb.sharepoint.com/sites/Intranet-News/Shared Documents/Forms/AllItems.aspx?id=/sites/Intranet-News/Shared Documents/SECAmb Strategy Document final.pdf&parent=/sites/Intranet-News/Shared Documents

This represents an exciting, generational opportunity for SECAmb to become a pioneering leader in the fight against climate change

2 Introduction

2.1 Trust Background

The South East Coast Ambulance Service (SECAmb) is continuously striving to improve and deliver compassionate, sustainable healthcare. With over 4,000 staff working across 110 sites, we serve a community spanning 3,600 square miles, from densely populated urban areas to sparse rural areas. The Trust is made up of 90% operational staff, providing either face-to-face patient care or receiving calls at our emergency dispatch centre, as well as operating the NHS 111 service across the region.

4,000
staff

110
sites

across
3,600
square
miles

Our patients range from the critically ill who requiring specialist treatment, to those with minor healthcare needs who can be treated at home. Our key services include:

Emergency ambulance response in life threatening situations,

Critical care paramedics providing treatment on scene,

Paramedic practitioners providing treatment in home for minor injuries,

Clinical advice provided over the phone by a nurse or paramedic,

Working with our partners to provide referrals to a general practitioner, community nurse, or mental health team; and

Our enabling services, including logistics, medicines, finance, and HR.

At the end of 2024/25, the SECAmb Fleet comprised 829 vehicles, of which 426 were front line ambulances, a range of rapid response, HART, EPRR and staff vehicles, travelling 12.37 million miles[2]

SECAmb has a significant “Grey Fleet” of 108 owned vehicles which are used to carry out functions on behalf of the Trust, incurring nearly 1.6 million miles of business travel.

Overall, SECAmb is responsible for over 12 million miles of travel, creating a significant carbon footprint as well as being a major source of air pollution.

[2] 30-04-25 and SECAmb Fleet Report

2.2 The Challenge

The climate crisis, largely driven by human activity such as fossil fuel consumption, signifies a global emergency marked by escalating temperatures, unpredictable weather patterns, and severe damage to ecosystems. If immediate and comprehensive measures to decrease emissions and embrace sustainable practices are not undertaken, this crisis poses a substantial risk to global biodiversity, human health, economic structures, and the overall stability of societies.

The Paris Agreement, adopted in 2015, is an international accord on Climate Change aiming to limit global warming to well below 2°C, preferably 1.5°C, compared to pre-industrial levels and to avoid the worst of climate change[3]. In recent years there has been an increasing drive by governments, organisations, and businesses to realise emission reductions throughout the economy, in support of the Paris Agreement.

In 2019, the UK Government amended the Climate Change Act (2008) to set legally binding targets to achieve net zero emissions by 2050. *'Net Zero Strategy: Build Back Greener'* was later published in 2021 to set out how the Government will achieve these targets[4].

The NHS has also set out their own strategy, titled *'Delivering a Net Zero National Health Service'*. The NHS's total carbon footprint as of 2019 was calculated at 21.1 mega tonnes of carbon dioxide equivalent ($MtCO_2e$), marking a significant decrease from the 1990 baseline of 50 $MtCO_2e$. However, more effort is needed to ensure that further progress is made in the coming years. Climate change is a health emergency, and therefore it is the NHS's responsibility to reduce our own impacts while ensuring that we are as adaptable and resilient as possible.

In support of decarbonisation measures across the NHS, the *2024/25 NHS Standard Contract*[5] sets out the requirement for all Trusts to develop a Green Plan to detail their approaches to reducing GHG emissions in line with the national trajectories. SECAmb has developed its own Green Plan in line with requirements and guidance.

2.3 NHS Net Zero Targets

Included in the "Delivering a Net Zero National Health Service" report in July 2022, is a set of two "clear and feasible" targets for the NHS to meet its net zero commitment:

1) for the emissions we control directly (the NHS Carbon Footprint), net zero by 2040, with an ambition to reach an 80% reduction by 2028 to 2032

[3] UNFCCC, 2022. What is the Paris Agreement? Available at: https://unfccc.int/process-and-meetings/the-paris-agreement
[4] UK Government, 2021. Net Zero Strategy: Build Back Greener. Available at: https://www.gov.uk/government/publications/net-zero-strategy
[5] The NHS Standard Contract 2022/23. Available at: https://www.england.nhs.uk/wp-content/uploads/2022/03/03-full-length-standard-contract-22-23-service-conditions.pdf

2) for the emissions we can influence (our NHS Carbon Footprint Plus), net zero by 2045, with an ambition to reach an 80% reduction by 2036 to 2039.

However, these targets are set against a baseline year of 1990. It is difficult for some Trusts to collect relevant historical data, especially where Trusts such as SECAmb have changed their composition significantly over time. The Trust that exists today is very different in size, organisation, and scope to what existed in 1990. To address this problem, the Greener NHS Methodology for measuring Trust contributions to the NHS Carbon Footprint Plus has established a more recent **baseline of 2019/20** against which to measure progress and has adjusted the emissions reduction trajectories accordingly:[6]

Defined against the new 2019/20 baseline, the national targets are equivalent to:

- reducing emissions by at least 47% by 2028-2032 to reach Net Zero NHS Carbon footprint by 2040
- reducing emissions by at least 73% by 2036-2038 to reach Net Zero NHS Carbon Footprint Plus by 2045

2.4 The NHS Standard Contract 2023/24

To ensure that NHS Trusts are working to deliver a Net Zero National Health Service, the NHS Standard Contract[5] includes a list of minimum foundations that must be in place:

NHS Standard Contract, Section 18:

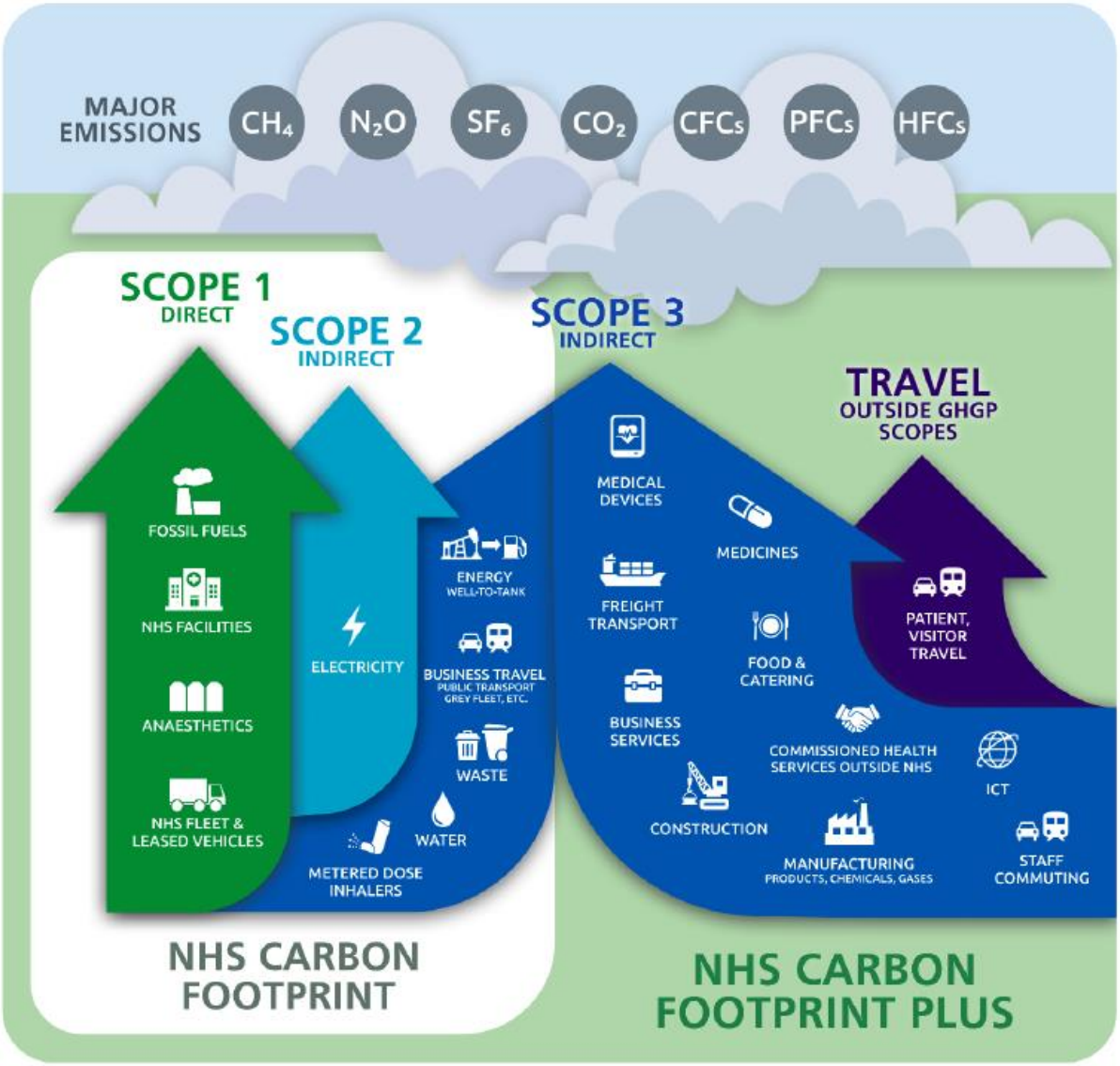
- Every trust to ensure they have appointed a Net Zero lead and are maintaining and delivering a Green Plan, approved by its Governing Body.
- Every trust must ensure that, as far as reasonably feasible, that all electricity it purchases is from Renewable Sources. NB Currently, SECAmb purchases Zero Carbon (Nuclear) energy under the Zero Carbon for Business tariff from Laser Energy .
- Provide detailed plans as to how it will contribute towards a 'Green NHS' with regard to delivering a 'Net Zero' National Health Service commitments in relation to air pollution from Fleet and burning fossil fuels to heat buildings
- Ensure that for new purchases and lease arrangements, systems and trusts solely purchase and lease cars that are ultra-low emissions vehicles (ULEVs) or zero emissions vehicles (ZEVs).
- Develop plans to install electric vehicle charging infrastructure for fleet vehicles.
- Reduce waste and water usage through best practice efficiency standards and adoption of innovations.

[5]NHS England, 2023, "Trust contributions to the NHS Carbon Footprint Plus", cited in Greener NHS Carbon Footprint Plus – Trust Methodology, Greener Analytics Workspace.

- Reduce avoidable use of single use plastic products.
- Develop a Green Travel Plan to support active travel and public transport for staff, patients and visitors.

2.5 Understanding the Carbon Footprint and Carbon Footprint Plus

The following schematic highlights the various sources of emissions that form the NHS



Carbon Footprint and Carbon Footprint Plus:

The Scopes are derived from the Greenhouse Gas Protocol, the universally adopted standard for measuring carbon emissions.

Scope 1: Direct emissions from owned or directly controlled sources, with these emissions occurring on site e.g. from a gas boiler or fuel used by an ambulance.

Scope 2: Indirect emissions from the generation of purchased energy, mostly electricity

Scope 3: All other indirect emissions that occur in producing and transporting goods and services, including the full supply chain

The NHS Carbon Footprint concerns the emissions controlled directly, whereas the NHS Carbon Footprint PLUS includes the additional emissions that are influenced by the NHS.

An example of this would be emissions from our supply chain, where SECAmb can only influence the source of the product or material, but for which we are ultimately responsible

3 SECAmb's Carbon Footprint

3.1 Organisational Boundary

SECAmb reports GHG emissions on the basis of operational control, including our vehicle fleet, building estate, and medicines related emissions. These areas include emissions resulting from the fuel used by our ambulances, the consumption of electricity and gas across our estate, and the fugitive emissions resulting from medical gas use. The full scope of reporting includes activities undertaken by SECAmb, and some activities of our suppliers however we do not currently capture emissions arising from our supply chain.

3.2 Methodology and Approach

In 2022 SECAmb commissioned an external expert consultancy firm to deliver a Green Plan which included using agreed methodology to establish a baseline and target trajectory. The approach was based on The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard[7] and applies the generally accepted GHG accounting principles of relevance, completeness, consistency, transparency and accuracy. It is noted that the GHG Protocol Corporate Standard covers the accounting and reporting of the seven greenhouse gases covered by the Kyoto Protocol ('the Kyoto gases')[8]. Figure 6 from '*Delivering a Net Zero National Health Service*' indicates six major emissions (Kyoto gases), as well as CFCs. No emission sources from CFCs or the Kyoto gas nitrogen trifluoride (NF_3) are identified in Secombe's baseline GHG emissions. In the event that CFC refrigerants or other non-Kyoto gas emissions are identified in future year's reporting, they should be reported separately to the Scope 1, 2 and 3 emissions[9].

The activity data used to calculate emissions was collected at site level using supplier invoices and mileage expense data. Fuel consumption data for the fleet was generated by the fleet telematic system. An Excel-based emission calculator was developed to collate and activity data and calculate associated GHG emissions, and emissions factors sourced

[7] The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, Revised Edition, The World Business Council for Sustainable Development and World Resources Institute, updated 2015.

[8] Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).

[9] The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, Revised Edition, The World Business Council for Sustainable Development and World Resources Institute, updated 2015, chapter 9

from the UK Government conversion factors database were used to convert activity data into emissions[10].

Our baseline emissions had been calculated at **14,778 tCO_2e**. Over half of these emissions are the result of our fleet operations. Dual Crew Ambulances (DCAs) make up the largest proportion of our operational fleet and contribute 63% of our total fleet emissions.

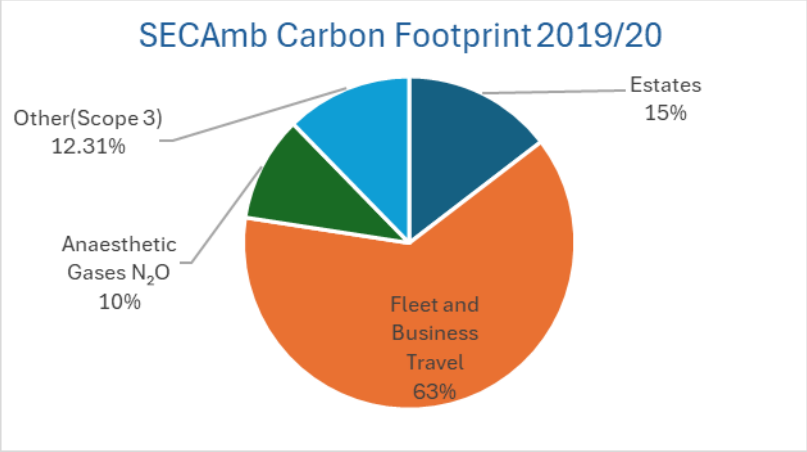


Figure 1 Emissions by Source

Our estate was responsible for 15% of our total emissions. This was based on electricity and gas usage, which is influenced by building efficiency and occupant behaviour. Of 110 sites, over half of the emissions produced by the estate in 2019/20 were emitted by just ten sites, the majority of which were Make Ready Centres. These sites often have the poorest energy efficiency, both due to operational needs and building components, and these inefficiencies need to be addressed in order to reduce our footprint.

'Medicines' refers to the emissions resulting from the use of Entonox. Nitrous oxide, a key component of Entonox, has a high global warming potential, and it is difficult to control the fugitive emissions that result from its use. Analysis of SECAmb's Entonox consumption has highlighted inefficiencies within our track & trace system that result in consistent overspending and overstocking of medical gases. Addressing the root of this issue will be essential in reducing our medical emissions.

The Carbon Footprint Plus targets were not addressed in this plan.

The data from the baseline and a carbon budget tool was used to produce the decarbonisation trajectory below I

However, this does not include the data from the Carbon footprint plus which we did not capture due to a lack of data from the supply chain and emissions from staff commuting.

[10] The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, Revised Edition, The World Business Council for Sustainable Development and World Resources Institute, updated 2015, chapter 9

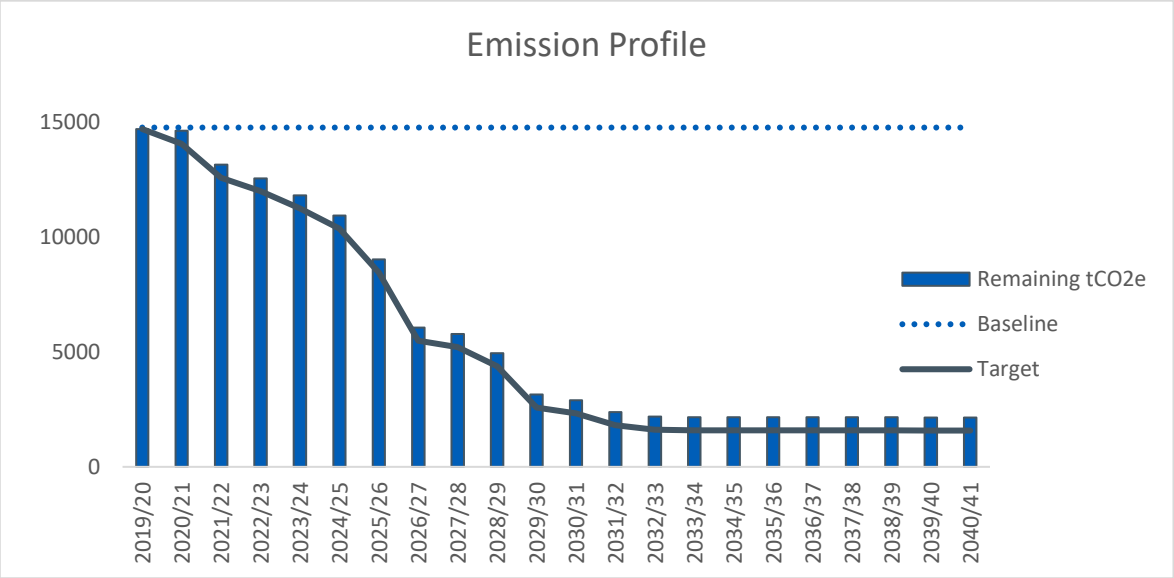


Figure 2 SECAmb's decarbonisation trajectory

(The carbon reduction plan for Fleet takes into account our Fleet Replacement Strategy and predictions of EV acquisition at specific dates, hence its non-linear nature.)

3.3 Materiality and Restatement

Significant structural or methodological change may require restatement of the baseline GHG emissions to ensure that data is reported consistently and allow meaningful comparison of emissions over time. The criteria for restatement of GHG emissions are material changes to:

- The scope of reporting;
- SECAmb's activity data;
- Underlying assumptions;
- The calculation of GHG emissions; or
- SECAmb's organisation and structure.

'Material changes' refers to changes that result in alterations to calculated GHG emissions, either individually or collectively, of >3% of total reported emissions. For example, fugitive refrigerant losses were not reported in the baseline dataset, due to lack of data available. If/when data becomes available, the baseline shall be recalculated to include this and restated if it results in a material change in reported emissions.

Any new facilities opening, unless otherwise stated, will be measured from the date which SECAmb takes operational control. The environmental targets baseline will be adjusted to incorporate acquired sites and restated when performance data is first included in the external reporting scope, after one full year of operation. Environmental target baselines will also be adjusted if/when sites are closed/leave the SECAmb estate.

The data collection process will be reviewed during the annual reporting. It is recognised that there are potential sources for error in the reporting.

As part of an ongoing process of continuous improvement, SECAmb has worked to improve the quality of activity-based data informing the carbon footprint calculations (e.g. fuel and utility consumption data).

There is an assumption in the original plan in relation to our Fleet, specifically that we would start to replace the Non-Operational and Single Response internal combustion engine vehicles with electric and hybrid versions in 2023/24. This has not happened and as a consequence our carbon emissions from our Fleet have not reduced in line with the trajectory

3.4 SECAmb Carbon Footprint and Carbon footprint PLUS

		NHS England Baseline					
	Sub Category	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Carbon Footprint	Scope 1						
	Owned Assets - building Enery Gas	2000	-	-	-	946	959
	Fuel Operational and support fleet	9236	-	-	-	10043	10098
	Anaesthetic Gases N^2O	1504	-	-	-	886	1047
	Total Scope 1:	12740	-	-	-	11875	12104
	Scope 2						
	Electricity	146	-	-	-	706	716
	Total Scope 2:	146	-	-	-	706	716
	Scope 3(indirect emissions arising from activities directly controlled by SECAmb)						
	Business miles	117	-	-	-	-	455
	Well to Tank - Fuel	-	-	-	-	2303	2367
	Electricity Transmission& Distribution	-	-	-	-	231	250
	Upstream Gas	-	-	-	-	16	16
	Water Supply & Treatment	-	-	-	-	-	10
	Waste						153
	Total Scope 3:	1809	-	-	-	2550	3251
	SECAmb Carbon footprint:	**14695**				**15131**	**16071**
Carbon Footprint PLUS							
	Scope 3(indirect emissions influenced by SECAmb)						
	eg Medicines, Medical Equipemtn, Other supply chain - no accurate data available						
	Staff Commuting - no accurate data available						
	SECAmb Carbon Footprint PLUS:						

Figure 3 SECAmb's Carbon footprint and Carbon Footprint plus

All figures expressed as tonnes CO^2 equivalent /tCO^2e

SEE ANNEXE A1 FOR conversion FACTORS

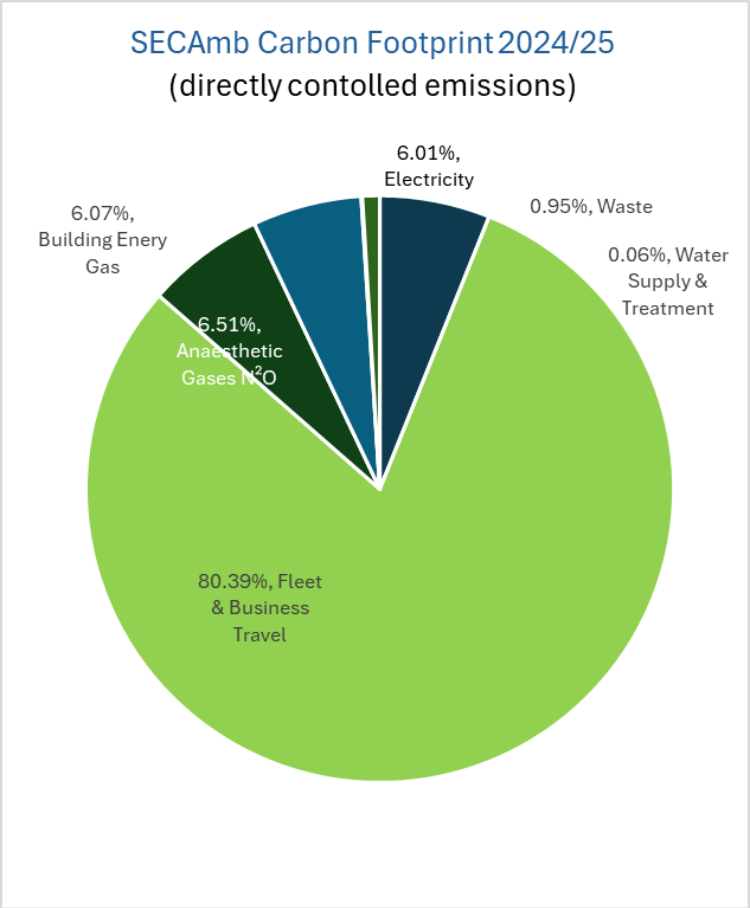
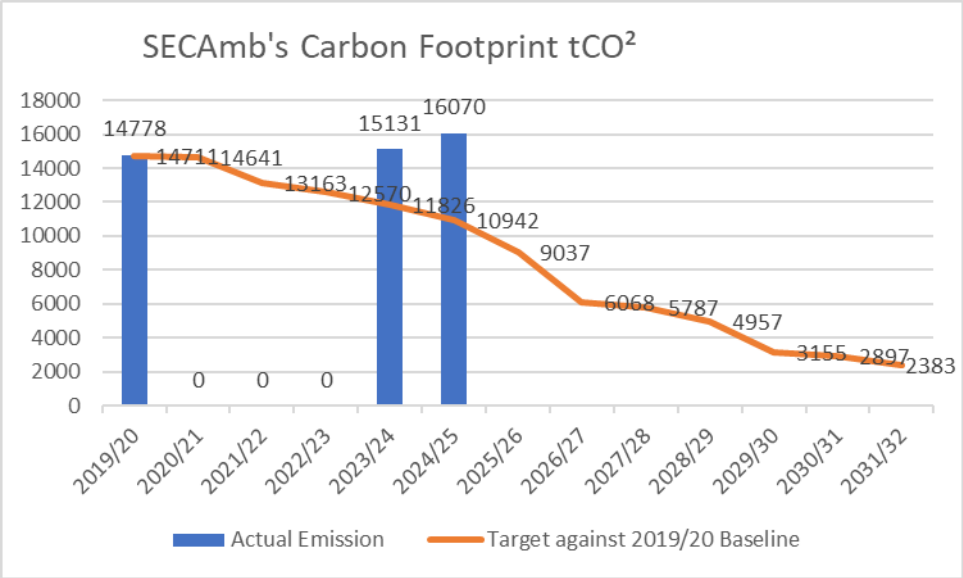


Figure 4 SECAmb's Emissions by source

We have not captured and calculated the Trust's Carbon Footprint PLUS, which includes the emissions arising from all the goods and services we purchase. However taking into consideration the figures calculated by our collaborative colleagues South Central Ambulance Service, this element may increase our total carbon emissions by a factor of 6. According to SECAmb, this has been rising each year, entirely due to a large increase in transport-related emissions from the goods and services we purchase, particularly as a large proportion of the services are transport-related.

3.5 SECAmb Carbon Reduction: Performance Against Targets



(The carbon reduction plan for Fleet takes into account our Fleet Replacement Strategy and predictions of EV acquisition at specific dates, hence its non-linear nature.)

Our baseline emissions were calculated using data from the 2019/20 financial year. These are the emissions that we can measure our progress against. As 2019/20 was the last pre-COVID financial year, this provides a good estimate of what our emissions look like during 'normal' operations. The calculation methodology is in line with the *Greenhouse Gas Protocol*[11], which defines three Scopes for accounting and reporting of GHG emissions:

The SECAmb target is to achieve a 50% reduction in emissions for the Carbon Footprint by 2028-32 against the 2019/20 baseline, equivalent to an 80% reduction against 1990 figures, as calculated by NHS England.

Using the later date of 2032, deemed to be more realistic in view of the substantial work required, SECAmb needs to reduce its annual emissions down to 2,897 tonnes by this point.

Since 2019/20, total equivalent carbon emissions from SECAmb have increased from 14,695 tonnes to 166,621 tonnes, an increase of 12.5% against the baseline.

To be on track to meet Net Zero targets, carbon emissions should have been reduced by 20% at this point, However, the original plan specifically stated that we would start to replace the Non-Operational and Single Response ICE vehicles in our Fleet with electric and hybrid versions in 2023/24. This has not happened.

[11] The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, Revised Edition, The World Business Council for Sustainable Development and World Resources Institute, updated 2015

*Our baseline emissions were calculated at **14,778 tCO_2e**, with the main sources being our Fleet, Estate, and Medicines.*

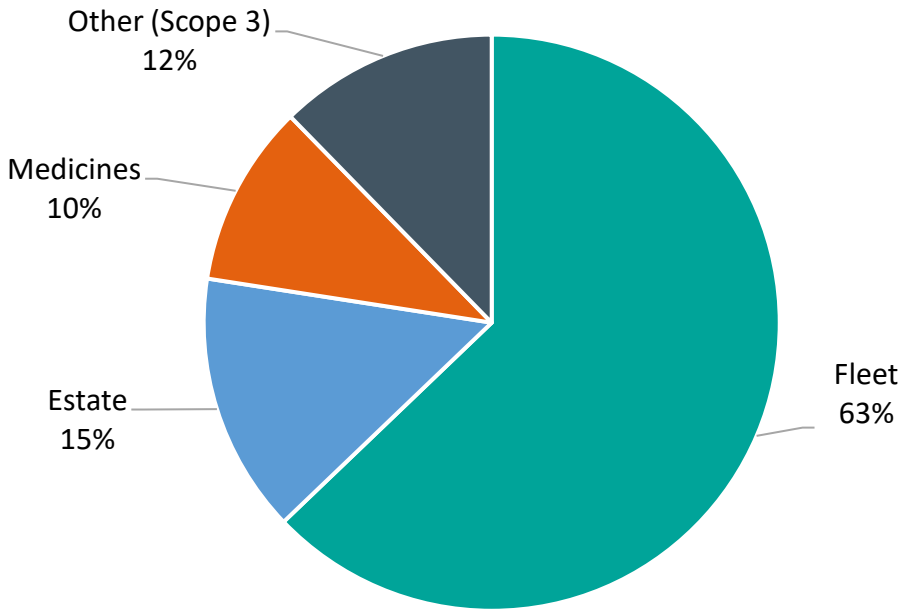


Figure 1 Emissions by source

3.6 Priority Areas for Carbon Reduction

Due to their contribution to emissions, the two key priority areas for carbon reduction are:

Whilst these are the priority areas, they should not detract from general efforts to embed sustainability throughout the Trust. Tackling these priority areas will also complement future efforts to decarbonise the heating systems, by ensuring that upgrades to the electrical supply required by electric vehicle chargers is sufficient to power heat pumps too.

Achieving carbon reduction in these areas will require collaboration across multiple directorates / departments within SECAmb.

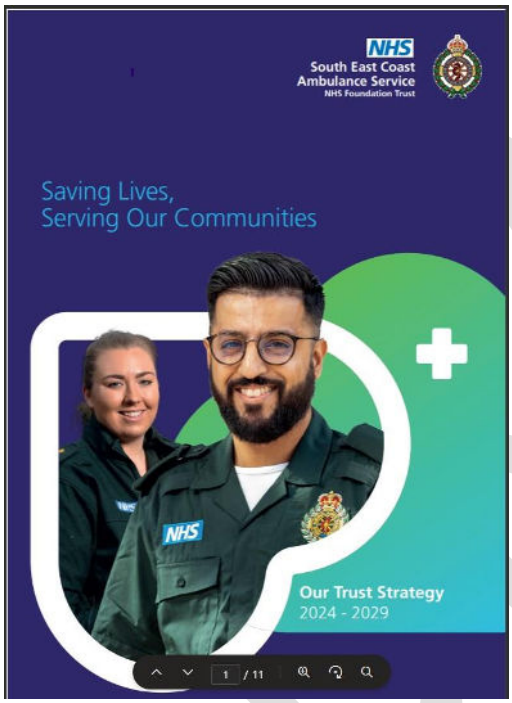
The following section will explain how the Green Plan sits within the overall organisational vision of the Trust and how it contributes towards putting the Trust on course for a more sustainable model of development

4 Organisational Vision

Together, we will build a stronger SECAmb, ready to face the challenges of the future and provide the highest

quality care to the communities we serve

Usman Khan, Chairperson SECAmb 2024



4.1 SECAmb Trust Strategy

The Green Plan does not sit in isolation, it must align with existing policies and procedures

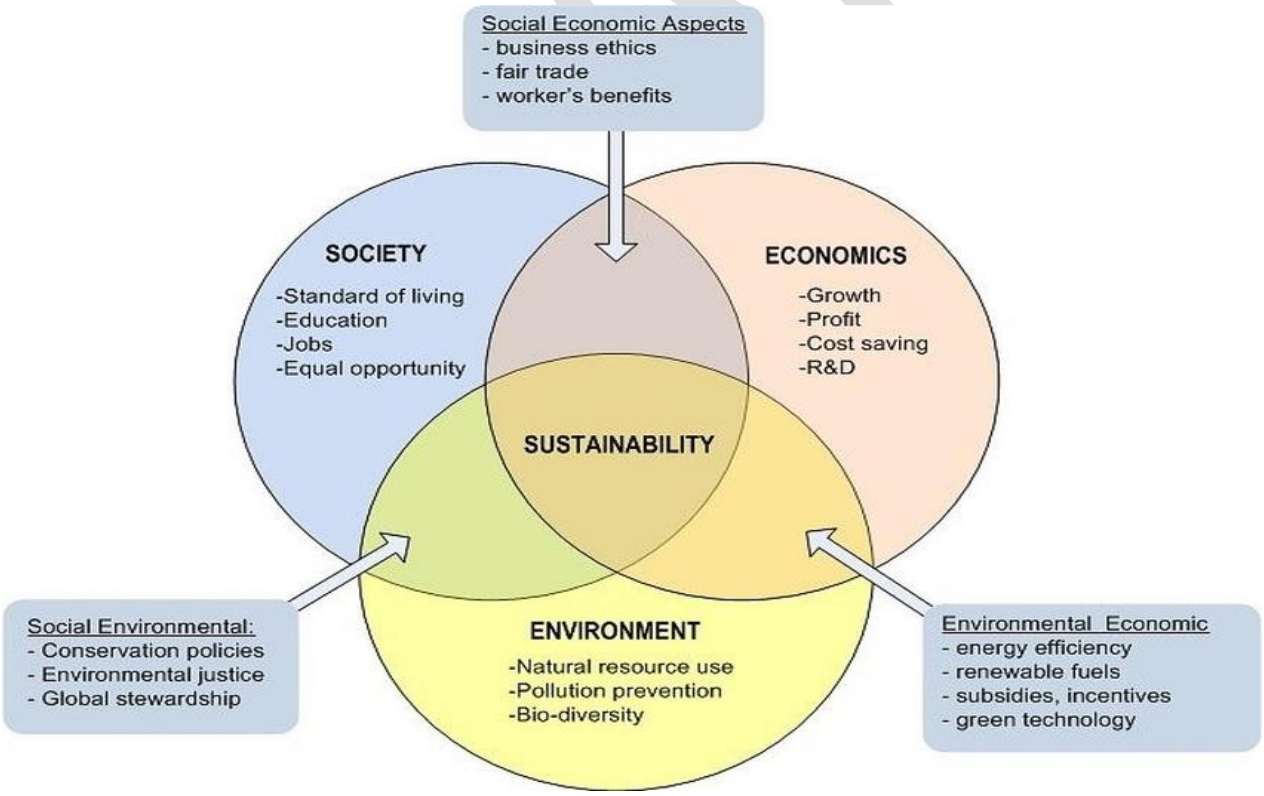
The plan aligns with wider Trust strategies and policies and the following are included in the SECAmb Trust Strategy 2024– 2029:

- **We deliver high quality patient care**
    1. We will focus on reducing health inequalities within our area
    2. Patients with emergency care needs will receive timely physical care
    3. Transitioning from a predominantly ambulance-based response model to a more differentiated approach, where the type of response is tailored to the individual needs of our patients
- **Our people enjoy working at SECAmb**
    1. Our people will have a variety of career pathways and portfolio opportunities
    2. Our people will be supported with the right training and feel empowered to effectively care for all their patients

- **We will be a sustainable partner as part of an integrated NHS**
    1. Build an organisation that is financially and environmentally sustainable.
    2. Reduce waste and optimise our corporate and operational functions to ensure we
    3. can deliver a service that can sustain itself financially in the long term.
    4. We will reduce our conveyance rate to Emergency Departments to 39%
    5. We will increase the utilisation of alternatives to Emergency Departments from 12% to 31%
    6. Data sharing and collaboration will enable healthier communities and will reduce health inequalities in our region

4.2 Sustainable Model of Development for SECAmb

For the Trust to achieve long-term sustainability the “three pillars” of economic, environmental and social sustainability needs to be considered in impact assessments. As a sustainable model of development can only be achieved when all three are in alignment



A model of sustainable development is about balance. An economy is only viable long-term if it consumes fewer resources than what the environment can provide. Likewise, an

economy without social equity (or “fairness”) is likely to experience significant social tensions which would challenge its long-term future.

To understand how this relates to an ambulance trust, the Economic pillar would include assets such as buildings and the ambulance fleet, the jobs held by the staff and long-term capital investment

4.3 Combining the Trust Strategy with Sustainability

The points (highlighted in bold) are in alignment with sustainability as follows:

Economic Sustainability means **Building an organisation that is financially and environmentally sustainable** and requires good governance to achieve.

Environmental Sustainability includes measures to reduce emissions, water consumption and air pollution. This requires us to **Reduce our waste and optimise our corporate and operational functions to ensure we can deliver a service that can sustain itself financially in the long term.**

Social Sustainability entails promoting the health of our patients and staff and **we will focus on reducing health inequalities within our area** through taking measures to reduce air pollution and wider steps to avert the climate crisis. **Our people will be supported with the right training and feel empowered to effectively care for all their patients** are essential to the long-term viability of the Trust.

Data sharing and collaboration will enable healthier communities and will reduce health inequalities in our region is essential to building a model of sustainable development for SECAmb.

The Trust is working towards carrying out a Financial Sustainability Workshop to identify ways to save money, such as reducing fossil fuel use and business mileage. Reducing business mileage can be achieved through greater use of Teams where possible, or its carbon footprint mitigated by switching to EVs or other modes of transport if available. Such initiatives align with environmental sustainability. These in turn can yield wider health benefits, contributing to social sustainability. This demonstrates how the Trust can move towards a model of sustainable development, whilst still meeting its core service provision responsibilities. Encouraging more active travel, such as cycling and walking to work, can save money, protect the environment and improve health. This is another simple illustration of sustainable development in action.

5 Specific improvements which benefit local communities, staff and the overall organisation

5.1.1 Incorporating the Social Value Model

The NHS is an "anchor institution" in the local economy, as a major employer and purchaser of goods and services. Social Value Themes[12] encapsulate the three pillars of economic, environmental and social sustainability. Embedding these in the procurement process will mean that local community's benefit from efforts to reduce inequalities in health, incomes, and educational opportunities, alongside measures to fight climate change.

SECAmb is also a supplier of services itself, and participates in competitive tenders to win business, so it too must demonstrate it has incorporated the same Social Value Themes, which will be of direct economic, environmental and social benefit to its employees and, in turn, the organisation.

5.1.2 Regional resilience planning to protect the vulnerable from climate change

Efforts to lower CO_2 emissions, reduce costs and improve public health need to be combined with planning to mitigate the local impacts of climate change. This means adapting to improve the resilience of services and estates while protecting the most vulnerable, through measures such as climate change adaptation assessments, flood risk management and estates planning.

5.1.3 Reducing Air Pollution

The Department of Health and Social Care's advisory Committee on the Medical Effects of Air Pollutants (COMEAP) estimated that long-term exposure to man-made air pollution in the UK has an annual impact on shortening lifespans, equivalent to 28,000 to 36,000 deaths.[13] The Royal College of Physicians, along with the Royal College of Paediatrics and Child Health, believes the figure may be even higher, at 40,000 deaths[14]. As such, it is the single greatest environmental threat to human health.

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[12] Government Commercial Function (2020), "Guide to Using the Social Value Model", Section 2, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/940827/Guide-to-using-the-Social-Value-Model-Edn-1.1-3-Dec-20.pdf

[13] DEFRA (2019), "Clean Air Strategy 2019", https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf

[14] Royal College of Physicians and Royal College of Paediatrics & Child Health, 2016, "Every breath we take: the lifelong impact of air pollution", pxii, https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take lifelong-impact-air-pollution

Conditions caused or exacerbated by air pollution include asthma, chronic bronchitis, coronary heart disease (CHD), and strokes. These conditions significantly reduce quality of life. They also mean that people are less able to work and need more medical care, resulting in higher social costs and greater burden on the National Health Service. Air pollution exacerbates health inequalities, with the most vulnerable being disproportionately affected, whilst they often contribute the least to higher pollution.

As 19.9% of strokes are attributed to exposure of PM2.5 levels exceeding 10mcg/m^{3}25[15] and diesel engines are a significant source of PM2.5 and other pollutants such as NOx. Taking steps to reduce air pollution from travel and transport, especially by replacing diesel with EV, will mean fewer cases of asthma, COPD, cancer, strokes and heart disease. Whilst diesel fleets are transitioning to EV, a process that will take several years to complete, interim measures such as implementing ACETECH “Eco-run” engine management modules can turn off fleet engines when needed, to reduce unnecessary idling[16]. By cutting down on idling, fleets decrease their fuel burn, toxin emission and engine wear and tear. The cost of the technology can be recouped from fuel savings within a year.

Some local authorities are introducing Clean Air Zones to tackle pollution. The governments ULEZ has now extended to areas in Surrey and Kent which is within the SECAmb region,

The NHS has a duty of care to support Clean Air Zones. As more authorities instigate them, it is likely that the exemptions granted to non-compliant emergency vehicles will be removed, resulting in financial penalties increasing the fleet operating costs. As of 31st October 2023, NHS vehicles operating in London were no longer exempt from ULEZ charges.

The NHS Fleet and Business Travel is a major source of air pollution, locally and nationally. Electrifying the SECAmb fleet will have a direct, beneficial impact on the health of local communities and staff. Some scientists have raised concerns that increased electrification of vehicles may lead to more air pollution from tyre wear, due to EVs being heavier. However, the introduction of solid-state batteries, along with new lighter versions of existing lithium-ion battery technology, will mean that soon (within a year or two) there will be no weight difference. The EU is also introducing the Euro 7 vehicle standard in 2025, which regulates and seeks to reduce tyre and brake dust emissions.

5.1.4 Digital Care

The mainstream provision of digitally enabled care such as SECAmb “Hear & Treat”, which accelerated during the COVID-19 pandemic, not only reduces emissions from transport, but has the potential to enhance the patient experience by helping them avoid unnecessary travel.

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[15] https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution 25 www.addresspollution.org

[16] https://www.acetech.com/products/eco-friendly-technology-eco-run/

In 2024/25, 112,306 patients were treated by “Hear & Treat”, whilst a further 238,580 were treated at the scene rather than being taken to hospital.17

As long as it is clinically appropriate and care is taken to avoid entrenching health inequalities, due to lack of access to digital tools, for example, this is a highly sustainable method of healthcare provision.

6 Green Plan Core Elements & Pathways

Reducing carbon emissions in line with Net Zero targets is the most important element of this Green Plan, the priorities being to electrify the fleet and decarbonise the supply chain. As the vast majority of supply chain emissions are transport - related, decarbonising that will involve similar fleet electrification.

Whilst these remain the focus, other measures can also contribute to direct carbon reduction, such as LED lighting and reducing nitrous oxide use. Broader environmental measures include rainwater harvesting, elimination of single use plastics, and reducing waste sent to landfill, all of which help SECAmb move towards a more sustainable model of development

6.1 Carbon Reduction Plan

For the emissions we **control directly**, this plan sets out a measurable and achievable route to meeting our Net Zero targets. If we use the new 2019/20 baseline, we know that we need to reduce emissions by 47% by 2028-32 to remain on track for Net Zero, according to the formula calculated by NHS England[18] .

Baseline Emissions 2019/20 tCO^2e	14,778
Target Emissions for 2032 (47% reduction)	7,833
Actual Emissions 2024/25	16,070
Emissions Reduction Required to meet Target	4,795
Specific carbon reduction measures:	
100% non-ambulance fleet to be electric by 2032	4,016
50% reduction in Nitrous Oxide emissions	752
10% reduction in business mileage	46
Total potential reduction	4,814

[17] https://app.powerbi.com/groups/me/apps/29dd5f0c-abc8-406a-81d6-3310c68cc2d4/reports/9cea7efb-9cbb-4e8e-ab5e-a528781e18bc/ReportSection?experience=power-bi

[18] NHS England, 2023, “Trust contributions to the NHS Carbon Footprint Plus”, cited in Greener NHS Carbon Footprint Plus – Trust Methodology, Greener Analytics Workspace

We need to reduce our emissions by 4,795 tonnes CO_2e a year by 2032 to remain on course to hit the target of 7,833 tonnes CO_2e per annum. The above plan shows how this is achievable. It is impossible for SECAmb to meet its carbon reduction targets without a programme of fleet electrification. Electrification works to achieve Net Zero because the National Grid is rapidly decarbonising: Renewable sources outpaced fossil fuels for generating electricity for the first time in 2020.[19] The UK Government has committed to ambitious targets for the country to have 50 gigawatts (GW) of offshore wind installed by 2030.[20]

Although there are other measures which contribute towards Net Zero and other sustainability goals, their impact is comparatively, and perhaps surprisingly, small when compared to the switch to an electric fleet.

It is important to remember that the above carbon reductions do not include those arising from the supply chain, which account for an estimated 85% of the total emissions once they're factored in. Supply chain emissions are those we do not control directly but which we can influence. Procurement policy is vital to this, ensuring that suppliers are implementing carbon reduction plans which align to the NHS Net Zero targets. They will be required to calculate and report their carbon emissions to SECAmb so that progress to reduce them can be measured. The following section sets out the specific actions and initiatives which will be undertaken across SECAmb over the next five years to implement the Carbon Reduction Plan and achieve the broader sustainability goals of the Green Plan

6.2 Travel and Transport - Decarbonisation Roadmap

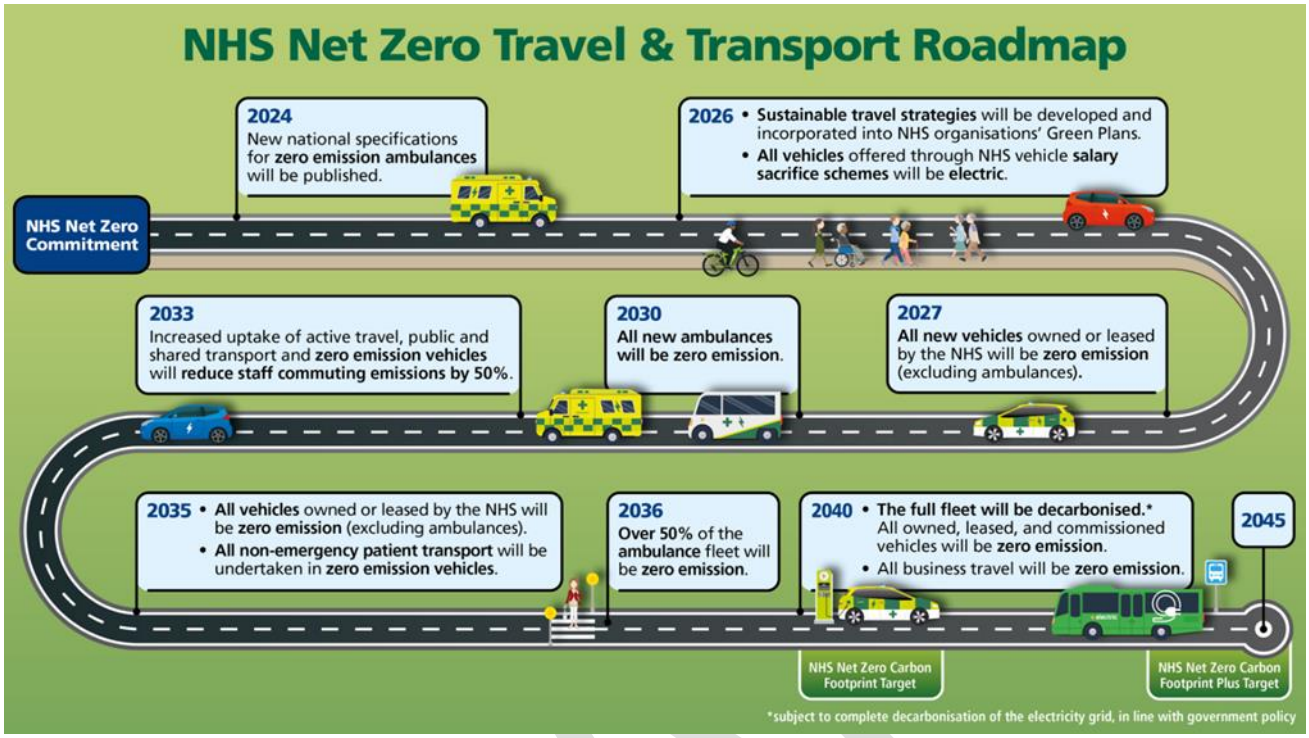
Transport related activities are responsible for the majority of carbon emissions for the Trust, accounting for 80% of directly controlled emissions. Investing in zero-emission vehicles for owned and leased fleets will ultimately eliminate the bulk of SECAmb carbon emissions. This will be a phased process, as older vehicles are retired from use and replaced by new electric vehicles, as mapped out by NHS England:

[19] https://www.neso.energy/about/our-progress-towards-net-zero/road-zero-carbon-report

[20] https://www.nationalgrid.com/electricity-transmission/who-we-are/riio-t2-performance/enable-ongoing-transition?utm_source=chatgpt.com

6.2.1 Roadmap to Net Zero Travel & Transport

The NHS Roadmap to Net Zero Travel & Transport[21] was published in October 2023, which sets out some important milestones:



The NHS will have fully decarbonised its non-ambulance fleet by 2035, with its ambulances following in 2040. Several key steps will mark the transition of NHS travel and transportation:

• By 2026, sustainable travel strategies will be developed and incorporated into trust and integrated care board (ICB) Green Plans.

• From 2027, all new vehicles owned and leased by the NHS will be zero emission vehicles (excluding ambulances).

• From 2030, all new ambulances will be zero emission vehicles.

• By 2033, staff travel emissions will be reduced by 50% through shifts to more sustainable forms of travel and the electrification of personal vehicles.

The 2027 deadline has important ramifications for all Trusts, but particularly Ambulance Trusts.

Because Fleet accounts for such a large part of SECAmb carbon emissions, the only way we can achieve our carbon reduction target is to aim for all new vehicles owned and leased by SECAmb to be zero emission.

Our carbon reduction trajectory, ensuring a 47% reduction from the 2019/20 baseline, must fall between 2028 and 2032 to remain within mandated NHS targets. If we wait until the 2027 deadline for all new vehicles purchased and leased to be zero emission, it only leaves

[21] NHS England (2023), "NHS Net Zero Travel and Transport Strategy",p18

5 years at most to achieve the target, assuming a replacement rate of 20% per annum. By starting sooner, the replacement rate will be more manageable

Analysis of fuel card data (and apportioning this to bunker fuel use) indicates that non-ambulance emissions account for 4,016 tonnes CO_2, which represents 24% of the SECAmb Carbon Footprint. The 2024/25 carbon footprint was 16,621 tonnes, with a target of 7,883 tonnes by 2028-32. SECAmb needs to reduce its emissions by 8,738 tonnes by then.

Eliminating the 4,016 tonnes from the non-ambulance fleet, nearly half of carbon reductions required to meet our target, assuming the electricity supply is fully decarbonised, which the Government has committed to by 2035.

Vehicles purchased by SECAmb in the 2023/24 financial year will still be on the books in 2028/29 financial year, due to the 5-year procurement life cycle. Many of these are internal combustion engine, so a 100% electric fleet by 2028 will not be possible. However, the targets allow for the carbon reduction trajectory to fall within a window of 2028-2032. As all new vehicles purchased or leased from 2027 onwards (excluding DCAs) must be zero emission, it is realistic to assume that SECAmb can meet its targets, providing sufficient charging infrastructure is in place.

Fleet Composition April 2025:[22] (excluding DCAs)

	2024-25	%
Diesel Excluding DCA's	273	68
Petrol	8	2
Electric	25	6
Hybrid	95	24
Total	401	

6.2.2 Electric Vehicle Options including e-DCAs

Electric Double Crewed Ambulances are at trial stage, with the worlds first fully electric ambulance going into service with London Ambulance Service on 1st January 2024.

SECAmb is now planning to acquire up to 5 electric DCAs to begin its own trials. This represents an exciting opportunity for SECAmb to be a technological leader, by gathering vehicle performance data across urban, semi-rural and rural locations, which will help inform the SECAmb Modernisation Programme and planning for the EV charging infrastructure. A successful trial will see SECAmb well placed for the rollout of electric DCAs, increasing the pace of carbon reduction.

[22] Fleet Data Report 24/04/25

Many viable options already exist for replacing the rest of the fleet, such as rapid response vehicles (RRVs), though the small number of heavier vehicles in the fleet may require alternative technologies, such as hydrogen fuel cell. SECAmb has been conducting successful trials of three fully electric Paramedic Practitioner Rapid Response Vehicles as part of the ground-breaking national Zero Emission Electric Vehicle (ZEEV) Pathfinder Programme funded by NHS England, with 21 vehicles deployed across the UK.

6.3 Addressing Common Concerns with EVs

Carbon Footprint of EV Batteries

It is important to note that adopting EVs will not involve "outsourcing" carbon emissions from SECAmb, so it becomes someone else's problem. There are now concerted moves to bring EV manufacturing back from China and into Europe, where the embodied carbon in the new generation of batteries could be over 90% less than those made in China due to new low-carbon manufacturing techniques.[23]

When considering the embedded carbon in EVs, it must also be remembered that internal combustion-engined (ICE) vehicles also have a carbon footprint. The only difference is that one has an engine and a fuel tank, the other a motor and a battery. On leaving the factory gate, EVs have an initial higher carbon footprint than ICE vehicles due to the energy-intensive battery pack manufacturing processes. However, this is dwarfed by the operational CO_2 footprint of ICE vehicles burning fossil fuels throughout their lifetime, not to mention the wider environmental impacts associated with air pollution and fossil fuel extraction.

The initial 'carbon deficit' from manufacturing an EV only takes several thousand vehicle-miles to overcome according to research by Argonne National Laboratory in Chicago[24]. Depending on where the battery is made and how 'green' the energy grid is, EV carbon parity with ICE vehicles can be reached in as little as 8,000 miles, according to a European study conducted in 2020[25]. Since then, the pace of innovation has been rapid and battery production has been increasingly shifting from China into Europe, with 10 gigafactories already producing batteries and up to 40 planned to be operational by 2035[26]

Swedish battery giant Northvolt is currently producing EV battery cells with a carbon footprint of 33 kg CO_2e / kWh, two thirds less than the industry average, with plans to reduce this to 10kg CO_2e / kWh by 2030.37 A 68kWh EV battery would have 680kg

[23] Life cycle assessment of the energy consumption and GHG emissions of state-of-the-art automotive battery cell production - ScienceDirect

[24] When do electric vehicles become cleaner than gasoline cars? | Reuters

[25] TEs-EV-life-cycle-analysis-LCA.pdf https://www.transportenvironment.org/uploads/files/TEs-EV-life-cycle-analysis-LCA.pdf

[26] CATL plans Europe's biggest battery gigafactory

embodied carbon. This is equivalent to the emissions from burning 270 litres of diesel or driving 2,488 miles in an average car.[27]

Battery Innovation

Innovations in battery design, such as solid-state technology, herald a transformation in weight, range and charging times, whilst eliminating the already low risk of fires posed by current lithium-ion batteries and significantly increasing the number of charging cycles a battery can withstand, therefore extending its lifecycle (and the life of the vehicle, which is of particular relevance to high mileage operators)

Many major manufacturers have now begun pilot production of solid-state batteries, including Nissan, Toyota, Samsung, SK, CATL, BYD and Prologium, with most planning to commence mass production in 2027[28] .

Toyota has recently announced that it will be producing its first solid state battery - powered vehicles in 2027, with an anticipated range of 745 miles and 10-minute charging time[29] .

Prologium has pioneered the development of mass-produced Lithium Ceramic Batteries, which it unveiled at the Paris Motor Show in 2024, promising fast charging from 5% to 60% in just 5 minutes and 80% in 8.5 minutes. Their new technology increases energy density while maintaining fast-charging capability without degrading the battery.[30]

As the new generation of solid-state batteries evolves, they are anticipated to have a higher energy density existing lithium-ion batteries, making them lighter and smaller. This has very positive implications for the development of electric ambulances, helping to address vehicle weight concerns.

EV Battery Recycling

It is a complete myth that EV batteries go into landfill at the end of their life, certainly within Europe:

The UK Waste Batteries and Accumulators Regulations 2009 made it illegal to send automotive batteries to landfill or dispose of by incineration.

The UK maintains regulatory alignment with the EU, which adopted Regulation (EU) 2023/1542 on 12 July 2023. Building on earlier legislation, this introduced comprehensive

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[27] Department for Energy Security & Net Zero, 2024, UK Government GHG Conversion Factors for Company Reporting

[28] Solid-state batteries enter pilot production, costs expected to drastically drop - Energy Storage

[29] Toyota Reveals the Future of Cars with Next-Generation Battery and Hydrogen Technologies

[30] Prologium, 2024, Prologium Debuts World's First 100% Silicon Composite Anode, https://prologium.com/prologium-2024-paris-motor-show-pressrelease/, accessed 04-11-24

measures covering the entire lifecycle of batteries, including sustainability, safety, labelling and waste management[31].

The Regulation explicitly prohibits the disposal of industrial and automotive batteries in landfills or via incineration and promotes a circular economy by requiring that materials from end-of-life batteries be reclaimed and reused.

An emerging sustainable practice is to repurpose EV battery cells into battery energy storage systems (BESS). Even when they have degraded beyond the minimum performance requirements for a car, EV batteries typically retain a substantial portion of their storage capacity (up to 70-80%). This can significantly extend the useful life of batteries, before they are eventually recycled and the raw materials extracted to manufacture new batteries, supporting a more circular economy.

In October 2024, Mercedes-Benz opened Europe's first battery recycling plant with an integrated mechanical-hydrometallurgical process making it the first car manufacturer worldwide to close the battery recycling loop with its own in-house facility[32] .

The facility has an expected materials recovery rate of more than 96 percent and net carbon-neutral operation and is expected to generate enough recycled materials to produce more than 50,000 new battery modules per year.

Environmental Impact of Lithium Extraction

Lithium extraction has received increasing scrutiny and criticism for its environmental impact; the main method involves evaporation of brine containing lithium salt, in purpose-built lakes exposed to sunlight. There are concerns about high water consumption and impact on water tables in areas prone to drought, particularly in the 'Lithium Triangle' in South America, though this can be addressed by new direct extraction techniques[33]. Unlike fossil fuels, lithium only needs to be mined once as it can be recycled continuously, and its impact on the environment is minimal compared to the colossal damage associated with oil, coal and gas extraction, not to mention their CO_2 and particulate emissions when combusted.

The EU and UK are also in the process of diversifying the supply of rare earth elements away from dependency on China, to ensure a more economically, environmentally, and socially sustainable battery supply chain. This includes the new rare earth processing facility being constructed in the Humber Freeport, the first of its kind in Europe, with support

[31] Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC

[32] Mercedes-Benz, 2024, "Mercedes-Benz opens own recycling factory to close the battery loop", https://media.mercedes-benz.com/article/fe521181-3b57-4915-a51a-b5f6f352c574, article accessed 04-11- 2

[33] Schlumberger, 2024, SLB achieves breakthrough results in sustainable lithium production, https://investorcenter.slb.com/news-releases/news-release-details/slb-achieves-breakthrough-resultssustainable-lithium-production, accessed 05-11-24

from the UK Automotive Transformation Fund. It is expected to open in 2025. The ores will be sourced from a newly developed state-of-the-art mine in Longonjo, Angola, as part of an independent and sustainable supply chain to ensure a cost-effective, transparent and ultra-low embedded carbon range of rare earth products.[34] This also addresses concerns over the provenance of metals and associated workforce conditions.

Manufacturers are also experimenting with other materials for the cathode, such as sodium and iron, to move away from dependence on critical minerals such as cobalt.

The Grid Can't Cope with EVs…

The National Energy System Operator (NESO) is responsible for managing demand for electricity, making sure power is available when it's needed, second by second.

Most EV drivers charge their vehicles overnight at home using trickle chargers, when commercial demand on the grid is lowest.

Through smart charging, EVs can help to balance the system, helping consumers use green power when it's plentiful (and often cheaper) and avoid times when there's more load on the network. Vehicle-to-grid technology could even send that power back to the grid when needed. The UK Government has introduced Electric Vehicle Smart Charge Points Regulations to ensure that EV charge points will have this smart functionality.

It's also important to bear in mind that a significant amount of electricity is used to refine oil for petrol and diesel. It is estimated that refining 1 gallon of petrol would use around 4.5kWh of electricity – so, as we start to fewer petrol or diesel cars, some we start to fewer petrol or diesel cars, some of that electricity capacity could become available for charging[35] .

The International Energy Agency reports that electricity consumption per capita in the United Kingdom has actually fallen by 32% since 2000[36] . However, the transition to electrified heating and transport systems will add significant demands to the grid. The UK Government has committed to ambitious targets for the country to increase offshore wind from 11 gigawatts GW installed or planned capacity in 2025 to 50 GW by 2030, then a fully decarbonised power system by 2035, subject to security of supply[37] .

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[34] Mining Weekly, 2023, "Pensana close to finalising $550m financing for Saltend, Longonjo", https://www.miningweekly.com/article/pensana-close-to-finalising-550m-financing-for-saltend-longonjo2023-04-03

[35] National Grid, 2024, "Busting the Myths and Misconceptions about Electric Vehicles", https://www.nationalgrid.com/stories/journey-to-net-zero/electric-vehicles-myths-misconceptions

[36] 7 IEA, 2024, Electricity consumption per capita, https://www.iea.org/countries/united-kingdom/electricity, accessed 21-11-24

[37] National Grid, 2024, Enable the ongoing transition to the energy system, https://www.nationalgrid.com/electricity-transmission/who-we-are/riio-t2-performance/enable-ongoingtransition, accessed 21-11-2

6.3.1 The Role of Hydrogen

According to the Government's current Hydrogen Strategy, "Hydrogen is likely to be fundamental to achieving net zero in transport, potentially complementing electrification across modes of transport such as buses, trains and heavy goods vehicles (HGVs). It is also likely to provide solutions for sectors that will not be able to fully decarbonise otherwise, including aviation and shipping"[38].

The Government's Transport Decarbonisation Plan 2021 set out to forge a realistic pathway to net-zero by 2050. The Government expects battery electrification to remain the dominant zero emission technology for passenger cars and vans. By contrast, "Hydrogen is likely to be most effective in transport in areas that batteries cannot reach, where energy density requirements or duty cycles, weight and volume restrictions and refuelling times make it the most suitable green energy source".[39]

The focus of hydrogen is on heavier modes of transport which require the energy density, rapid refuelling times and longer ranges afforded by hydrogen fuel cells. However, where possible, electrification is the better option due to its lower cost and higher "well to wheel" energy efficiency.

Electricity is always the starting point in any hydrogen manufacturing process, either through electrolysis of water using renewable electricity (green hydrogen) or steam reformation of methane (blue hydrogen). It then needs to be compressed and transported. Due to inefficiencies, heat losses and escape of gas at each stage, the resulting hydrogen will always cost more than electricity per unit of energy. Further costs are incurred if methane is used to make hydrogen, as the resulting CO_2 emissions will need to be captured and stored, otherwise it would continue to contribute to global warming in the same way as simply burning the methane.

There is already a comprehensive electrical distribution network in place, with EV chargers being installed at an exponential rate. According to ZapMap, in October 2024, there were over 71,459 public electric vehicle charging points across the UK, across 36,060 charging locations, with 108,633 connectors[40] . In addition to this, homeowners can install their own private charge points. The Government estimates there are 1.2 million EVs in the UK, the majority of which will have home charging available.

By contrast, as of November 2024 only seven publicly accessible hydrogen refuelling stations existed across the entire UK41 . No hydrogen distribution network currently exists. It is envisaged that a few tens of kilometres will exist to support industrial clusters by 2030, but that potential national level distribution will not be available

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[38] HM Government, 2021, "UK Hydrogen Strategy", https://assets.publishing.service.gov.uk/media/64c7e8bad8b1a70011b05e38/UK-Hydrogen-Strategy_web.pdf, accessed 05-11-24

[39] Department for Transport (2021), "Decarbonising Transport – A Better Greener Britain", p71

[40] EV charging statistics 2025 - Zapmap

[41] Driving Electric, 2024, "Where can I buy hydrogen and where is my nearest hydrogen filling station?", https://www.drivingelectric.com/hydrogen/1363/where-can-i-buy-hydrogen-and-where-is-my-nearesthydrogen-filling-station, accessed 05-11-24

until 2050, according to the Hydrogen Strategy. The majority of the UK's existing hydrogen production is fossil-fuel based, though there are plans for half of production to be green by 2030.[42]

All these factors mean that hydrogen does not form part of the current NHS Net Zero Travel & Transport Strategy.

There are no plans, at this time, for SECAmb to participate in any trials involving the use of hydrogen.

6.3.2 Alternative Fuels - HVO

Hydrotreated Vegetable Oil (HVO) as a drop-in diesel alternative can serve as a "transitional" fuel to reduce carbon emissions whilst the fleet is electrifying, particularly useful if there are delays introducing electric DCAs or older vehicles are still in active use. It has a 90% lower net carbon footprint than diesel. Every 100,000 litres of HVO used to replace diesel directly saves 248 tonnes of CO_2. The Trust currently uses 3.79 million litres of diesel per annum. However, using HVO relies on manufacturers granting permission so that vehicle warranties are not voided. This means it could still be effective in older and more polluting vehicles that have exceeded their warranty period.

Several local authorities, such as Horsham District Council, have successfully switched their entire fleets over to HVO as an interim measure.

6.3.3 Modal Shift and Active Travel

A Travel survey would provide SECAmb with information in relation to how our staff travel to work (Car, Car share, Bicycle, Bus, Motorbike etc) and what the appetite would be for changing their commuting habits to a more sustainable choice if appropriate however at this point no survey has been carried out

6.3.4 Reducing Business & Staff Travel Emissions

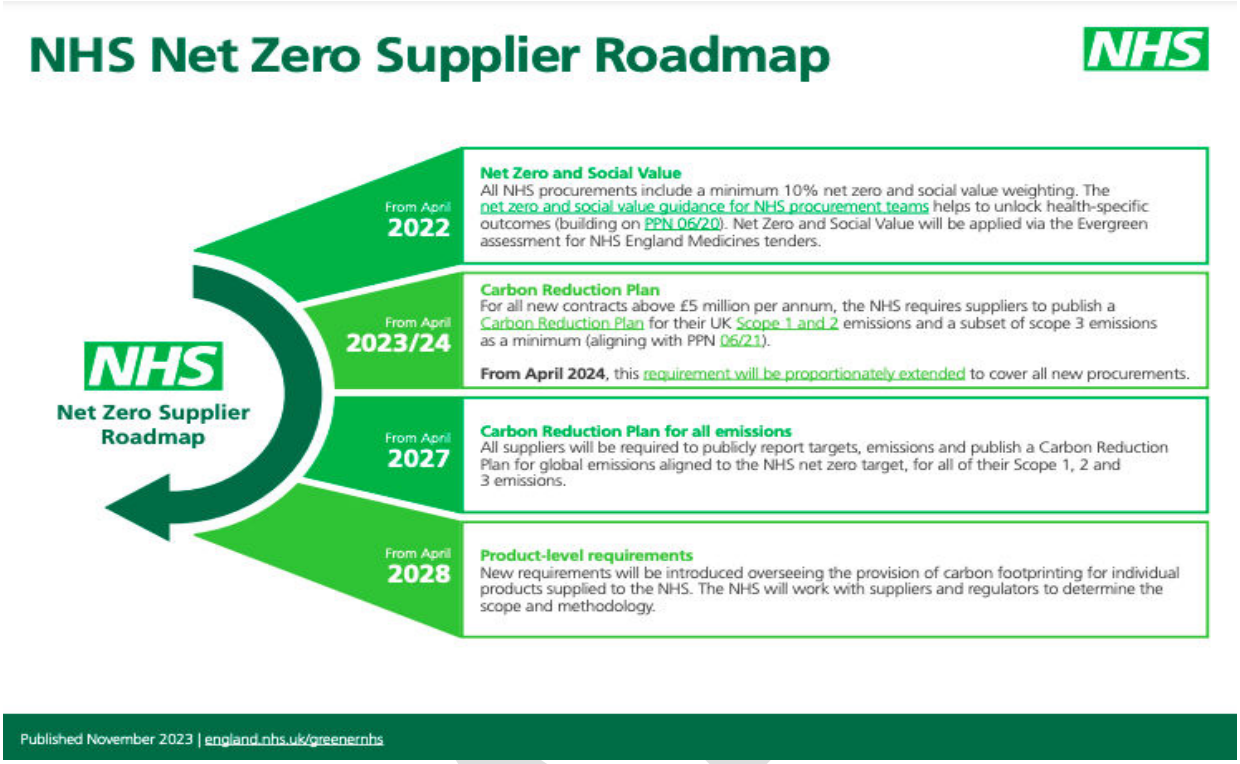
Use of Teams meetings should be encouraged to reduce unnecessary business travel, along with implementing hybrid working models to reduce staff commuting, where practical.

4.3 Supply Chain and Procurement

To help suppliers align with our net zero ambition between now and 2030, NHS England Public Board has approved a roadmap setting out the evolution of Government procurement policy towards Net Zero procurement:

[42] HM Government, 2021, Hydrogen Strategy, https://assets.publishing.service.gov.uk/media/64c7e8bad8b1a70011b05e38/UK-Hydrogen-Strategy_web.pdf, accessed 05-11-24

6.3.5 Net Zero Supplier Roadmap



From April 2022: All NHS procurements include a minimum 10% net zero and social value weighting.

From April 2023: for all new contracts above £5 million per annum, the NHS requires suppliers to publish a Carbon Reduction Plan for their UK Scope 1 and 2 emissions and a subset of Scope 3 emissions as a minimum (aligning the NHS with Procurement Policy Note PPN06/21 – Taking Account of Carbon Reduction Plans in the Procurement of Major Government Contracts). The Carbon reduction plan and net zero commitment requirements for the procurement of NHS goods, services and works guidance outlines what is required from suppliers and how it should be implemented.

From April 2024: The NHS has proportionately extended the Carbon Reduction Plan requirements to cover all new procurements.

From April 2027: All suppliers will be required to publicly report targets, emissions and publish a Carbon Reduction Plan for global emissions aligned to the NHS net zero target, for all of their Scope 1, 2 and 3 emissions

From April 2028: New requirements will be introduced overseeing the provision of carbon footprinting for individual products supplied to the NHS. The NHS will work with suppliers and regulators to determine the scope and methodology.

From 2030: Suppliers will only be able to qualify for NHS contracts if they can demonstrate their progress through published progress reports and continued carbon emissions reporting.[43]

6.3.6 Applying Net Zero & Social Value to Procurement of NHS Goods and Services

NHS England's stated policy objective is to meet its Net Zero carbon targets while achieving its wider Social Value priorities. In 2022, it clarified this further:

"The principal aim of procurement undertaken by NHS organisations is to deliver essential goods and services and improve patient outcomes, while increasing value from every pound spent in the NHS. NHS procurement also has an essential role to play in the delivery of the NHS commitment to reach net zero by 2045, as more than 60% of NHS carbon emissions occur in the supply chain. Social value, when incorporated effectively, will help reduce health inequalities, drive better environmental performance, and deliver even more value from procured products and services." [44]

From April 2022, all NHS procurements must include **a minimum 10% net zero and social value weighting.**

There are five Social Value Themes, of which Fighting Climate Change is compulsory in all contracts:

Social Values Model Theme	NHS Priority Areas
• **Fighting Climate Change (must be included in all procurement)**	**Reduce emissions • Reduce air pollution • Promote circular economy principles • Reduce consumption and waste**
• **Wellbeing**	**Support physical & mental health**
• **Equal Opportunity**	**Support a diverse workforce • Equity by design • Eliminate modern slavery**
• **Tacking Economic Inequality**	**Employment as an economic and health intervention • Living wages**

[43] Greener NHS » Suppliers https://www.england.nhs.uk/greenernhs/get-involved/suppliers/

[44] NHS England 2022, "Applying net zero and social value in the procurement of NHS goods and services", https://www.england.nhs.uk/greenernhs/wp-content/uploads/sites/51/2022/03/B1030-applying-net-zeroand-social-value-nhs-goods-and-services.pd

• COVID-19 Recovery	Supports individuals affected by COVID-19

6.3.7 NHS supplier Carbon Reduction Plan and Net Zero Commitment

This sets out the supplier requirements for a Carbon Reduction Plan and Net Zero Commitment for the procurement of NHS goods, services and works[45].

From 2023, for all new contracts above £5 million per annum, the NHS required suppliers to publish a Carbon Reduction Plan for their UK Scope 1 and 2 emissions and a subset of Scope 3 emissions as a minimum. This aligned the NHS with Procurement Policy Note PPN06/21 – Taking Account of Carbon Reduction Plans in the Procurement of Major Government Contracts.

From April 2024: The NHS has proportionately extended the Carbon Reduction Plan and Net Zero Commitment requirements to cover all new procurements:

Policy Application	Procurement in Scope	Implementation Date	Procurement Stage	Demonstration of Commitment
Carbon Reduction Plan (CRP) requirement	**Contracts > £5m per annum (exc. VAT)**	**1 April 2023**	**Pass/fail check in Standard Selection Questionnaire**	**URL provided as part of the Selection Questionnaire**
	New frameworks where it is anticipated that the individual value of any contract to be awarded under the agreement is £5m per annum (exc. VAT) or more			
	All new frameworks operated by in-scope organisations, irrespective of	**1 April 2024**		

[45] NHS England 2024, "Carbon reduction plan and net zero commitment requirements for the procurement of NHS goods, services and works", https://www.england.nhs.uk/long-read/carbon-reduction-plan-requirementsfor-the-procurement-of-nhs-goods-services-and-works/, accessed

	the value of the contract			
Net Zero Commitment requirement	**Contracts below £5m per annum and above £10k (exc. VAT)**	**1 April 2024 – for contracts above the relevant Public Contracts Regulations (PCR) threshold**	**Pass/fail check in Standard Selection Questionnaire**	**URL of the commitment shared upon contract award**
		1 April 2026 – for contracts below the relevant PCR threshold	**Condition of Award**	

A Carbon Reduction Plan (CRP) identifies a supplier's current carbon footprint and their plan to achieve net zero emissions by 2050 or earlier for their UK operations.

The supplier will be expected to provide their baseline and current emissions for the sources included in scope 1 and 2 of the GHG Protocol and, at a minimum, the five GHG Protocol scope 3 categories of:

- upstream transportation and distribution
- waste generated in operations
- business travel
- employee commuting; and
- downstream transportation and distribution.

Suppliers will also need to identify environmental management measures in effect, including any certification scheme (e.g. ISO14001), and specific carbon reduction measures adopted.

A Net Zero Commitment is a publicly stated commitment to achieve net zero by 2050 or earlier, and a confirmation that the supplier is taking steps to reduce their GHG emissions over time. It does not involve the detail required of a CRP and applies to lower value contracts.

A 'Net Zero Commitment' is required for all new procurements above the relevant threshold up to the value of £5M per annum, where it is deemed that CRP requirements not to be proportionate and relevant to the nature of the framework.

> To comply with the NHS Net Zero Commitment requirements, a supplier can state: "[Supplier name] is committed to achieving Net Zero emissions by 20XX for emissions scopes X, X and X. The commitment was made on DD/MM/YY by the [approving board/equivalent management body]"

6.3.8 Decarbonising the SECAmb Supply Chain

Emissions from SECAmb supply chain are not included in the Carbon Footprint PLUS at this point however as we are starting to tender many of the services across SECAmb and place new contracts we will start to build this in

NHS organisations are able to use their individual or collective purchasing power and decisions to reduce the carbon embedded in their supply chains. Ambulance trusts will be able to influence transport service providers via contractual obligations to transition to zero emission fleets, which will transform the trajectory of the SECAmb Carbon Footprint PLUS and put us back on track to meet our Net Zero target of 2045.

Whilst the overwhelming focus for SECAmb will be on reducing transport related emissions, carbon emissions also arise from less obvious activities, such as medical supplies and data processing and storage. Data centres and data transmission accounted for 3% of global electricity demand and 1% of global greenhouse gas emissions in 2022. To put this into context, the entire aviation industry accounts for 1.9% of total global emissions[46] . Sending a single email can add 26g to the carbon footprint58, which may come as a surprise to many.

Along with other suppliers, data centre service providers will need to demonstrate that they are implementing their own carbon reduction plans and report their progress back to SECAmb.

The procurement contract tender process offers opportunities to:

- Reduce the use of clinical and non-clinical single-use plastic items
- Use lower carbon alternative supplies, such as recycled paper or products with a lower environmental impact
- Reduce or eliminate waste going to landfill

6.4 Estates

(With reference to the August 2021 Estates Net Zero Delivery Plan[47]):

6.4.1 Installing the EV Charging Infrastructure

To support the ongoing electrification of vehicles, estates are progressing a two stage plan:

[46] IEA (2022), Data Centres and Data Transmission Networks, IEA, Paris https://www.iea.org/reports/datacentres-and-data-transmission-networks, License:CC BY 4.0

[47] NHS England (2021), “Estates Net Zero Carbon Delivery Plan”, PAR1059.

Stage 1 of the plan for charging infrastructure has been completed as we have installed 109 Electric Vehicle charging points at our reporting bases. This includes 68 no.7.2 kW, 35 no.22kW, 2 no 40kW and 4 no. 60kW This has given us a capacity of 1561kW.

Stage 2 of this installation is a much bigger piece of work and involves facilitating the transition of our existing fossil fuel powered operational vehicle fleet to electric by ensuring adequate charging infrastructure.

To enable the electrification of the fleet, it is essential to establish the number and capacity of chargers required. At the end of 2024/25 financial year, the total fleet comprised 828 vehicles[48]. Modelling must consider future requirements, daily operational requirements and the specification for electric Double Crewed Ambulances.

The charging requirements will be data driven and informed by the Zero Emissions Vehicle Strategy[49] and Fleet Emergency Vehicle Recharging Infrastructure Tool (EVRIT) developed by NHS England in conjunction with Cenex. This model estimates electrical demand for a fully electric ambulance fleet by calculating most of its outputs on a per-vehicle basis, then multiplying by the maximum number of vehicles onsite, using data supplied by Fleet.

The model has produced estimates of the peak demand and **minimum** infrastructure needed.

Opportunistic Charging Model

The model assumes that sites with EV chargers are supporting an opportunistic charging strategy, where ambulances attempt to top up their battery during every eligible visit to an NHS site, rather than relying on a long recharge period (e.g. overnight charging). The underlying assumption of the model is that ambulances arriving at one site have access to opportunistic charging at any other hospital or ambulance station they visit, so charging infrastructure requirements at hospitals are also included in this model. SECAmb will need to liaise with hospitals to ensure that adequate infrastructure is provided, as they are essential for the viability of this EV charging model.

Previous analysis work by Cenex on historic ambulance journeys has suggested that supplying every ambulance with ultra-rapid chargers is not always required to support fleet charging. A more efficient approach may be to deploy managed charging hubs across an estate: providing enough sockets to ensure every vehicle could be plugged in at peak times, whilst prioritising charging of low state of charge (SoC) vehicles, linked with more intelligent dispatch information accounting for each vehicle's battery and charging status. On this basis, 22kW chargers may be adequate in most cases.

Installation Costs

[48] Fleet Data Report 09/04/25

[49] SECAmb Zero Emissions Vehicle Strategy

Installation costs are approximations only, to provide an estimate at 2024 prices from blended costs across a number of suppliers. It is important to note that these **do not include any grid upgrade costs,** which may double the costs shown. Actual costs will be site specific and also dependent on hardware and software specifications.

The estimated costs include:

• A distributed energy system where the power required at site is a distributed from a central power unit across multiple DC (direct current) charging sockets
• Hardware: DC power modules with the capability to dynamically load manage each charging socket, Charging sockets costs
• Installation: Typical costs for installation and groundworks associated with the hardware
• Chargepoint management: Software costs for enabling dynamic management and performance of each charging socket • Maintenance: Annual equipment maintenance cost

*The estimated costs produced by EVRIT do not include VAT

	SECAmb Make Ready Centre/Ambulance Station	Existing Installed Charging Capacity (April 25) kW	Recommended Minimum Site Charging Capacity kW (EVRIT)	Estimated Installed Infrastructure Net Cost £ (EVRIT)
1	MR Banstead		625	£385,000
2	MR Chertsey		660	£412,000
3	MR Hastings		438	£256,000
4	MR Brighton		625	£385,000
5	MR Thanet		694	£426,000
6	MR Ashford		660	£412,000
7	MR Paddock Wood		728	£453,000
8	MR Gatwick		625	£385,000
9	MR Tangmere -		728	£453,000
10	MR Polegate		516	£314,000
11	MR Medway		478	£287,000
12	Tongham AS		311	£188,000
13	Guildford AS		264	£157,000
14	Godalming AS		264	£157,000
15	Farnborough AS		264	£157,000
16	Burgess Hill		264	£157,000
17	Thameside AS		311	£188,000
18	Sheppey AS		355	£215,000
19	Worthing AS		311	£188,000
20	Dartford		438	£256,000
			Total SECAmb Estate:	£5,831,000
	Hospitals			
21	Conquest	NK	264	£157,000
22	Darent Valley Hospital	NK	438	£256,000
23	East Surrey	NK	355	£215,000
24	Eastborne	NK	311	£188,000

25	Epsom Hospital	NK	264	£157,000
26	Frimley Park Hospital	N/K	311	£188,000
27	Kent & Canterbury	NK	214	£131,000
28	Maidstone Hospital	NK	311	£188,000
29	Medway Maritime	NK	438	£256,000
30	Princess Royal Surrey	NK	264	£157,000
31	QEQM	NK	355	£215,000
32	Royal Surrey	NK	311	£188,000
33	Royal Sussex	NK	398	£229,000
34	St Peters	NK	355	£215,000
35	St Richards	NK	311	£188,000
36	Tunbridge Wells	NK	355	£215,000
37	William Harvey	NK	355	£215,000
38	Worthing Hospital	NK	355	£215,000
			Total Hospital:	£3,550,000
			Total Cost	£9,381,000

Although Telford Place Crawley, Unit 27 Paddock Wood, East Grinstead Ambulance Station, Sheffield Park and Lewes Commissioning Centre are all part of SECAmb's Estate and will need EVCP they were not included in the EVRIT model as they are not operational bases but an estimate has been prepared based on the maximum charging capacity available for the site

Total estimated EV infrastructure cost: £9,381,000 +VAT = £11,257,200

Total recommended charging capacity: 15,4911kW

Average estimated cost to install: £726/kW

This is lower than the average installed cost to date (£781/kW), which may reflect economies of scale, though allowance should be made for future inflation over a multi-year project, as the EVRIT model provides assumptions based on current prices only. To date, SECAmb has installed only 3% of the minimum recommended capacity to support a fully electric fleet.

Additional Costs – DNO supply upgrades

The EVRIT model advises that grid upgrade costs "may double the costs shown". Therefore, SECAmb should make provision for a **minimum** total EV infrastructure budget of **£22,514,400** at 2024 prices, as well as a sum for contingency and supply chain inflation. With 10% contingency and 10% inflation over 5 years, this amounts to **£27,242,424**

6.4.2 Open Charge Point Protocol and Back Office Software

The success of the EV programme depends on having an effective back-office function to collect data, manage physical access to charging points and maintain financial controls.

Ensuring that all charging equipment meets with Open Charge Point Protocol (OCPP) standards as approved by the Open Charge Alliance will future proof the EV charging infrastructure, allowing a range of equipment to communicate seamlessly with OCPP compliant software or online portals. This will probably be implemented and managed by Estates as part of the installation commissioning process on an operational basis (with input from Finance).

For Estates to deliver a successful EV charging infrastructure programme, it is vital that Fleet Services share information on vehicle numbers, locations and movements, along with the desired ratio of vehicles to chargers, so that operational need is matched with provision as far as practicable within the constraints of the estate portfolio. Estates also need to be advised of operational requirements when planning the future configuration of the portfolio in the SECAmb Zero Emissions Vehicle Strategy.

6.4.3 EV Charging Policy

As EVs are increasingly adopted by staff, access to chargers will become of increasing concern. EVs offer huge opportunities to reduce the emissions associated with business travel and commuting. Whilst frontline operations will be prioritised, the need to provide access for some staff vehicles on a carefully managed basis will grow. This requires adoption of a SECAmb policy governing access to charge points, including charging rates for personal vehicles, requiring input from all affected departments, such as Estates, Operations, HR and Finance.

6.4.4 Managing Fire Risk

The estate must also consider the different type of fire risk posed by electric vehicles compared to internal combustion engine vehicles. Whilst the incidence of fire is much lower for EVs, the severity of the blaze is often worse and harder to extinguish. Professional advice from fire safety experts will be required to manage this different type of risk appropriately, particularly at locations where vehicles are being charged inside buildings.

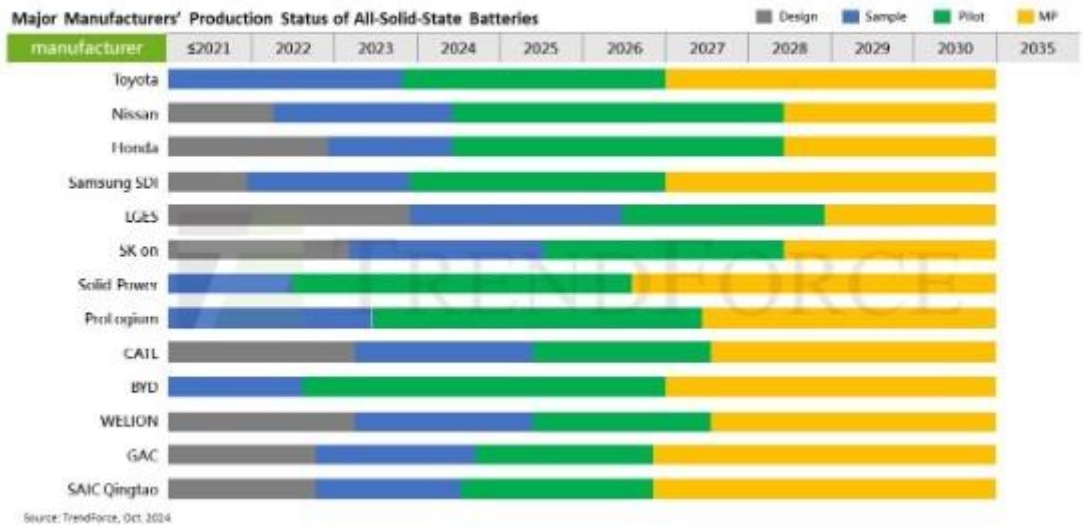
To determine the risk of EV fires, researchers on behalf of the US car insurance market have examined data from the National Transportation Safety Board (NTSB), Bureau of Transportation Statistics (BTS), and government recall data from Recalls.gov.[50] The data included all the causes of fire, such as collisions, electrical failures, oil or fuel leaks, poor maintenance, vehicle battery damage, and smoking cigarettes. They concluded that the fire risk from 100% electric vehicles was far lower than other vehicle types:

[50]AutoinsuranceEZ, 2023, “Gas vs. Electric Car Fires [2023 Findings]”, https://www.autoinsuranceez.com/gasvs-electric-car-fires/

Fuel Type	Fires per 100k sales	%
Hybrid	3,474.5	3.47%
Petrol	1,529.9	1.53%
100% Electric	25.1	0.025%

Tesla have also released their own data from vehicle telemetry, which shows that from 2012 – 2021, there has been approximately one Tesla vehicle fire for every 210 million miles travelled. By comparison, data from the National Fire Protection Association (NFPA) and U.S. Department of Transportation shows that in the United States there is a vehicle fire for every 19 million miles travelled.[51] This implies over a 90% reduction in fire risk per mile travelled by Teslas.

The new generation of solid-state batteries being developed will ultimately eliminate the fire risk from flammable electrolyte, with French company Bolloré already testing prototypes and new Spanish gigafactory firm Basqevolt due to commence production in 2027[52]. Global production data shows many major manufacturers in pilot production phase and planning mass production from 2027 onwards[53]:



[51] Tesla, 2023, "Vehicle Safety Report", https://www.tesla.com/VehicleSafetyReport
[52] European Battery Alliance, 2023, "Solid-state batteries on the rise in Europe", https://www.eba250.com/solid-state-batteries-on-the-rise-in-europe/
[53] Trendforce, 2024," Solid-State Batteries Enter Pilot Production", https://www.trendforce.com/presscenter/news/20241031-12346.html, accessed 28-11-24

6.4.5 Solar PV and Battery Energy Storage Systems

Investing in on-site generation using solar PV will offset some of the cost of increased electricity demand from EVs and heat pumps. Every kWp of solar PV installed saves a UK average of 164kg CO_2 per annum[54], equivalent to £182 savings[55]. However, the more southerly location of SECAmb achieves a higher solar yield, so each megawatt peak (MWp) installed could save up to 191 tonnes CO_2 per annum and £212,000 annual benefit, assuming SECAmb can use all the generated electricity.

In practice, electricity generation from solar PV will not always match consumption patterns; in the summer months, more electricity will be generated than is being used on site, so the excess will be exported into the grid. Although the grid pays for the electricity, it is at a far lower rate per unit (typically 6p/kWh) than what SECAmb pays to buy back the electricity later in the day (33p/kWh).

Investing in a battery energy storage system will minimise the amount being exported and ensure that SECAmb derives maximum benefit from the solar PV.

Investing in solar PV with battery energy storage represents excellent value for money, allowing SECAmb to realise significant annual savings whilst contributing to the decarbonisation of the Trust.

Installation costs for Solar PV range from £660/kWp to £1,000/kWp, depending on the scale of the installation and complexity. Smaller sites will incur higher costs, whereas larger sites will benefit from economies of scale.

SECAmb should prioritise larger sites initially to keep costs down and optimise yields, with the savings used to fund the installation of solar in smaller sites later on. Resource centres with EV charging represent excellent candidate sites due to their higher electrical demand.

As the rollout of EVs continues, there will be a transfer in cost from fossil fuels to electricity, some of which can be offset directly by Solar PV. The call centres are operating 24/7, so onsite generation and storage can also mitigate some of these running costs, even if the solar PV is located at other sites.

In addition to optimising the performance of Solar PV, investing in battery storage systems will also provide resilience and reduce pressure on the grid during peak demand periods.

The Trust commissioned site surveys and proposals have been completed for the installation of solar PV at Polegate, Thanet, Hastings and Chertsey at an approximate cost of £255,245

[54] https://pvfitcalculator.energysavingtrust.org.uk/

[55] Assumes rate of £0.23/kWh and specific annual yield of 923kWh/kWp installed and that all energy generated is used on site

6.4.6 LED lighting and "Daylight Harvesting"

In efforts to make every kWh count: Investing in no-regrets energy saving measures, such as LED lighting and the Trust has now installed LED in 50- 60% of the estate Prior to the installation of LEDs, it is estimated that 35% of the electricity consumption was lighting[56], contributing about 2-3% to the overall direct carbon footprint. Completing this programme has probably saved up to 1% of the carbon footprint, around 165 tonnes CO_2e per annum.

6.4.7 Waste Management

Improving waste management offers considerable potential annual savings and reductions in carbon emissions for SECAmb, particularly if we fully adopt the recommendations of Health & Technical Memorandum (HTM) 07-01, Safe and Sustainable Management of Healthcare Waste.

This aims to implement the NHS Clinical Waste Strategy, which aims to eliminate avoidable waste and support efforts to prevent "offensive" waste being incorrectly classified and segregated as "infectious" waste in order to improve the effectiveness of waste management systems and reduce costs.

The following targets are set out:

• 20% of waste segregated to be sent to incineration, with only 4% of that being hazardous/clinical incineration

• 20% of waste segregated to be sent to alternative treatment

• 60% of waste segregated to be classified as offensive waste[57]

In 23/24 the Trust waste management system evidenced that the split between types of waste was:

• 90% of waste segregated to be sent to incineration, with only 4% of that being hazardous/clinical incineration

• 10% of waste segregated to be sent to alternative treatment

• 0% of waste segregated to be classified as offensive waste

[56] https://www.nextsystems.co.uk/blog/electrical/why-use-led-lighting-in-youroffice/#:~:text=On%20average%2C%20for%20many%20UK%20businesses%2C%20lighting%20takes,as%20muc h%20as%2035%25%20of%20their%20electricity%20consumption.

[57] NHS England (2022), "Health Technical Memorandum 07-01: Safe and sustainable management of healthcare waste", https://www.england.nhs.uk/wp-content/uploads/2021/05/B2159iii-health-technicalmemorandum-07-01.pdf, p1

To support compliance with the targets in the Clinical Waste Strategy the Trust has introduced 'Tiger' (offensive) waste bags onto DCA's with the objective that, with their addition, our carbon emission will be reduced by using the correct waste stream.

6.4.8 Additional Sustainability Measures

In addition to supporting the priority of Fleet electrification, Estates has a vital function to play in meeting sustainable objectives by:
• Preparing buildings for electricity-led heating by upgrading building fabric (insulation, ventilation, double glazing etc.)
• Switching to non-fossil fuel heating: Investing in heat pumps
• Reducing water consumption and cost by installing rainwater harvesting in buildings with high usage, particularly resource centres with ambulance washing facilities:
• Building design and refurbishments: "Replace like with unlike" and ensure compliance with the Net Zero Building Standard 2023[58], which mandates achieving BREEAM Excellent for all new buildings and BREEAM Very Good for refurbishments, as a minimum[59].
• Incorporating Green clauses into lease agreements, per the NHS Memorandum of Understanding Documents PAR1594(iii and iv)[60]
• Using HVO fuel for back-up power generators: sustainable, 90% less carbon, no fuel polishing costs, and 10-year shelf life.
• Preparing the estate for severe weather / creating a climate change adaptation plan, especially in light of increased flooding events.
• Committing to active travel, especially providing the infrastructure for cycling. This extends beyond bike racks and includes facilities for showering and secure locker storage.
• Assessing opportunities for tree planting - the Centre for Sustainable Healthcare (NHS Forest) is providing free tree bundles to NHS sites for planting from November 2023.

6.5 Workforce and System Leadership

• Create Net Zero Committee with regular meetings to monitor and deliver the Green Plan
• Named Board level SRO for Sustainability
• Increase staff awareness of Sustainability – access sustainability training via "Building a Net Zero NHS" eLearning module" on ESR • Regular communication via Staff Matters / Yammer / Viva Engage • Regular Travel Surveys

[58] https://www.england.nhs.uk/wp-content/uploads/2023/02/B1697-NHS-Net-Zero-Building-Standards-Feb-2023.pdf
[59] Ibid., p132
[60] NHS England (2022), "Green Lease - Provisions for inclusion in Lease of Part of Commercial Premises", PAR1594-iv, https://www.england.nhs.uk/wp-content/uploads/2022/06/B1594-iv-model-form-green-leaseclauses-template.pdf

• Create network of “Green Champions” to identify and promote sustainability micro-initiatives, e.g. ensuring waste goes into the correct recycling bins, lights are turned off, windows are closed to save heat
• Implement an ISO14001-compliant Environmental Management System

6.6 Digital Transformation

The direct alignments between the digital transformation agenda and a net zero NHS are clear. The SECAmb policy of Hear & Treat, as outlined in the Improvement Programme (01/10/22) 73 to deliver some care remotely – with over 112,3060 cases dealt with during 2024/25 – will deliver significant carbon emissions reductions and cost saving
Using digital systems to reduce the use of paper records, printing and postage

6.7 Medicines

The NHS Standard Contract identifies inhalers and anaesthetic gases as two key areas requiring early action.

9.6% of the Carbon Footprint for SECAmb is attributable to nitrous oxide (N_2O)*. It is the second largest source of direct emissions after the vehicle fleet (NB Supply Chain / Procurement potentially is the largest source when indirect emissions are factored in) Research into capturing N_2O at point of use or installing portable devices to remove it from the air in enclosed spaces such as ambulances, is now urgently required. Nitrous Oxide is identified as a hazard to NHS staff, so efforts to remove/capture it will have wider health benefits, whilst other efforts to reduce its use or prevent waste will save money. Opportunities to use lower carbon alternatives (Penthrox) should also be considered and implemented where medically and practically feasible, and this is likely to be decided at a national level. Tackling Nitrous Oxide emissions within ambulances depends on technological advances and changes in medical practice, which will be kept under review, but it forms an essential component of reducing the Trust’s direct emissions and achieving Net Zero. (*Nitrous Oxide (N_2O) must be distinguished from NOx, the various nitrogen oxides found in exhaust fumes from internal combustion engines.)

6.8 Adaptation Planning

SECAmb plans to mitigate the risks or effects of climate change and severe weather conditions on its business and functions, particularly the impact of flooding or heatwaves on the organisation’s infrastructure, patients, and staff. Repeated flooding has already affected one of sites, and higher rainfall is being predicted as a result of climate change

7 Affordability & Funding the Green Plan

Meeting mandatory Net Zero targets will require significant investment across the NHS. Some aspects have been provisioned for, but others will have to be funded from existing budgets.

7.1 Electric Vehicle Acquisition

NHS England created a £60 million 3-year budget for new ambulance acquisition, with £6.5 million allocated to SECAmb from 2022 to 2025. Of this, 10% was to be ring-fenced for zero emissions ambulances.

Non-DCA electric vehicle acquisitions must be funded from existing budgets. Fortunately, as the NHS Net Zero Travel & Transport Strategy points out, electric vehicles are already cheaper than petrol and diesel vehicles over their lifetime due to lower energy and maintenance costs and are expected to reach full purchase price parity in 2027.[61]

7.2 EV Charging Infrastructure

Initial data provided by NHS England based on field testing and research suggests that average emergency response EVs are 21% cheaper to own over their lifecycle[62]. It is these savings that will recoup the cost of infrastructure upgrades and installation of EV charging equipment. The annual direct operational savings to the NHS are calculated to be £59 million. The wider benefits of the transition to net zero NHS travel and transport are estimated to be over £270 million a year[63] .

Following their recent success with trialling electric RRVs, Northwest Ambulance Service has decided to purchase 7 fully electric fleet support vehicles this year, with anticipated fuel savings per vehicle of £3,500 per annum and 20% reduced maintenance costs. Initial data from the three electric Paramedic Practitioner RRVs being trialled by SECAmb under the ZEEV Pathfinder Scheme suggest similar savings.

7.3 Grid Connection & Upgrade Costs

Upgrades to the grid and electrical infrastructure to meet the requirements of the NHS Travel & Transport Strategy are estimated to cost just over £100 million across the UK. However, reforms implemented by Ofgem from April 2023 are expected to significantly

[61] NHS England, 2023, “Net Zero Travel & Transport Strategy”,p19
[62] Ibid.
[63] Ibid.

change current connection costs, by reducing or removing the customer contribution to costs for new connections by 'socialising' them across the network.
Some of the capital investment associated with increasing electrical capacity at NHS sites is therefore expected to be met within the broader decarbonisation of the national electricity grid[64] . However, there will still be grid connection costs and the EVRIT model advises Trusts to budget the same amount to cover Distribution Network Operator costs as they are allocating to their own EV infrastructure budgets. Ofgem rules also allow for Independent Distribution Network Operators (iDNOs) to acquire newly installed network upgrades for which SECAmb can receive an "Asset Adoption Value", recouping a considerable proportion of the upgrade cost.

7.4 Procurement / Scope 3 Emissions Analysis

Using specialist software to analyse embedded CO_2 emissions in the goods and services purchased by the Trust offers the possibility of generating financial savings, by using AI to identify duplicated orders, overcharging by suppliers, inefficient stock control and the prevalence of expensive single-use items rather than re-usable alternatives. NHS Supply Chain and Northern Care Alliance have both reported £multimillion savings from deploying such technology, whilst also building an accurate picture of their carbon footprint plus, rather than relying on applying carbon intensity factors to general spending.

7.5 External Funding / Grants

The Public Sector Decarbonisation Scheme (PSDS) represents the largest grant funding opportunity, though eligibility criteria have so far precluded SECAmb from applying, as the emphasis has been on heating decarbonisation projects more suited for hospitals, rather than transport decarbonisation. This may change with future funding rounds. Preparing the PSDS grant applications also requires upfront investment in consulting fees, design work and heat decarbonisation planning.

Commercial funding opportunities are also available, particularly for Solar PV, where third party organisations install equipment and sell the electricity back to SECAmb for a set period of time in lieu of capital investment by SECAmb. Hire purchase and specialist loan schemes also exist, though finance costs will increase the payback period. Such opportunities would have to be considered within the context of the SECAmb's Estate Strategy and alterations to the estates portfolio.

[64] Ibid, p20

7.6 Estimated 5 yr Capital Budget for Estates Sustainability Improvement

Description	Value (including VAT)					Total
	25/26 £000	26/27 £000	27/28 £000	28/29 £000	29/30 £000	£000
Electric Vehicle Charging Infrastructure - 15,491kW (EVRIT Model)*	3,000	6,000	7,000	6,000	5,000	27,000
Solar PV - 2MW	700	700	600			2,000
Battery Energy Storage Systems - 2.76MW	500	500	500			1,500
Smart LED / "Daylight Harvesting" systems	900	900				1,800
Surveys inc. heat decarbonisation plan	225	225				450
Total:	5,325	8,325	7,100	4,000	4,000	32,750

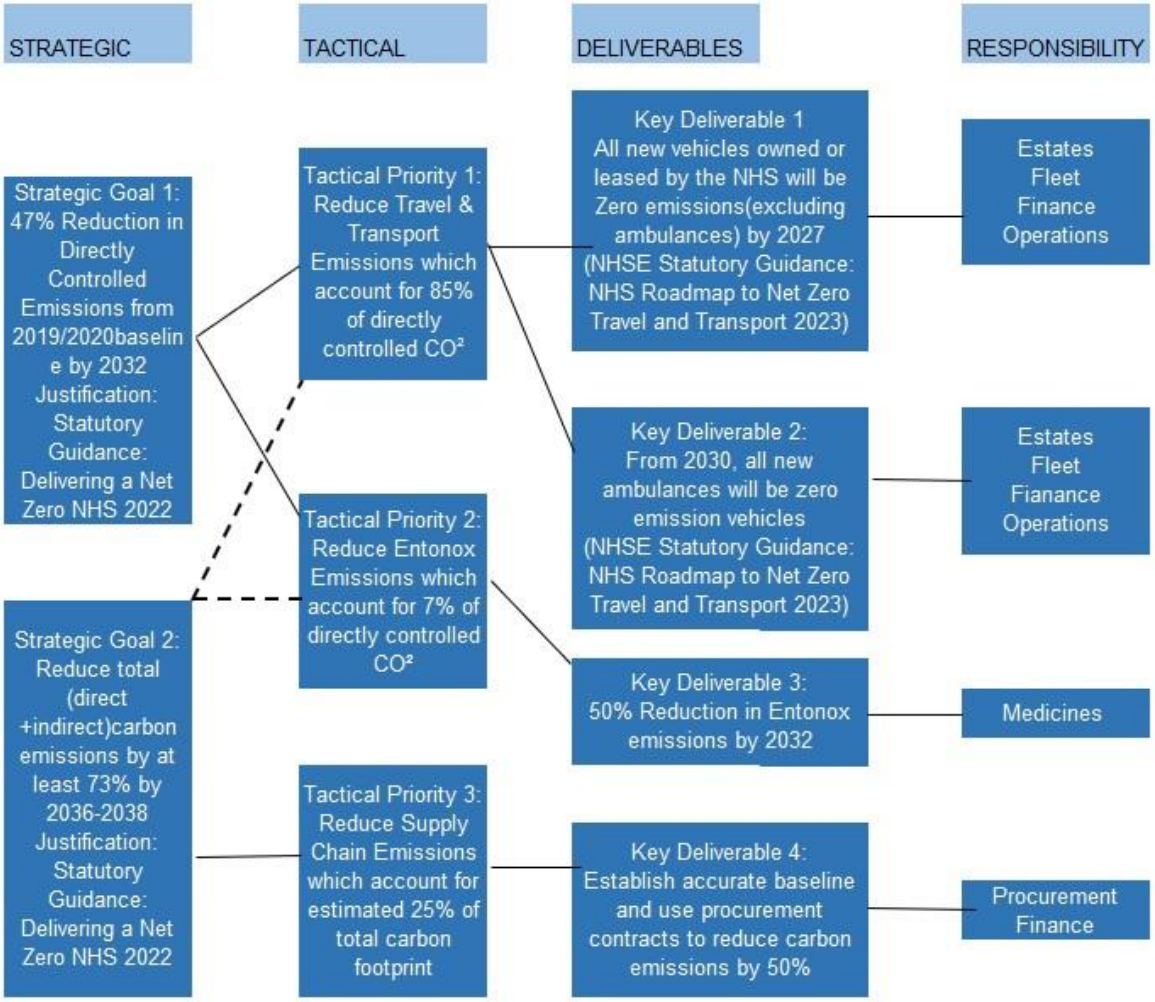
*10% contingency and 10% inflation has been allowed only for the EV charging infrastructure due to its timescale, risks of unknowns and magnitude.

Although this budget represents a significant upfront investment for SECAmb, it will result in financial benefits which will ultimately see a return on the investment, leading to net overall savings for the Trust

8 Delivering the Green Plan

8.1 Strategy, Tactics and Deliverables

This high-level implementation plan identifies the most important tactics and deliverables required to meet strategic carbon reduction goals:



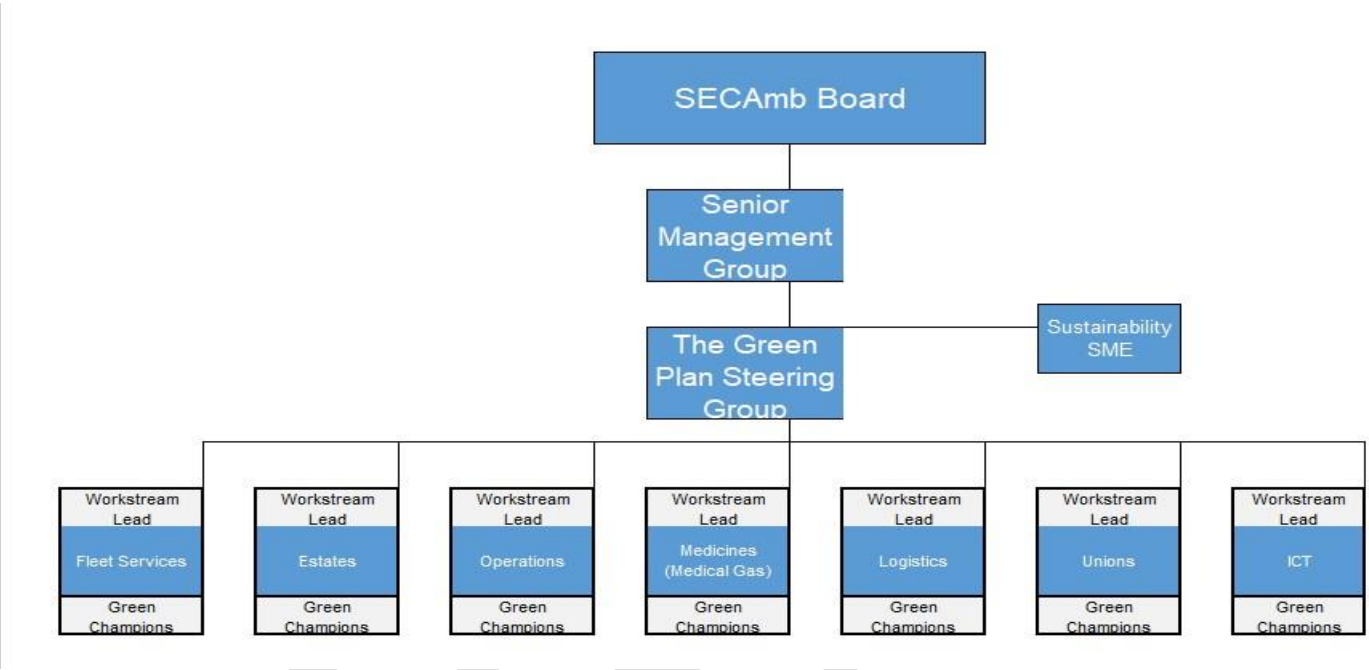
8.2 Actions and Responsibilities

The key deliverables have been broken down into granular actions that have been incorporated into a “Green Action Plan” formal delivery programme. Once specific actions have been identified, the necessary agreement and commitment has (or will be) sought from appropriate stakeholders, so that those who are accountable and responsible for specific workstreams are clearly defined. Progress reviews at regular intervals via the Net Zero Committee will keep the programme on track, whilst keeping the Board informed.

Some actions will have a far greater impact on reducing carbon emissions, and it is important to prioritise these to meet key deliverables. Other actions may have a lower impact on reducing carbon emissions but will still have a high impact on wider sustainability and may be useful as “quick wins” to demonstrate the Trust’s visible commitment to sustainability. The actions have been identified as essential in delivering the core components of the Green Plan, especially the Carbon Reduction Plan. Please see Appendix for list of actions

8.3 Green Plan Governance Structure

Delivering the Green Plan will involve multiple workstreams across multiple departments; each workstream will have a lead whose work will be coordinated by the Programme Manager. The following structure is not exhaustive, as other departments e.g. Communications, Business Intelligence will also have vital roles in supporting the delivery of the Green Plan



9 Green Plan Key Success Factors

7.1 Board Support – The Green Plan requires top-down support, with a Senior Responsible Officer assuming executive responsibility for its implementation.

7.2 Set up Green Plan delivery as a programme of transformation within the wider SECAmb Green Plan, with clear lines of accountability and agreed roles and responsibilities.

7.3 Clearly defined objectives, prioritising those that have the biggest impact or bring the most value.

7.4 Develop an effective marketing strategy to communicate the Green Plan to all stakeholders, engaging the staff at all levels of the organisation.

7.5 Foster SECAmb staff buy-in from the bottom up using “Green Champions”. As this is a process of transformation across the organisation, each directorate will require champions to help drive change, not just from an education perspective but encouraging ideas and input from staff. This will take all users in SECAmb along the journey, providing them with ample and regular communications and opportunities to propose micro-initiatives.

7.6 Identify “Quick Wins” – initiatives such as removing single use plastics, planting trees on the Trusts estate and rainwater harvesting tanks may have a relatively small carbon impact, but are highly visible commitments to sustainability, helping with stakeholder buy-in.

7.7 Sustainability Impact Assessments - Where decisions require impact assessments, managers should consider whether a sustainable impact assessment is applicable. This will help embed sustainability in the decision-making process.

7.8 Apply principles of Deming Cycle (Plan Do Check Act), with an Annual Review of the Green Plan, checking its progress, implementing key learnings, and updating the Green Plan accordingly.

7.9 Collaborative working between departments: Creating a more sustainable Trust requires cooperation and information sharing across multiple departments. As fleet electrification is the most important activity to achieve Net Zero, it is vital that fleet managers communicate vehicle procurement plans with the Estates department so that the necessary charging infrastructure is installed in the most suitable locations, to the correct specification. Because the rollout of EV charging equipment will occur in stages, as budgets allow, optimising the locations is essential. If upgrades to the electrical supply are required, it can take many months to plan and install.

7.10 Effective back-office function: The success of the electric vehicle programme relies on installing and managing an effective back-office function for vehicle charging, such as the Allstar fuel card system. Similarly, bunkered fuel requires greater back-office supervision, especially with its importance for financial sustainability as a cheaper alternative to forecourt fuel, and later as environmentally sustainable alternative fuels such as HVO are used.

7.11 Effective contract management: Making procurement more sustainable affects stakeholders across all departments within the Trust, collaborative working and evaluation of the Social Value themes in contract tenders are essential for a successful outcome.

7.12 Accurate reporting against sustainability objectives requires obtaining information from many sources within SECAmb, including Finance, HR, Business Intelligence, ICT, Fleet, Procurement. This emphasises the need for a carefully managed programme to deliver the Green Plan.

Appendix A1 Carbon Factors

Emissions Category	Activity	Activity Unit	Scope 1	Scope 2	Scope 3	Notes & Detailed list of all Department of Energy Security & Net Zero Factors
Energy Use	Electricity (including green electricity)	kWh		0.207074289	0.067785	Electricity generated Electricity: UK T&D UK electricity - Electricity: UK WTT Electricity generated - Electricity: UK WTT T&D UK electricity - Electricity: UK
Energy Use	Natural Gas	kWh	0.182928926		0.03021	Natural gas - kWh (Gross CV) WTT Natural gas - kWh (Gross CV)
Water	Water Supply	Cubic Meters			0.176685	Water supply
Water	Water Treatment	Cubic Meters			.201318	Water Treatment
Travel & Transport	Diesel	Litre	2.512063885		0.61101	Liquid fuels – Diesel (average biofuel blend) WTT - liquid fuels – Diesel (average biofuel blend)
Travel & Transport	Petrol	Litre	2.097473128		0.58094	Liquid fuels – Petrol (average biofuel blend) WTT - liquid fuels – Petrol (average biofuel blend)
Travel & Transport	Battery EV	kWh		0.207074289		Electricity generated - Electricity: UK T&D UK electricity - Electricity: UK WTT Electricity generated - Electricity: UK WTT T&D UK electricity - Electricity: UK
Anaesthetic Gases	Nitrous Oxide	kg	265			Factor does not include supply chain emissions associated with gas manufacture. Uses GWP100 factor for N_2O = 265, consistent with IPCC AR5 report
Waste	Waste	kg				Clinical Waste: 0.901 CO^2, Infectious waste 0.321 CO^2 Other 0.021 CO^2

Annexe A2 Green Action Plan High Level Summary of Strategic Goals

NB Details of granular activity and progress of deliverables contained within separate document, “SECAmb Green Action Plan”.

Strategic Goal 1 – Reduce direct carbon emissions by 47% from 2019/20 baseline by 2032
Justification: Statutory Target Mandated by NHS England “Delivering a Net Zero NHS”
Tactical Priority 1: Reduce Travel & Transport Emissions
KEY DELIVERABLE 1: **All new vehicles owned or leased by the NHS will be zero emission (excluding ambulances) by 2027.** **(NHSE Statutory Guidance: NHS Roadmap to Net Zero Travel & Transport 2023)** Based on a lifecycle of 5 years per vehicle, this should ensure that entire non-ambulance fleet is converted to zero emission vehicles by 2032. The SECAmb Zero Emissions Vehicle Strategy calculations will keep SECAmb on course to meet statutory NHS emission reduction targets, reducing CO2 emissions by 4,016 tCO2e as part of an overall target reduction of 7,833 tCO2e
Strategic Goal 1 – Reduce direct carbon emissions by 47% from 2019/20 baseline by 2032
Justification: Statutory Target Mandated by NHS England “Delivering a Net Zero NHS”
Tactical Priority 1: Reduce Travel & Transport Emissions
KEY DELIVERABLE 2: **From 2030, all new ambulances will be zero emission vehicles (NHSE Statutory Guidance: NHS Roadmap to Net Zero Travel & Transport 2023)**
Strategic Goal 1 – Reduce direct carbon emissions by 47% from 2019/20 baseline by 2032
Justification: Statutory Target Mandated by NHS England “Delivering a Net Zero NHS”
Tactical Priority 2: Reduce Entonox Emissions (which account for 10% of directly controlled CO_2 equivalent emissions)
KEY DELIVERABLE 3 :

50% reduction in Entonox emissions by 2032 (Entonox / Nitrous Oxide is 298 times more potent than CO2 as a greenhouse gas, accounting for 10% of SECAmb carbon footprint
Strategic Goal 2 – Reduce total (direct + indirect) carbon emissions by at least 73% by 2036-2038 to reach Net Zero NHS Carbon Footprint Plus by 2045
Justification: Statutory Target Mandated by NHS England "Delivering a Net Zero NHS"
Tactical Priority 3: Reduce Supply Chain Emissions
KEY DELIVERABLE 4: **Establish accurate baseline and use procurement contracts to reduce supply chain carbon emissions by 50% by 2038**

Annexe A3 Other Actions to Support Sustainable Goals

Other Actions to Support Sustainable Goals

3	High Carbon Reduction Impact	3
2	Medium Carbon Reduction Impact	2
1	Low Carbon Reduction Impact	1

Action	Detail	Owner/Responsibility	Carbon Reduction impact	Target Completion Date*
Fleet Electrification	Install charge points per Fleet Electrification/EVRIT model; acquire electric vehicles	Sustainability / Fleet / Estates	3	2030 for estate work
Solar PV Survey	Survey portfolio and identify suitable further sites	Estates	2	2024 Ongoing
Solar PV installations	Install on all suitable buildings within portfolio	Estates	2	2028

Battery Energy Storage Systems	Installed in conjunction with Solar PV to optimise the performance of Solar PV	Estates	2	2028
Rainwater Harvesting- survey	Conduct survey to identify sites with high water consumption e.g. Resource Centres. Low carbon impact, but an “easy win” and a highly visible commitment to sustainability.	Estates	1	2026/27
Sustainability Survey	Understand staff awareness of sustainability	Sustainability Manager	1	2025/26
Travel Survey	Understand staff travel patterns, calculate carbon emissions from commuting, identify areas to introduce active travel measures.	Sustainability Manager/Workforce	1	Annually
Active/Green Travel Plan	Identify measures arising from Travel Survey and implement	Sustainability Manager/Workforce	2	2025/26
Heat Decarbonisation Plans	Site surveys, heat loss modelling, mechanical & electrical designs for replacing gas heating systems with electric	Estates	2	2025/26
Heat Pump Installation	As identified in Heat Decarbonisation Plans	Estates	2	2025/26
Make “Building A Net Zero NHS” e-learning module available to all staff	Develop staff awareness of sustainability	Education/Sustainability Manager	2	2023 - ongoing
Reduction in Business Mileage	Linked to Financial Sustainability; encourage more home working and Teams meetings where feasible; requires direct mandate from Board to implement	Sustainability Manager with support from HR, Finance	2	Ongoing
Climate change adaptation plan	Identify impact of climate change on all departments and design measures to mitigate i	Multiple	1	2025/26
Flood risk assessment / resilience planning	Identify areas at increased risk flood risk due to climate change, formulate strategies to mitigate	Multiple departments	1	2025/26
Waste policy – update policy, zero to landfill target	Ensure that waste policy reflects latest sustainability goals and legislation, and that this is communicated to Suppliers	Estates / Sustainability Manager / Procurement/IPC	1	2024/25 Ongoing

& eliminate single use plastics				
Network of Green-Champions	Encouraging more sustainable activities at a personal / micro level, promoting positive messages about sustainability	Sustainability Manager/Green Network Lead	1	2023/24 ongoing
Green clauses incorporated into leases	Ensuring that leases allow for green upgrades / adaptations to buildings	Estates	2	2024/25 – in progress
EMS to ISO14001	Design and implement an Environmental Management System to ISO14001 standards to support Green Plan governance and facilitate SECAmb legislative compliance	Sustainability Manager	1	2026/27
Communicate the Green Plan across SECAmb	Create and implement a communications strategy to publish the Green Plan via different media including intranet, public posters and presentations and seminars	Communications / Sustainability Manager	1	2023/24 ongoing
Develop Sustainability Impact Assessment template	Create a template that managers can use and apply to decision making process, to ensure that sustainability is embedded throughout all areas of the Trust	Sustainability Manager	1	2025/26