NHS Scotland Climate Emergency & Sustainability Annual Report 2025

December 2025

Scottish Government
Riaghaltas na h-Alba

Contents

Ministerial Foreword 3
Introduction 4
Part 1 - Progress Update On Emissions And Waste Reduction 6
Emissions Overview 6
Building Energy 7
Sustainable Transport 10
Effective and Sustainable Prescribing 12
Climate Emissions from Inhalers 13
Medical Gases 14
Waste Reduction 16
Circular Economy 19
Sustainable Design and Construction 21
National Green Theatres Programme 22
Environmental Stewardship 24
Environmental Management Systems 24
Sustainable Procurement 26
Part 2 - Climate Change Adaptation And Greenspace 29
Climate Change Adaptation 29
Greenspace and Biodiversity 33
Part 3 – Emissions Data On Scotland's Health Boards 36

Ministerial Foreword

The World Health Organization (WHO) has identified climate change as a significant threat to public health and a priority for urgent action. The impacts of climate change affect every aspect of health, from the quality and accessibility of healthcare services to the wider determinants of health, such as clean air, safe water, and food security. At the same time healthcare services are thought to account for approximately 4.4%[1] of global greenhouse gas emissions. This highlights a dual responsibility of the health sector to both protect the public's health and reduce its own environmental impact.

NHS Scotland's emissions are estimated to exceed 1.7 million tonnes of CO_2 equivalent annually.[2] It is crucial that we work to reduce carbon emissions and adapt our healthcare system into one that is both environmentally sustainable and continues to deliver high quality care for Scotland's people.

NHS Scotland has committed to achieving net zero emissions by 2040 and aims for a net zero supply chain by 2045 and the Scottish Government remains committed to supporting NHS Scotland to achieve those targets.

To co-ordinate these efforts, the Scottish Government has established the NHS Scotland Sustainability Action Programme. It provides strategic oversight and support for NHS Scotland to achieve net zero targets and embed sustainability across all areas while maintaining patient care standards.

This report provides an update on the work NHS Scotland has undertaken and the impact it has had on emissions and resource use. I am very pleased that, over the past year, NHS Scotland has made progress in reducing emissions in fleet, medical gases and building energy. Notably, over half of all NHS fleet cars are now electric vehicles (EVs) and some health boards have achieved almost 100% EV fleets.

I thank NHS Scotland colleagues for all their work to lessen the environmental impact of our health service and ask that they continue to work together to achieve the objectives which we need to meet to become a truly sustainable organisation that delivers excellent patient care.

Neil Gray
Cabinet Secretary for Health and Social Care

[1] World Health Organisation: Call to Action to increase climate resilience of health-care facilities & air quality through sustainable energy.
[2] This figure comprises 1.2 million estimated tCO2e supply chain emissions calculated by National Procurement plus emissions in the 2040 net zero target.

Introduction

NHS Scotland consists of 22 health boards, responsible for approximately 1000 sites, some of which are incredibly challenging to transition to low-carbon energy systems, given their operational requirements. NHS emissions sources include building energy, medical treatment, and the use of goods and materials.

The highest direct sources of greenhouse gas emissions for NHS Scotland come from energy used for heat and power in NHS buildings. This year's report shows NHS Scotland continuing to make sustained progress in reducing its building emissions. There has been an 11% reduction between 2019/20 and 2024/25. However, further reductions may be more difficult. The reduction in emissions has owed much to the decarbonisation of the grid and a reduction in electricity consumption, neither of which are expected to proceed at the same rate going forward. In fact, electricity usage is expected to rise as the electrification of heating and transport proceeds, with a corresponding fall in the use of gas and other fossil fuels.

NHS Boards, therefore, must find innovative solutions to reduce their energy emissions. This can include private wires to renewable energy sites and connecting to local heat networks. Where possible the Scottish Government is contributing funding to support innovative projects, especially to help decarbonise those sites with the biggest energy emissions.

The electrification of the fleet continues to make sure progress. As of April 2025, NHS Scotland's car fleet was 55% electric, and its light commercial vehicle (LCV) fleet was 35% electric. This represents significant progress from 2023, when respective figures were 35% for cars and 16% for LCVs.

Emissions from N_2O and Entonox in NHS Scotland fell by 29% between the baseline year of 2018/19 and 2024/25, and 13% between 2023/24 and 2024/25. Emissions from the volatile anaesthetic gases, desflurane, sevoflurane and isoflurane, were 1,129 tCO_2e in 2024/25, dramatically down from over 10,170 tCO_2e in the baseline year of 2017/18. Most of this fall in volatile gas emissions was a result of a reduction in the use of desflurane and switches to sevoflurane and isoflurane.

Inhalers are a significant contributor to medical climate change emissions gases, mainly because of the propellant gases they use, and are the second biggest source of NHS Scotland emissions covered by the 2040 net-zero target after building energy. Emissions from this source have fallen by 18% since 2022/23. Inhaler emissions come from pressurised Metered Dose Inhalers (pMDIs) used for asthma and other respiratory conditions. Seventy percent of pMDI emissions are due to salbutamol inhalers. Revised clinical guidance, with a primary aim of improving patient care, published in November 2024 removes salbutamol from mild and moderate asthma pathways, as discussed in the chapter on medical gases and inhalers. As implementation of this guidance progresses, a significant reduction in pMDI prescribing is expected across Scotland resulting in a significant reduction in CO_2 emissions.

This report also discusses waste and the circular economy. It is estimated that approximately 60% of emissions generated by NHS Scotland come from the use of goods and materials, including medicines. NHS Scotland aims to reduce supply chain emissions across the health service to net zero by 2045 through effective, environmentally informed procurement, efficient use of goods and materials and minimisation of waste. Moving to a circular economy is a key tenet of Scotland's sustainability and net zero policies, and can support supply chain resilience, helping to reduce price increases caused by material scarcity, critical raw material concerns and access risks.

The potential impacts of climate change underscore the importance of adapting our health system. NHS Scotland faces a broad range of climate related risks affecting the delivery of healthcare, challenging the reliability of infrastructure and operations, and posing risks to the health, safety and wellbeing of both patients and staff. To address these challenges, NHS boards have developed Climate Change Risk Assessments (CCRAs), and Adaptation Plans for healthcare assets, identifying potential risks and outlining strategies to mitigate them. As of March 2025, 22 NHS boards had completed their CCRAs, and 18 have developed Adaptation Plans.

In addition, this report covers progress with caring for and improving NHS Scotland greenspace. Smart use of natural features can help provide solutions for some of the problems posed by expected climate change scenarios, such as overheating and high levels of rainfall. For instance, trees and blue green infrastructure can be used to attenuate rainwater surge or provide shade and temperature moderation.

The provision and development of greenspaces can also offer opportunity for Scotland to achieving its legally binding biodiversity targets, an action critical in responding to the global biodiversity crisis. NHS Scotland is legally obliged to further the conservation of biodiversity while carrying out their responsibilities under the Nature Conservation (Scotland) Act 2004. The extensive NHS Scotland estate presents an invaluable opportunity to improve outdoor environments and healthcare experience by staff and visitors, while contributing to wider local community place making initiatives and providing access to active travel opportunities.

Details of climate emergency and sustainability projects carried out by health boards can be found in their annual climate emergency and sustainability reports on their websites.

The production of this report has benefitted from contributions from those within the NHS Scotland Action Programme, including NHS Scotland Assure Property, Sustainability and Capital planning, NHS NSS National Procurement, the National Green Theatres Programme, and NatureScot.

Part 1 - Progress Update On Emissions And Waste Reduction

Emissions Overview

The NHS Scotland Climate Emergency & Sustainability Report 2024 published emissions figures for financial year 2022/23. This year's report includes figures for the year 2023/24 and figures for 2024/25 for the categories where they are currently available. The remaining figures for 2024/25 will be published in future reports.

Table 1: NHS Scotland 2040 Net Zero Target Emissions 2019/20 to 2024/25

Emission source	**2019/20 (tCO_2e)**	**2023/24 (tCO_2e)**	**2024/25 (tCO_2e)**	**% change 23/24 – 24/25**	**% change 19/20 – 24/25**	**Data Source**
Building Energy Use including Well to Tank Emissions (i)	***451,000**	410,000,	403,000	- 2%	-11%	NHS NSS – National Energy Management System
Medical gases(ii)	***29,000**	22,000	19,000	-13%	-35%	Scottish Government
Metered dose inhaler propellant	**93,247**	84,000	74,000	-12%	21%	Public Health Scotland
NHS fleet use and business travel	***36,000**	45,000	N/A	N/A	N/A	NHS Assure
Waste	3,000 (13)(iii)	8,000 (18)(iii)	N/A	N/A	N/A	Health Board Reports
Water	3,000 (16)(iii)	2,000 (19)(iii)	N/A	N/A	N/A	Health Board Reports
Total Recorded Emissions	**522,000**	**571,000**	**N/A**	**N/A**	**N/A**	**-**
Carbon sequestration	0	1,000	N/A	N/A	N/A	Health Board Reports
Net Emissions	**522,00**	**570,000**	**N/A**	**N/A**	**N/A**	**-**

N/A=Not available at time of writing.

***Please note that figures in bold against an asterisk differ from those previously reported for 2019/20. They have been updated following recalculation with improved data.

(i)These figures do not include Diesel Engine Road Vehicle Fuel (DERV). DERV was included up until the 2021-2022 report, but in fact is mainly used for vehicles, not building energy.

(ii) Medical gases include volatiles, N_2O and Entonox.

(iii) Where not all health boards have reported, the number of health boards reporting is given in brackets after the emissions figure.

Building Energy

Introduction

Building energy consumption for heat and power remains the largest contributor to the emissions covered by NHS Scotland's 2040 net zero target. The diversity of building types in NHS Scotland's estate presents significant technical and financial challenges for decarbonisation, with the age and state of many buildings presenting issues. We have, however, seen some significant success. For example, NHS Orkney became the first Health Board to complete the installation of renewable heating systems in all its buildings.

Energy Intensity Drivers:

- Main sites often operate 24/7 with high energy demands due to activities including clinical cooling, sterilisation, and air handling.
- Geographic spread also affects fuel choice availability.

This creates a complex landscape in which "one-size-fits-all" decarbonisation strategies are not viable. Electricity network capacity constraints remain a challenge across most acute hospital sites.

Progress Since 2015/16

Despite these challenges, NHS Scotland has made meaningful progress in reducing its building energy emissions:

- Reductions in energy use have saved the NHS £181 million in energy costs since 2015/16.

- Overall emissions have decreased by 32% since 2015/16 partly due to fuel switching, optimised system use and energy efficiency measures.

- Electricity related emissions have dropped dramatically by 65%, largely due to grid decarbonisation (reduced carbon intensity per kWh).

- Fossil fuel emissions (gas, oil, LPG) have only marginally decreased by 2%, indicating persistent reliance on combustion-based heating.

- This underscores the importance of prioritising heat decarbonisation, especially in fossil fuel reliant buildings. It should be noted that recent electricity unit prices are £0.278/kWh compared to gas unit prices at £0.064/kWh, influencing the continued use of fossil fuel energy systems.

- There is a small but increasing level of renewable energy generation across multiple NHS Scotland sites. Work is being conducted to improve data reporting for these so renewable power generation can be included in future annual reports.

Table 2: NHS Scotland Building Energy Emissions – Last three years compared to 2015/16 baseline

Overall Building Energy Use Emissions (tCO_2e)	**2015/16**	**2022/23**	**2023/24**	**2024/25**	**% Change 2015/16 - 2024/25**
Building fossil fuel use	311,000	309,000	306,000	304,000	-2.0%
District heat networks and biomass	9,000	3,000	3,000	3,000	-67%
Electricity generation transmission and distribution	271,000	95,000	101,000	96,000	-65%
Total	591,000	407,000	410,000	403,000	-32%

Source: NHS National Services Scotland - National Energy Management System.

Major emitting sites

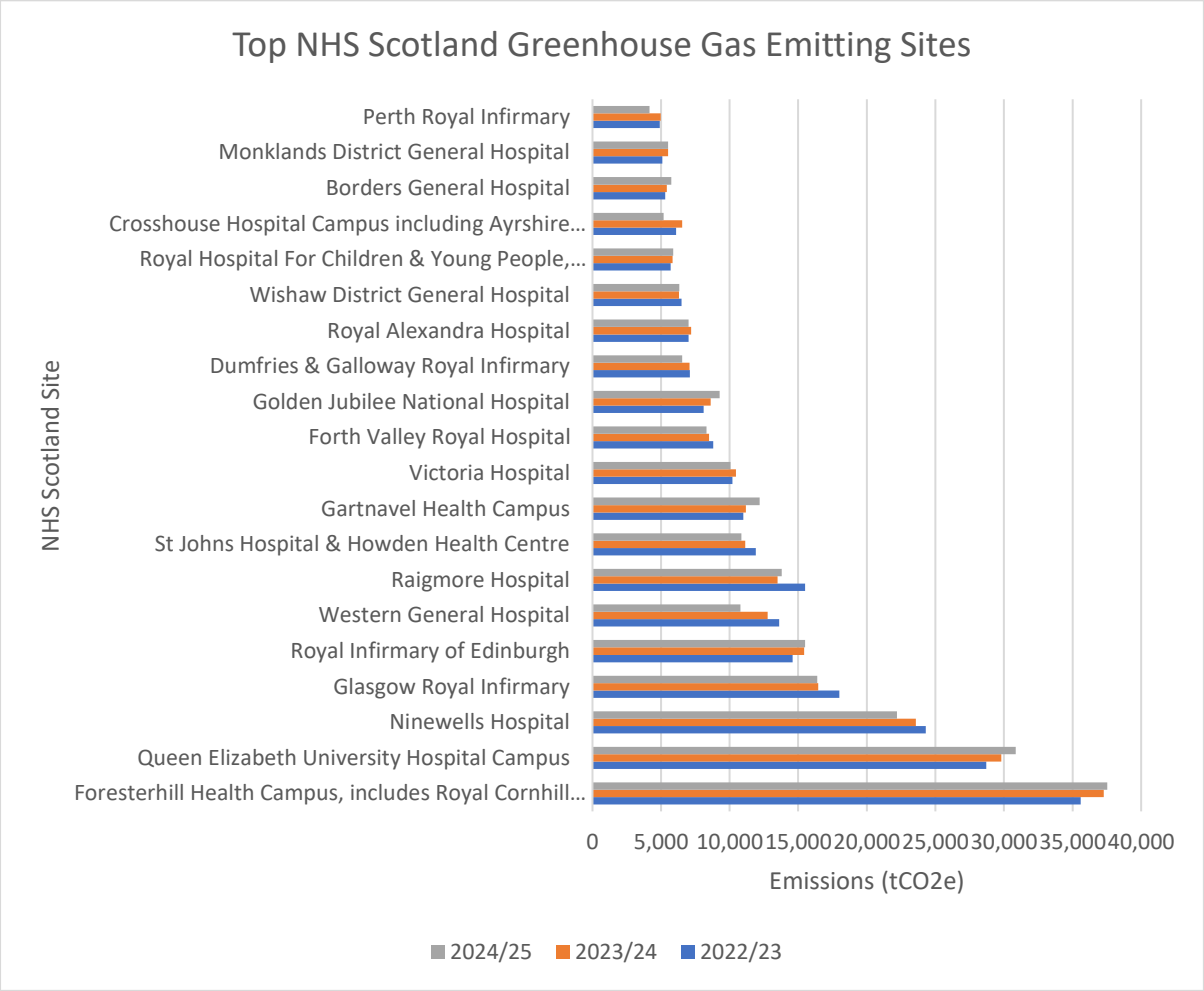
Building energy emissions are highly concentrated among a small number of large, energy intensive hospitals which are in continuous operation and house specialist facilities and complex medical equipment.

In the financial year 2024/25, the top 20 emitting sites (around 2% of NHS Scotland's estate) produced around 245,000 tCO_2e, accounting for around 60% of NHS Scotland's total building energy emissions. This imbalance highlights a clear opportunity: targeting energy efficiency and heat decarbonisation at top-emitting sites could deliver disproportionately large reductions in NHS Scotland's overall carbon footprint.

Health boards are developing site specific decarbonisation plans for a selection of the most energy intensive acute hospital campuses, building on existing Board level plans or net zero route maps to deliver targeted and phased decarbonisation programmes. This selection includes the Queen Elizabeth University Hospital, Glasgow, and the hospitals at the Edinburgh Bioquarter (the Royal Infirmary of Edinburgh and the Royal Hospital for Children and Young People). Taken together, these two sites account for 13% of NHS Scotland's heat and power emissions. Detailed planning will also begin soon for other sites, including Foresterhill, Aberdeen which as a large and complex site accounts for 9% of NHS heat and power emissions.

Heat networks are a fundamental element of the Scottish Government's strategy for decarbonising heat in buildings. Large NHS sites can act as a catalyst for the development of local heat networks by providing an anchor load as they will often be the single largest heat user in an area. Health boards are working to make NHS sites ready to connect to heat networks including measures such as de-steaming existing heating systems.

Figure 1: Emissions figures for 2022/23, 2023/24 and 2024/25 for major NHS Scotland greenhouse gas emitting sites (Sites set in 2023/24 using available data for 2022/23)



Actions taken

A dynamic purchasing system for Corporate Power Purchase Agreements (PPAs) was launched by NHS National Procurement on 1 August 2025. Prior Information Notices (PINs) covering private wire PPAs have also been issued over the course of the last 12 months by NHS National Procurement to assess the ability of the market to supply renewable electricity directly to major NHS sites through private connections. Securing PPAs is a core part of the NHS decarbonisation strategy as they will result in increased supplies of renewable electricity and reduce the costs of electrified heat and transport.

Funding is being provided by the Scottish Government to allow health boards to reduce their energy consumption and bills, freeing up revenue funding for investment in clinical services. Over £10 million of capital funding has been allocated to date in 2025/26 to health boards for energy efficiency and heat and power decarbonisation measures. This includes the installation of LED lights and upgrades to Building Energy Management Systems and sub-metering.

Sustainable Transport

The Climate Change Committee recently outlined that emissions reduction from surface transport is the largest potential contributor to meeting the first two carbon budgets. In this sense, the electrification of transport is essential to decarbonisation efforts. There is also, however, a need for reduction in miles travelled to meet this target. As such, behaviour change is required to help bring about more active and sustainable travel to help the decarbonisation of transport.

The Scottish Government's Renewed Policy Statement, which replaces the previous 2030 goal of reducing car kilometres by 20%, details the desire for commitment to, and necessity of, achieving car use reduction whilst improving active and sustainable travel access and provision. Active and sustainable travel is central to the NHSScotland climate emergency and sustainability strategy: 2022-26 and achieving net zero ambitions.

Fleet

Fleet decarbonisation continues to be progressed within NHS Scotland. As shown in table 3 below, as of April 2025, the percentage of zero tailpipe emission (EV) cars within NHS Scotland stood at 55%, Light Commercial Vehicles (LCVs) 35% and heavy vehicles (HVs) 1%. Over the last three years the percentage of EVs for all vehicle types, except motorbikes, has risen.

In 2025, NHS Orkney became the first Health Board to complete the electrification of its fleet and now has 32 electric cars and 5 electric vans. The progress made by NHS Ayrshire and Arran over the last three years is also worthy of note. In October 2022, NHS Ayrshire and Arran had 10 electric cars. This increased to 45 by March 2023. As of April 2025, the Health Board has 234 electric cars, making up 94% of its total car fleet. This is the fastest rate of increase across NHS Scotland and demonstrates that rapid change can be made under the right conditions.

Table 3: NHS Scotland Fleet Composition, April 2025

Class	EVs	Fossil Fuel & Hybrid	Total	% EVs
Cars	1258	1048	2306	55
Light Commercial Vehicles	479	885	1364	35
Heavy Vehicles	15	1089	1104	1
Motorbikes	0	10	10	0

Business Travel

NHS Scotland Assure has worked with the national payroll systems team in NHS National Services Scotland to create a bespoke business mileage report for all NHS boards. This has allowed for improved reporting and visibility of data for business travel by car.

Analysis of business mileage from 2023/24 showed:

- Business mileage claims accounted for £23 million spend in 2023/24 across all NHS boards.

- A total distance of 45 million miles in business mileage claims were made across all NHS boards.

Business travel by car created approximately 17,000 tonnes of carbon emissions across all NHS boards in 2023/24. In 2024/25, there were improvements across all categories, as follows:

- Business mileage claims accounted for £22 million spend across all NHS boards.

- A reduced total distance of 42 million miles in business mileage claims across all boards.

Approximately 13,000 tonnes of carbon emissions were created across all boards, a decrease of around 4,000 tonnes. The amount of this decrease is affected by fewer large engine cars being used as well as changes in fuel types.

It was not possible to determine accurate carbon emissions from the national eExpenses system for transport modes other than car and there continues to be a need for these to be assessed locally by each Health Board.

Effective and Sustainable Prescribing

Medication is the single most common healthcare intervention and generates the third highest cost of health expenditure. Polypharmacy occurs when an individual takes two or more medications. Regular medication reviews are recommended for polypharmacy. The appropriateness of polypharmacy should be considered at each initiation of new treatments, and when the person moves across different health care settings. Inappropriate polypharmacy can lead to poor health outcomes, unsustainable levels of expenditure and avoidable environmental damage.

The Scottish Government and NHS Scotland have recently produced a comprehensive update of the national Polypharmacy Guidance, developed with a multidisciplinary team across Scotland, with clinical and policy expertise from NHS Scotland and Scottish Government and with experts by lived experience. This is currently undergoing a full consultation process with final publication expected early 2026. The updated guide focuses on the care of adults with multiple medical conditions, applying the principles of value-based healthcare and realistic medicine. The guidance promotes a person-centred approach to care, the 7-Steps to Appropriate Prescribing and Polypharmacy.

A polypharmacy implementation toolkit was developed to support individual GP practices to identify and prioritise ideas for change and aid with implementation of polypharmacy reviews in practice. The toolkit guides practices through current guidance and evidence, a data pack to assist them in examining current regional prescribing trends and identifying priority areas for quality improvement, alongside a template that allows a standardised approach to 7-Step polypharmacy reviews. It promotes centred care, consideration of non-pharmacological interventions and provides links to useful resources from trusted sources for healthcare professionals and individuals. High priority areas identified include individuals:

- prescribed 10 or more medicines
- taking high risk medicines
- living with or at risk of frailty
- aged 50 years and over and resident in a care home
- approaching the end of their lives.

These resources are available to access through the Right Decision Service website or app.

Climate Emissions from Inhalers

CO_2 emissions (tCO_2e) in respiratory prescribing are driven by high global warming potential propellants in pMDIs.

Total annual inhaler emissions have reduced to 74,000 tCO_2e from a high of 90,000 tCO_2e in 2022/23. This change has been driven by a switch from inhalers with a higher volume of propellant gas to ones which deliver the same dosage of medicine using a lower volume of propellant.

Table 4: NHS Scotland pMDI inhalers emissions

Calendar Year	Classification	Total inhalers	Total tCO_2e adjusted
2020/2021	pMDI	4,488,000	85,000
2021/2022	pMDI	4,657,000	87,000
2022/2023	pMDI	4,843,000	90,000
2023/2024	pMDI	4,890,000	84,000
2024/2025	pMDI	4,736,000	74,000

Around 70% of pMDI emissions are due to salbutamol inhalers. Clinical guidance published in November 2024 by the British Thoracic Society, National Institute for Health and Care Excellence and the Scottish Intercollegiate Guidelines Network removes salbutamol from mild and moderate asthma pathways, recommending the use of Anti-inflammatory Reliever (AIR) Therapy or Maintenance and Reliever Therapy (MART) to improve health outcomes for newly diagnosed or poorly controlled individuals with asthma. As implementation of this guidance progresses, a significant reduction in pMDI prescribing is expected resulting in a significant reduction in CO_2 emissions, as a co-benefit of improved treatment of asthma.

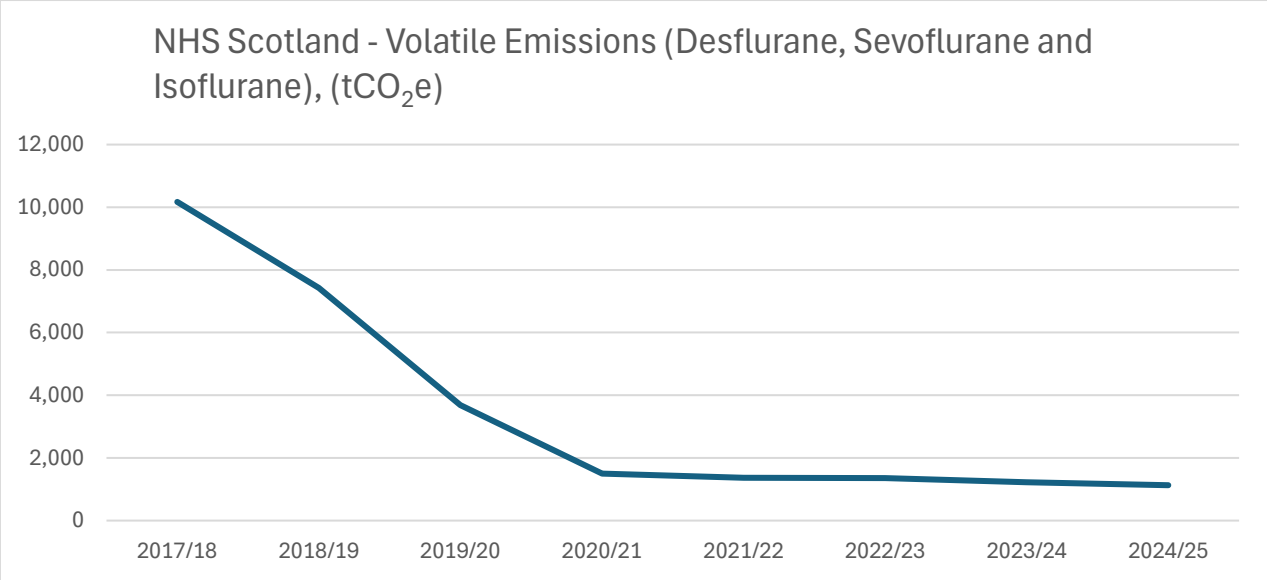
The introduction of next generation propellants from 2025/26 is welcomed, as this assists with person-centred care. The most appropriate inhaler choice should be made for the individual based on their ability to use it, with availability of sustainable choices being an important factor. Continued focus on person-centred respiratory reviews will ultimately improve not only respiratory care but sustainability in respiratory care.

Medical Gases

Medical gases are an essential part of any modern health service, but some are significant greenhouse gases and need to be managed appropriately. The Scottish Government and NHS Scotland are working together to reduce their climate impact.

Volatile anaesthetic gas emissions were slightly over 1,100 tCO_2e in 2024/25, down from over 10,000 tCO_2e in 2017/18. Most of the decrease is due to the reduction in the use of desflurane, a greenhouse gas with a very high global warming potential. The adoption of low flow anaesthetic techniques has also contributed to the decrease in emissions.

Figure 2

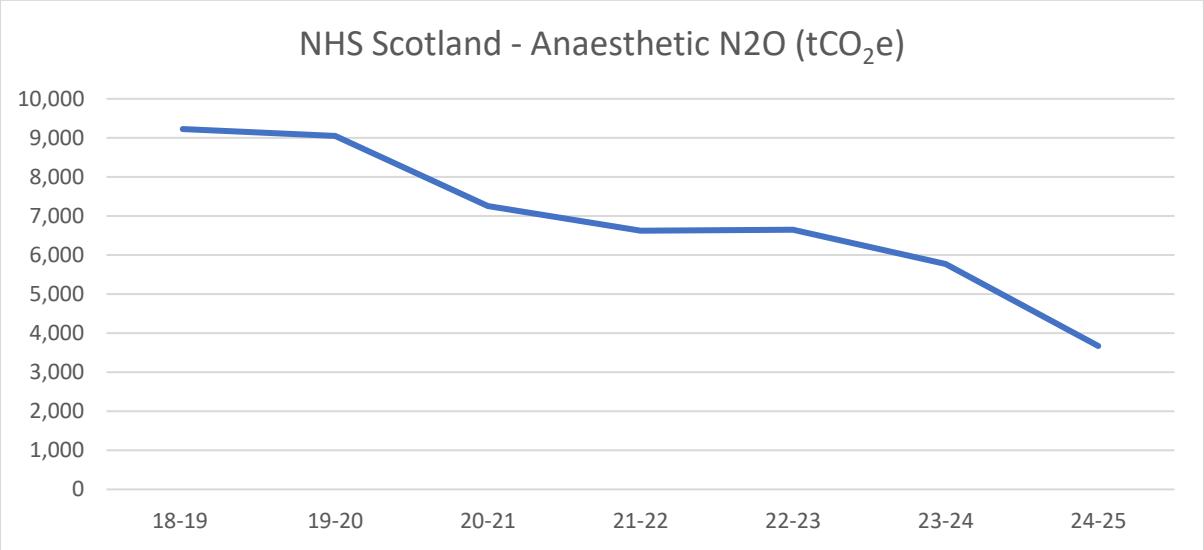


Nitrous oxide (N_2O) is an ozone depleting substance and a potent greenhouse gas with a 100-year global warming potential 265 times that of carbon dioxide. It is no longer used as extensively in modern anaesthetic practice. It was largely supplied through piped systems from central manifolds and much of its consumption was due to leakages rather than actual clinical use.

Good progress has been made in reducing anaesthetic N_2O emission through rationalising its supply. Emissions have fallen from 9,200 tCO_2e in 2018/19 to 3,700 tCO_2e in 2024/25.

Some health boards are still in the process of reviewing their anaesthetic N_2O supply and taking appropriate action and so further emissions reductions are expected. The anaesthetic nitrous oxide system loss mitigation and management document on reducing N_2O emissions is available here.

Figure 3

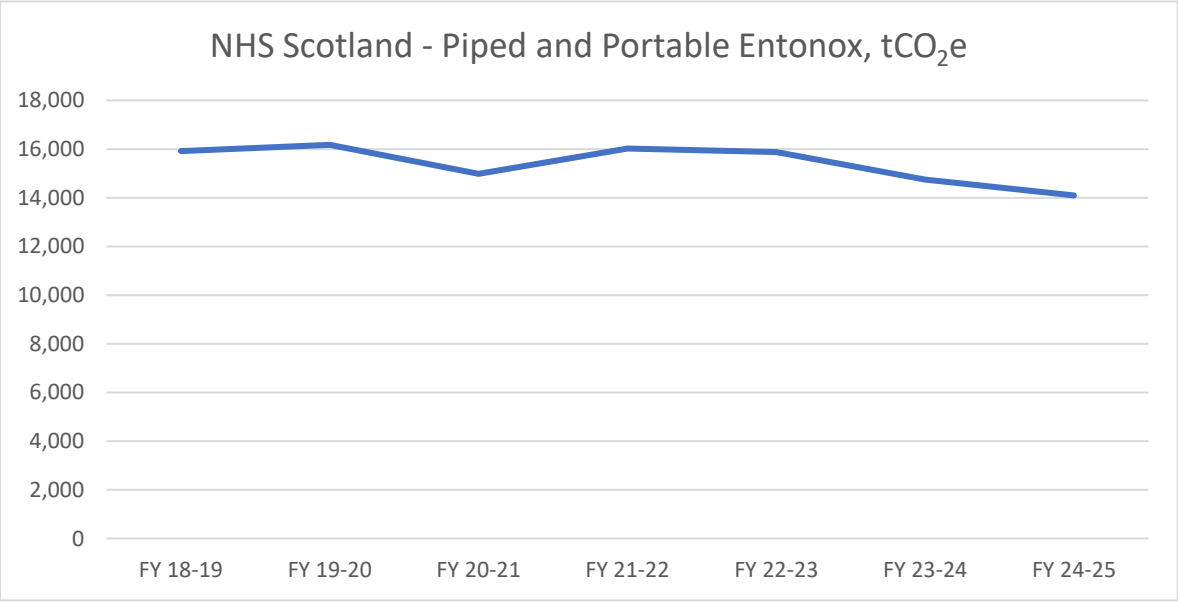


N_2O is also used for pain relief in combination with oxygen, under the brand name Entonox, commonly known as “gas and air”. It is an important source of pain relief, and particularly important for pain management in maternity services. As with N_2O used for anaesthesia, leaks from supply systems are a large source of waste.

Emissions from Entonox reached their lowest level in 2024/25 since 2018/19 – an 11% decrease over that period and 4% lower than the year before, 2023/24. However, it is still too early to conclude that this is a trend or that it is due to reductions in wastage.

Entonox is now the most important gas for action to reduce medical greenhouse gas emissions. Guidance has been published on how to reduce Entonox wastage.

Figure 4



Waste Reduction

Waste Management

Effective waste management is a vital part of NHS Scotland's sustainability strategy. NHS Scotland generates over 21 waste streams, far exceeding the typical domestic and recycling categories familiar to the wider population. Managing this waste is a highly regulated and complex process involving clinical, pharmaceutical and radioactive materials. In November 2024, the Scottish Government issued DL (2024) 27, Waste Management Officer Responsibilities, Compliance and Financial Saving Opportunities, which reinforced the importance of the Waste Management Officer (WMO) role and the opportunities it brings.

Reducing Clinical Waste

In 2024/25 NHS Lothian piloted a waste reduction project in selected wards closely evaluating clinical waste. Feedback on this waste was shared and as a result, clinical teams agreed to change their waste management practice. This small trial achieved promising results, including projected annual savings of £5,400 and a reduction of 3.3 tonnes of CO_2 in just a small area.

NHS Borders held two waste-related events:

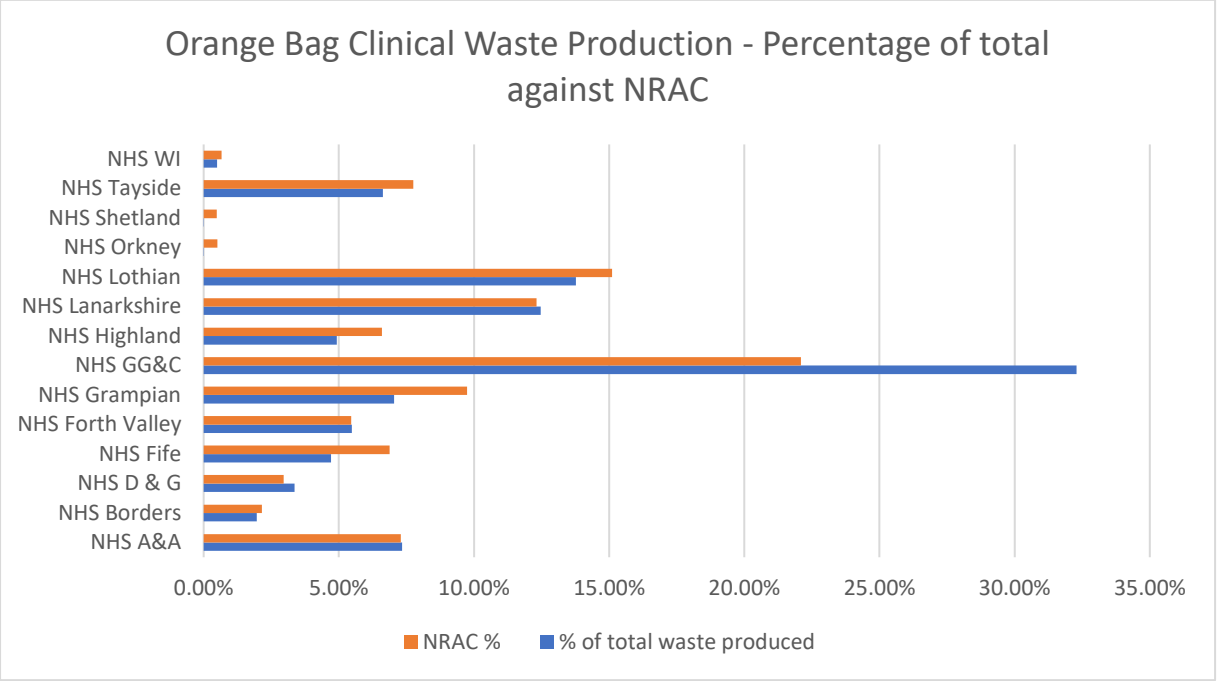
- an online sustainability conference with a focus on waste
- interactive waste management sessions with information and games to encourage the correct segregation of waste.

These events resulted in their recycling figures increasing by 4% and clinical waste decreasing by 9% in the first quarter of 2025 compared to the first quarter of 2024.

The clinical waste produced by each Health Board has been compared to their percentage share of total waste against funding allocations using the National Resources Allocation Committee (NRAC) formula and related percentages. It is acknowledged that NRAC is an imperfect comparator but is a consistent way to benchmark without the need to compare complex data sets relating to clinical episodes and activity.

The Scottish Government has included clinical waste reduction within its national financial improvement programme (15 box grid) in 2025/26 with NHS Scotland encouraged to reduce clinical waste weight by 30%. The graph below shows the percentage of clinical waste by board in 2023/24 compared with NRAC percentages.

Figure 5



Progress made towards waste reduction targets

Waste data continues to be problematic in many areas and is not always consistent. Reasons for this include an increase in estate size and changes to contracts and uplifts. Work is currently taking place at a UK-wide level to develop a mandatory digital waste tracking service[3]. This system will replace paper-based records with a centralised digital platform that tracks waste from production to disposal. This is expected to significantly improve data reliability. Additional work on waste data is also being carried out within NHS Scotland to progress with a reporting system for NHS Scotland Boards and contractors, providing a central point of waste management data information.

Table 5: NHS greenhouse gas emissions from waste disposal, tCO_2e

Date	Reporting boards	Amount of tCO_2e
2019/20	13	3,009
2020/21	14	3,333
2021/22	15	6,627
2022/23	15	7,656
2023/24	21	7,574

This is a change of +151.7% in the period 2019 to 2024.

National waste management campaigns

In 2024/25 NHS Scotland has continued to advance national waste management campaigns. In response to compliance concerns about clinical waste, campaign efforts have been initiated focussing on improving segregation of metals and batteries in clinical environments. Posters and guidance were made available to

[3] Digital waste tracking service - GOV.UK

Health boards through the Sustainability Action Programme website in July 2025 to increase awareness and competence in this area.

Training

In February 2025, NHS Scotland Assure partnered with the NSS Sustainability Manager and NHS Education for Scotland to launch an updated 40-minute high-level waste management training module which is accessible to all staff. It covers key topics including waste segregation and the end-to-end journey of waste. To date 51,000 staff across health and social care have completed the module.

Webinars were delivered to over 500 dental team staff. A combination of in-person and online training sessions and visits were conducted across multiple NHS Boards. A training and quick-fire Q&A session by NHS Scotland Assure was recorded in September 2024, and this is accessible to all NHS Scotland Boards.

Waste Sustainability Projects

The Golden Jubilee National Hospital conducted a three-month recyclable paper towels trial, collecting 1,050 kg of product and achieving an estimated carbon saving of 454 kg CO_2. While the volume was relatively low due to the nature of the material and the small scale of the trial, this project serves as a valuable exemplar for future initiatives.

Circular Economy

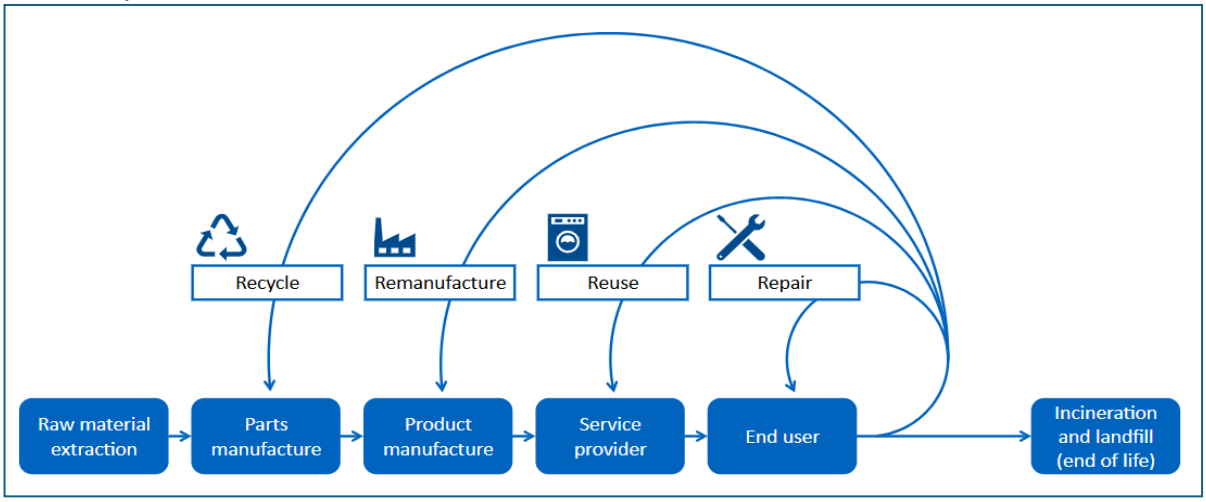
Moving to a circular economy is a key element of Scotland's sustainability and net zero policies, supporting not only environmental sustainability but also social and economic improvements. The circular economy has the potential to increase economic prosperity across Scotland through skilled job creation. Importantly, it also supports supply chain resilience, helping to reduce price increases caused by material scarcity, critical raw material concerns and access risks.

Introduction to Circular Economy

Circular economy describes models of production and consumption which maintain products and material quality as an active part of the economy. Circular models of supply often focus on innovation and offer new ways of procuring and accessing the goods and services we need.

Waste, inefficiencies and waste management represent costly losses in the system. Direct waste management costs are over £18 million per year with indirect costs of waste containers, vehicles and staff time adding to this significantly. Circular economy models, on the other hand, often rely on 'product service loops' which support re-use through return systems, extended responsibility and remanufacture, as shown in the diagram below.

Figure 6: Circular economy-based system loops, taken from the Design for Life Roadmap, DHSC



The Scottish Government and NHS Scotland are working with UK regulatory and standards agencies with support from the UK 'Design for Life' programme. This programme focuses on increasing circularity in the medical technology sector and is co-ordinated by the UK Department of Health and Social Care (DHSC). Key drivers for 'Design for Life' are to increase efficiency and identify whole system financial savings by considering opportunities across the life cycle of products.

Reusable sterile gown trials were launched in 2024 and 2025 by NHS Lothian, NHS Lanarkshire, and NHS National Waiting Times Centre in partnership with NHS Scotland Assure and the National Green Theatre Programme. The trials aim to

replace single-use gowns in clinical settings. Early results are promising, and a comprehensive report is expected in the coming months.

We are also working with a number of academic and industry partners on projects which include:

- REHEAL - a European funded project led by NHS Scotland and the University of Edinburgh, which focuses on data systems that will enable remanufacturing and material recovery from medical devices across Europe. It brings together a Buyers Group of five healthcare systems from the UK, Spain, Denmark, Greece, and Poland, representing 261 hospitals and over 17 million citizens

- The Digitally Enabled Circular Healthcare Innovation (DECHI) Research Programme - a collaboration between the Universities of Exeter, Sheffield, Cambridge and Manchester, working across the UK

- Design Hopes - a design-led research initiative, which also covers transport, collaboratively working between five Scottish Universities and NHS Scotland

- Partnering with the University of Edinburgh on research into the history and culture associated with single use plastics medical devices to better support efforts to change behaviours.

Memorandum of Understanding with Galicia

Following on from work in 2024, this year the Scottish Government signed a Memorandum of Understanding with the Government of Galicia to define and consolidate the cooperation of the participants on the promotion of net zero healthcare systems within the scope of their respective powers.

Galicia was identified as an exemplar international partner for their work on integrating circular economy in their regional healthcare system. The Galician Health Circular Economy Strategy (2020-2030) aims to shift the region's economy from a linear "take-make-dispose" model to a more sustainable, circular model focused on resource efficiency, waste reduction, and the reuse/recycling of materials. The Memorandum of Understanding can be found here. The non-binding memorandum aims to promote knowledge sharing and facilitate the development of innovative processes and products that increase sustainability, reduce waste and improve economic efficiency in healthcare systems in Galicia and Scotland.

Sustainable Design and Construction

The overall impact of the healthcare built environment on the net zero targets for NHS Scotland is significant. It is therefore critical that greenhouse gas emissions are reduced to as close to zero as possible within our estate. There is a challenge in realising that position whilst meeting all other requirements in such a complex built environment. As part of a process of continual review, research was undertaken to determine “what does good look like" with a specific focus on:

- reducing overall energy demand within differing areas of construction
- viable Zero Direct Emissions Heating solutions for the healthcare estate
- limiting the amount of embodied carbon in healthcare construction
- increasing circularity in healthcare construction.

This research has now informed an update of the Sustainable Design and Construction Guide (SDaC), which is available here.

This updated version builds on previous updates from the 2021 version and has been developed to:

- Streamline content and reduce signposting to other guidance and toolkits
- Clarify use across varying project scopes
- Provide clarity on requirements by simplifying the language and formatting of the document
- Support NHS Boards in setting targets for Whole Life Carbon (WLC) and Energy Use Intensity (EUI).

It details the process, actions and additional supporting standards required for health boards to follow and apply. By doing so, NHS boards will be able to evidence and deliver the performance outcomes needed to mitigate the health impacts of climate change and achieve sustainable quality in the present and future delivery of the healthcare built environment across Scotland.

The guidance is complemented by the SDaC Evaluation Toolkit. The toolkit is designed to provide a framework for health boards to ensure that they use all necessary methodologies and tools and understand good practice approaches to allow them to meet policy requirements that will deliver a robust, sustainable healthcare environment.

National Green Theatres Programme

The National Green Theatres Programme's (NGTP) vision is to embed sustainability into every clinical and managerial decision across NHS Scotland. The work of the NGTP is implemented through Scotland's 22 health boards, who must take credit for implementing or supporting the drive to reduce carbon emissions from theatres.

Carbon savings resulting from NGTP measures are reported by NHS Boards through relevant data reporting channels, such as energy, waste and water.

A table of released actions for implementation (Health Board to work with NGTP to validate and report on improvements) and published actions for adoption (not requiring measurement but provided to raise awareness of other changes that can contribute to reducing emissions) is shown below. The NGTP continues to work with clinicians, subject matter experts and national partners to assess, develop and implement actions to reduce the carbon emissions of operating theatres across NHS Scotland.

Table 6:

Theme	Released actions for implementation	Published actions for adoption
Clinical practices	• Change peri-operative paracetamol from intravenous to oral • Embed rubbing not scrubbing • Reduce unnecessary use of non-sterile gloves	• Embed telephone and video clinics • Self-removal of catheters
Reusable, remanufactured and reprocessed devices	• Introducing alternative to battery operated Pulse Lavages • Introduce environmentally friendly fluid warming devices • Embed lean surgical trays	• Introduce reusable plastic drugs and equipment trays • Rationalising single use patient warming devices during the perioperative period
Volatile gases	• Decommission nitrous oxide manifolds • Remove desflurane liquid	-
Waste	• Embed waste segregation • Change to surgical fluid suction system that discharges into grey water system	-
Estates and facilities	• Switch off out of hours Heating Ventilation Air Conditioning (HVAC) • Switch off out of hours anaesthetic gases scavenging systems	• Enable active travel • Switch off non-productive devices

Supporting implementation of carbon saving actions

In February 2025, NGTP brought together colleagues from NHS Assure, Antimicrobial Resistance and Healthcare Associated Infection Scotland (ARHAI), and NHS National Services Scotland (NSS) for a national “Myth Busting” seminar on switching off Heating, Ventilation and Air Conditioning (HVAC) systems in operating theatres when not in use. This session tackled common misconceptions and featured a presentation from NHS Greater Glasgow and Clyde, who shared their real-world experience of implementing this approach. The event attracted over 100 participants from across Scotland.

Year ahead

The NGTP will continue to develop and implement actions to reduce the carbon emissions of operating theatres. It will consider how the programme can enable a shift across NHS Scotland away from single use to reusable alternatives for medical devices and textiles.

It will also consider how capacity can be released or created in the system to support the processing of reusable alternatives. NGTP will support implementation of the lean tray action helping clinicians and decontamination staff with the aim of reducing the number of instruments and sizes of tray sets. It will also scope out the potential for expansion into other clinical settings where there are opportunities to reduce emissions and waste.

Environmental Stewardship

Environmental Management Systems

The development of an Environmental Management System (EMS) is a key requirement under DL (2021) 38 and the NHS Scotland Climate Emergency and Sustainability Strategy (2022–2026).

In 2023/24, only 4 boards were in the planning phase of EMS development. By the end of 2024/25, 18 boards had begun development, each progressing at different stages using an ‘Agile’ approach.

An EMS is a structured system for managing environmental responsibilities, supporting goals like Net Zero through impact assessment, controls, processes and compliance.

ISO14001 is a global standard for developing an effective EMS, helping organisations improve resource efficiency, reduce waste, reduce pollution and demonstrate environmental responsibility and compliance. It follows the Plan-Do-Check-Act cycle and takes a whole-systems approach, considering internal and external factors.

Despite progress over the past two years, EMS implementation varies widely across health boards. EMS implementation depends on strong leadership, governance, collaboration from a cross-organisational cross-functional team and dedicated board level resources to coordinate its implementation. Boards with EMS-specific roles have advanced more quickly, while others struggle due to limited capacity. Dedicated resources are essential to drive development, manage the system, and ensure continuous improvement.

In 2023/24, a full set of ISO14001-compliant EMS templates was developed for NHS board use. In 2024/25, an Excel-based EMS Implementation Checklist Tool (EMS ICT) was launched. It guides NHS bords through four development and implementation stages with embedded templates, clause explanations, and audit evidence checklists.

Climate Change Career Guide

In 2024/25, NHS Scotland launched the Climate Change Career Guide to highlight climate focused roles across health boards. It helps staff explore green career paths, access training and engage in local health board climate action. The guide supports both new and experienced professionals, offering learning options from accredited courses to on-the-job training. It also promotes networking through sustainability groups and national green skills initiatives. NHS Education for Scotland plans to publish it externally to attract climate conscious candidates. Further promotion is planned for 2025/26.

Sustainable Development Impact Assessment Toolkit

In 2024/25, NHS Scotland Assure developed a Sustainable Development Impact Assessment Toolkit to help health boards assess the social, environmental, and financial impacts of their activities. The excel-based tool, with automated reports and guides, supports informed and sustainable decision making by identifying potential trade-offs and co-benefits. Usable by individuals or teams, it encourages inclusive assessments involving internal and external stakeholders. The toolkit will be officially launched and promoted in 2025/26, with a Learning Network Event planned to demonstrate its use.

NHS Scotland all staff Environmental Sustainability eLearning Course

In 2023/24, an all-staff eLearning course on environmental sustainability was developed with input from 10 health boards and tested across 12. The 35-minute course, available on turas Learn and LearnPro, introduces key sustainability concepts and actions for staff and NHS Scotland. In 2025/26, further promotion of the module is planned.

Sustainable Procurement

NHS Scotland Procurement Strategy Launch

NHS Scotland has launched its Procurement Strategy (2024-2028), outlining a collaborative, sector-wide vision for procurement services across NHS Scotland. This strategy has been developed in collaboration with NHS Boards. It successfully aligns with the strategic objectives of NHS Scotland and the procurement plans of individual boards. Making the best use of NHS Scotland's spending power is a key focus of this strategy that draws from the Public Procurement Strategy for Scotland. This launched in April 2023 with a vision of 'putting public procurement at the heart of a sustainable economy' to maximise value for the people of Scotland.

Strategic Priority Framework

This framework is mapped and linked to the Public Procurement Strategy for Scotland and its four outcomes: Good for society, Good for businesses and their employees, Good for places and communities, and Open and connected.

The Framework consists of six strategic priorities. These are:

- Developing workforce capabilities and skills
- Collaborative procurement
- Embedding sustainable and ethical procurement
- Developing supplier relationships, maximising value and reducing risks
- Ensuring contract and supply chain security and resilience
- Procurement technologies: digitisation and technology roadmap.

These are underpinned by three enabling strategic capabilities:

- Governance and regulated government compliance
- Reporting capabilities and protocols to enable single system reporting and analytics
- Continuous improvement.

Next year, National Procurement will focus on driving adoption of the new NHS Scotland Procurement Strategy. Our Best Practice Group will develop an improvement plan to integrate strategic priorities into the Procurement and Commercial Improvement Programme.

Climate Change

In early 2025, a commodity specific strategy was developed with the aim of adopting a structured approach to the consideration of relevant risks (environmental and social) and opportunities, whilst being relevant and proportionate to the products and services being procured. All national tenders within the NHS go through the procurement journey process where all aspects of sustainability are considered during the development of the strategic approach.

Depending on the outcome of this formal review, additional and more detailed assurance supported by evidence may be requested as part of the supplier submission process including independent audits, evidence of compliance to all relevant legislation and the removal of all potential slavery links.

Ethical Trading and Modern Slavery

The global glove supply market is closely monitored for ethical trading and labour standards compliance. For our medical examination glove procurement which took place this year, we required all tendering suppliers to provide assurance regarding compliance to these standards and all necessary legislation and industry best practice. A Supply Chain Integrity Policy was implemented, managed by the supplier's legal compliance team. This process requires all third-party glove manufacturers to undergo a risk assessment based on their nature, materiality, location, product classification and ownership.

Supplier Sustainability Dashboard

National Procurement request Carbon Reduction Plans for all relevant and priority tenders in line with mandated requirements in the Scottish Procurement Policy Note 3/2022. Development of a reporting suite continues with our supplier sustainability dashboard. National Procurement has captured a net zero plan for all our strategic suppliers and 30% of our total contract supplier base with a target to capture over 90% of our contract suppliers in this financial year. We will continue to monitor supplier plans and ensure increased compliance with the 2040 net zero target.

Decarbonisation and Renewable Energy

To support NHS Scotland to become net zero by 2040 and achieve a 70% reduction in our carbon footprint by 2030, we have developed our Decarbonisation and Renewable Energy category team. The core function of this team is to assist health boards in the successful conclusion of Heat and Power Purchase Agreements with the aim of reducing energy costs and carbon emissions.

Social Outcomes

The Procurement Reform (Scotland) Act 2014 sets out the requirements for public procurers in Scotland to achieve the Scottish Government aims to make the best use of public money and assist the government to achieve its overarching purpose and strategic objectives. For any contract (including frameworks) over £4 million, consideration is given as to whether to include a community benefit clause. Increasing community benefit has been a key focus area this year as well as further increasing the scope to help improve the economic, social, and environmental wellbeing and assist in the reduction of health inequalities across Scotland. A further measure was introduced to deliver social value in 90% of all procurement contracts worth over £1 million.

Community Benefits

Our work continues in collaboration with Public Health Scotland to improve the economic, social, and environmental wellbeing of local areas through the Community Benefits Gateway Portal. The portal is a free and easy to use online service connecting NHS Scotland suppliers with third sector community organisations in Scotland who are looking for assistance with a variety of needs. This year the community benefits process has been further developed and embedded with the number of suppliers registered on the portal increasing from 510 to 753 and an increase in community benefits secured from 43 to 68.

Part 2 - Climate Change Adaptation And Greenspace

Climate Change Adaptation

Climate change and NHS Scotland: Setting the Scene

Scotland is already experiencing the impacts of climate change with increasing temperatures, shifting rainfall patterns and more frequent and severe extreme weather events such as flooding, storms and heatwaves. According to the UK Climate Projections, Scotland is expected to see average temperature increases of up to 2°C by 2050, with summer temperatures from May to November potentially increasing by as much as 4°C[4]. These changes present serious threats to public health and the healthcare system in Scotland.

In response to these growing threats, the Scottish Government has published the third Scottish National Adaptation Plan (SNAP3, 2024-2029), which outlines a coordinated, cross-sectoral approach to building resilience across public services. For NHS Scotland, this includes developing Climate Change Risk Assessments, estate level adaptation planning in line with the ISO 14090 principles and requirements, and action on flood vulnerability, overheating and other climate hazards[5].

The potential impacts of climate change underline the importance of adapting our health system. NHS Scotland must strengthen its resilience to a broad range of climate related risks that are already affecting the delivery of healthcare, challenging the reliability of infrastructure and operations, and posing risks to the health, safety and wellbeing of both patients and staff.

NHS Scotland Climate Change Risk Assessments and Adaptation Plans for Healthcare Assets

To address these challenges, health boards have developed Climate Change Risk Assessments (CCRAs), and Adaptation Plans for healthcare assets, identifying potential risks and outlining strategies to mitigate them. As of March 2025, 22 health boards have completed their CCRAs, and 18 have developed Adaptation Plans.

CCRAs

Health boards assessed a variety of climate hazards, including higher average temperature, extended periods of hot weather, extended periods of dry weather and drought, heavy downpours and driving rain, storm surge, coastal inundation and erosion, flooding, cold spells and combined climatic effects (including storms, high winds, lightning, fog, mist and low cloud).

Health boards face varying climate related risks with common challenges including transport and site access disruptions, supply chain interruptions, infrastructure and

[4] Climate Trends and Future Projections in Scotland
[5] Scottish National Adaptation Plan 2024-2029

equipment damage, increased patient demand and compromised emergency systems. Some of these potential impacts are:

Table 1: Potential climate change impacts on healthcare assets and services

Nature of Potential Impact	**Potential Impacts**
Transportation and site access	Access routes closures
Transportation and site access	Vehicles risk damage
Transportation and site access	Cancellation of healthcare services
Essential supplies	Supply chain disruptions
Essential supplies	Water supply disruptions
Essential supplies	Power outages
Building components and equipment	Damage to critical building systems
Building components and equipment	Damage to critical equipment
Building components and equipment	Compromise backup power and generators
Building components and equipment	Building refurbishment
Increasing number of patients	Impacts on physical and mental health
Increasing number of patients	Delayed patient discharge
Structural	Building foundations damage
Structural	Superficial structural damage
Emergency systems	Increased strain on emergency services
Emergency systems	IT and communication performance impact
Emergency systems	Emergency services overloaded
Decreased staff wellbeing	Increased stress and staff fatigue
Decreased staff wellbeing	Loss of efficiency

After identifying the potential impacts per climate hazard, each health board assigned probability and consequence scores to determine the risk exposure for each impact. These scores were based on health board specific criteria, considering the likelihood of the impact occurring and the severity of its potential consequences.

The climate change potential impacts on NHS Scotland that have the highest risk exposure scores, and thus require urgent attention, are related to emergency systems, increasing number of patients and building components and equipment. An overall analysis of the average risk exposure scores show that flooding is the hazard that has the highest risk, followed by combined climatic effects and heavy downpours and driving rain (see Table 2).

Table 2: Climate Hazard and Average Risk Exposure Score in all NHS boards

Climate Hazard	**Average Risk Exposure Score**
Flooding (including fluvial, pluvial groundwater, coastal and sewer flooding)	13
Combined climatic effects (including storms, high winds, lightning, fog, mist and low cloud)	12
Heavy downpours and driving rain (including changes in moisture content of air and soil)	12
Higher average temperature and extended periods of hot weather	11
Storm surge, coastal inundation and coastal erosion	11
Cold spells (including frost, snow and ice)	10
Extended periods of dry weather and drought	9

Adaptation Plans

Health boards Adaptation Plans include high-level adaptation measures involving a wide variety of actions from weather monitoring and temperature management to the implementation of nature-based solutions.

Some examples of proposed adaptation measures in their adaptation plans include:

- Establish alternative routes and rapid mass re-routing for ambulances and essential vehicles
- Installation of temperature monitoring equipment and/or enhance sensitivity of internal sensors
- Integrate Sustainable Drainage Systems into greenspaces and projects, enhancing water management, reducing flood risks and promoting environmental sustainability
- Establish a register for documenting experiences and lessons learned from adverse weather events
- Enhance data monitoring and management to identify energy consumption peaks and manage them, reducing overall demand during critical events
- Explore the possibility of implementing on-site water saving projects for avoiding water supply disruptions
- Co-ordinate with institutions (police, local authorities, community transport associations) to help in the transfer of patients and staff
- Enhance heat health education among staff. This includes disseminating information on outdoor work practices, staying hydrated, appropriate attire

self-care during hot weather and understanding temperature differences within key buildings.

More information about the NHS Boards CCRAs and Adaptation Plans can be found in the NHSScotland Climate Change Risk Assessments and Adaptation Plans Summary Report.

Building Climate Resilience in NHS Scotland: The Road Ahead

Health boards CCRAs and Adaptation Plans mark a significant step forward in identifying the potential climate change impacts on healthcare assets and services. As we look ahead, it is essential that this momentum is maintained and scaled.

The next phase should focus on embedding adaptation across all levels of NHS governance and operations supported by consistent monitoring, data gathering and sharing and collaboration with local authorities and other key stakeholders. The implementation of adaptation plans will require sustained leadership, investment, and innovation to ensure NHS Scotland remains responsive, resilient and capable of delivering equitable care in an increasingly uncertain climate future. Strengthening organisational learning and integrating adaptation into routine planning will not only safeguard services and vulnerable populations but also contribute to a healthier, more climate resilient NHS Scotland.

Greenspace and Biodiversity

Greenspace and Biodiversity

Scotland is facing a biodiversity crisis, driven by factors such as land use change, habitat destruction, pollution and intensive agricultural practices. Our land use has led to unprecedented rates of habitat degradation and species loss, threatening the ecological integrity of natural systems and the services they provide.

In this context, NHS Scotland has a responsibility to manage its estate in ways that contribute to national biodiversity targets while also delivering a wide range of co-benefits. Strategic action on climate and biodiversity can transform greenspaces into multifunctional assets that support community growing initiatives, promote active travel by integrating green corridors and pathways, enhance therapeutic environments that support mental and physical health and improve air quality. These spaces can also play a critical role in increasing resilience to climate impacts.

Greenspace

An interim assessment of NHS Scotland greenspace was published in October 2024 by Public Health Scotland[6]. The key findings from the report were:

- The size of the NHS estate in Scotland was 1,572 hectares - almost the size of the city of Stirling.

- It was estimated that just over half of the total NHS Scotland estate was greenspace - almost twice the size of Loch Lomond Nature Reserve (430 hectares).

- More than 50% of NHS Scotland greenspace was located within just four territorial health boards:

    - NHS Greater Glasgow and Clyde
    - NHS Lothian
    - NHS Tayside
    - NHS Fife

- Seven health boards had greenspace coverage exceeding 50% of their total estate:

    - NHS Greater Glasgow and Clyde,
    - NHS Tayside
    - NHS Ayrshire & Arran
    - NHS Dumfries & Galloway
    - The State Hospitals Board for Scotland
    - NHS Forth Valley
    - NHS Fife.

[6] An interim assessment of NHS Scotland Greenspace

- Only four health boards had greenspace cover of less than a third of their total estate. Even for the two boards with the lowest percentage of greenspace, NHS Shetland and NHS 24, it still comprised, in both cases, 28% of their respective estates.

Grassland Management

The Grassland Management Report was published in February 2024 to guide sustainable grassland practices at health board level. It encourages and demonstrates best practices in grassland management in healthcare environments and enables health board colleagues to champion the better use of grassland locally.

Several health boards participated in No Mow May with the intention of transforming the management of their grassland to benefit nature and reduce the costs of traditional practices. They continue to do so, with No Mow May now embedded in yearly sustainability and communications activities.

UK Habitats (UKHab) Survey

NatureScot funded a pilot initiative to map habitats on NHS Scotland estates with mapping work completed for NHS Greater Glasgow & Clyde, NHS Tayside and NHS Highland. Findings informed national assessments and local biodiversity planning both on the NHS estate and beyond.

The UKHab mapping work will be extended to cover all boards with greenspaces greater than 0.2 hectares in 2025/2026 and will be a powerful tool to support management of the NHS estate for nature.

Natural Capital Assessment

To build a better picture of the natural capital of the NHS estate from a health perspective, a national survey was undertaken by the University of Aberdeen to assess public use and value. The findings of this work were published in July 2025[7]. This study looked at the value of outdoor green spaces within hospitals, health centres and GP surgeries used by staff, patients and their families and the public for walking and relaxing. The survey of 2,449 adults across all 14 regional health boards found that people spend roughly 87 million hours a year in NHS outdoor spaces. The health benefits from these visits are valued at around £82 million a year which is what it would cost the NHS to provide the same benefits through healthcare services.

In conjunction with the UKHab survey, individual natural capital assessments will be undertaken for NHS Boards to help further convey the economic and environmental benefits of the natural environment, with individual and NHS Scotland-wide reports being prepared.

[7] Report - NHSS Outdoor Estate Value.pdf

Green health

Evaluation of the four pilot green health partnerships in Dundee, Highland, Lanarkshire and North Ayrshire was undertaken with reports published by NatureScot and the PHIRST Connect Research Team from the University of Hertfordshire confirming the effectiveness of these cross-sector partnerships in effectively and efficiently linking relatively low cost nature-based activity to people across a wide spectrum of health needs. These findings mirror the growing evidence from across the UK and internationally that green health can support conventional health approaches while also enhancing community cohesion, well-being and action on climate and biodiversity goals. The well-established green health week in May each year now provides the opportunity for all health boards to link into and promote this work.

To build on these partnerships, in January 2025, the Green Health Learning Network was launched by Public Health Scotland, with support from NatureScot and Greenspace Scotland. This network shares knowledge and learning across the green health agenda – from nature prescriptions to wider access to greenspace and the links between nature, public health and climate. Workshops were also held in August and September 2025 to discuss and develop a stronger framework for advancing green health which will be published early in 2026.

Part 3 – Emissions Data On Scotland's Health Boards

Building Energy Emissions

Table 1a: NHS Scotland Building Energy Use Emissions (tCO_2e)

Source: NHS National Services Scotland - National Energy Management System. Figures rounded to nearest thousand.

Energy	2015/16	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	% Change
Building fossil fuel use	311,000	321,000	323,000	313,000	309,000	306,000	304,000	-2%
District heating and biomass	9,000	3,000	3,000	3,000	3,000	3,000	3,000	-67%
Electricity	271,000	126,000	114,000	106,000	95,000	101,000	96,000	-65%
Total	**591,000**	**451,000**	**440,000**	**422,000**	**407,000**	**410,000**	**403,000**	**-32%**

Figure 1a: NHS Scotland Building Energy Use Emissions (tCO_2e)

Source: NHS National Services Scotland - National Energy Management System

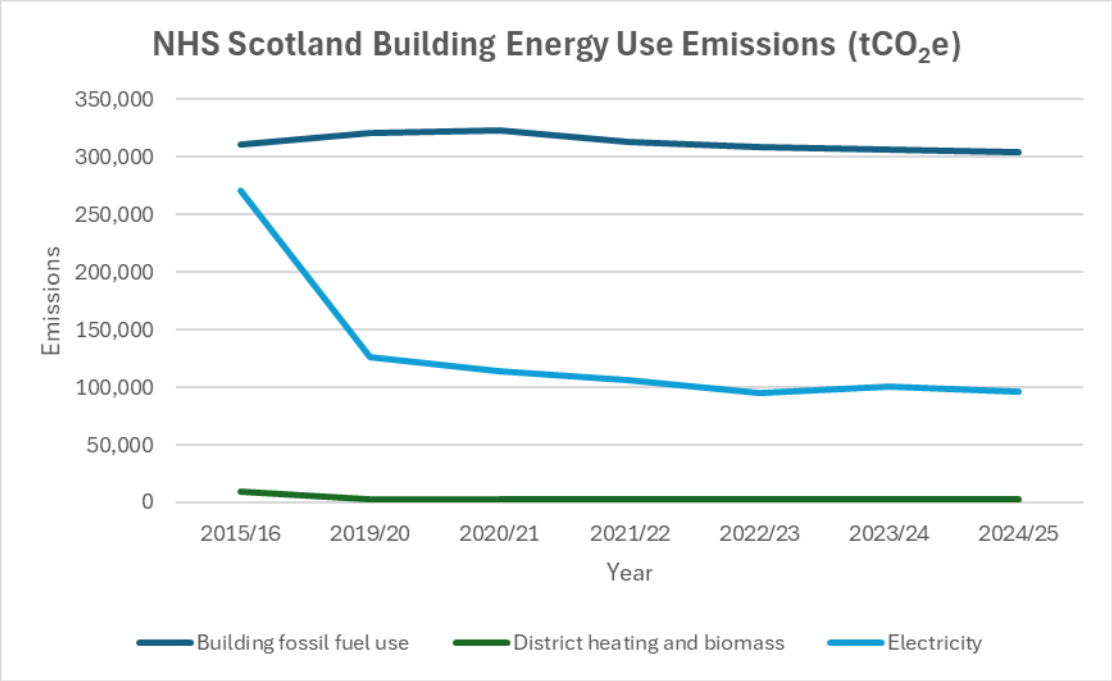


Table 1b: NHS Scotland Building Energy Use Emissions – Breakdown by Health Board (tCO_2e)

Source: NHS National Services Scotland - National Energy Management System

Health Board	Scope 1 2023/24	Scope 1 2024/25	Scope 2 2023/24	Scope 2 2024/25	Scope 3 2023/24	Scope 3 2024/25
NHS Greater Glasgow and Clyde	62,000	65,000	28,000	25,000	13,000	13,000
NHS Lothian	40,000	38,000	15,000	14,000	8,000	8,000
NHS Grampian	38,000	39,000	6000	5,000	7,000	7,000
NHS Tayside	31,000	30,000	4,000	4,000	5,500	5,000
NHS Lanarkshire	16,000	16,000	6,000	6,000	3,000	3,000
NHS Highland	15,000	15,000	6,000	6,000	4,000	4,000
NHS Ayrshire and Arran	10,000	9,000	5,000	5,000	3,000	3,000
NHS Fife	13,000	12,000	5,000	5,000	3,000	2,000
NHS Forth Valley	9,000	9,000	5,000	5,000	2,000	2,000
NHS Dumfries and Galloway	9,000	9,000	3,000	2,000	2,000	2,000
NHS National Waiting Times Centre	4,000	5,000	3,000	3,000	1,000	1,000
NHS Borders	5,000	5,000	2,000	2,000	900	900
NHS National Services Scotland	2,000	2,000	2,000	1,000	500	400
Scottish Ambulance Service	1,000	1,000	1,000	1,000	300	300
NHS Western Isles	2,000	2,000	600	700	600	600
NHS State Hospital	N/A	1,00	500	500	50	70
NHS Shetland	300	300	1,000	1,000	200	200
NHS Orkney	500	300	1000	1,000	200	200
NHS 24	70	80	400	400	50	50
NHS Education for Scotland	N/A	N/A	10	20	0	0
Healthcare Improvement Scotland	N/A	N/A	10	10	0	0

Note: In this table, figures over 1000 are rounded to the nearest 1,000. Those between 100 and 1,000 are rounded to the nearest 100, and those lower than a 100 are rounded to the nearest 10.
N/A=Not available at time of writing.

Table 1c(i): NHS Scotland Building Energy Use Emissions – Health Board Fossil Fuels Breakdown (tCO_2e)

Health Board	2022/23 (tCO_2e)	2023/24 t(CO_2e)	2024/25 t(CO_2e)
NHS Greater Glasgow & Clyde	72,000	73,000	76,000
NHS Lothian	47,000	47,000	45,000
NHS Lanarkshire	18,000	19,000	18,000
NHS Highland	21,000	19,000	19,000
NHS Ayrshire & Arran	12,000	13,000	10,000
NHS Fife	15,000	15,000	14,000
NHS Forth Valley	11,000	11,000	10,000
NHS Grampian	43,000	45,000	45,000
NHS Tayside	37,300	36,400	35,200
NHS National Waiting Times Centre	5,000	5,000	6,000
NHS Dumfries & Galloway	12,000	11,000	11,000
NHS Borders	5,000	5,000	6,000
NHS National Services Scotland	3,000	3,000	2,000
NHS Orkney	600	600	300
Scottish Ambulance Service	N/A	N/A	N/A
NHS Western Isles	2,000	2,000	2,000
NHS State Hospital	3,000	3,000	3,000
NHS Shetland	1,000	1,000	1,000
NHS 24	400	400	400
NHS Education for Scotland	80	80	90
Healthcare Improvement Scotland	N/A	N/A	N/A

Note: In this table, figures over 1000 are rounded to the nearest 1,000. Those between 100 and 1,000 are rounded to the nearest 100, and those lower than a 100 are rounded to the nearest 10.
N/A=Not available at time of writing.

Table 1c(ii): NHS Scotland Building Energy Use Emissions – Health Board Electricity Breakdown (tCO_2e)

Health Board	2022/23 (tCO_2e)	2023/24 (tCO_2e)	2024/25 (tCO_2e)
NHS Greater Glasgow & Clyde	29,000	30,000	27,000
NHS Lothian	16,000	16,000	15,000
NHS Lanarkshire	6,000	7,000	7,000
NHS Highland	6,000	6,000	6,000
NHS Ayrshire & Arran	6,000	6,000	6,000
NHS Fife	5,000	5,000	5,000
NHS Forth Valley	5,000	5,000	5,000
NHS Grampian	6,000	6,000	5,000
NHS Tayside	4,000	5,000	5,000
NHS National Waiting Times Centre	3,000	3,000	4,000
NHS Dumfries & Galloway	3,000	3,000	3,000
NHS Borders	2,000	2,000	2,000
NHS National Services Scotland	2,000	2,000	1,000
NHS Orkney	1,000	1,000	1,000
Scottish Ambulance Service	1,000	1,000	1,000
NHS Western Isles	700	700	700
The State Hospital	600	600	600
NHS Shetland	500	500	500
NHS 24	500	500	400
NHS Education for Scotland	N/A	15	20
Healthcare Improvement Scotland	10	10	10

Note: In this table, figures over 1000 are rounded to the nearest 1,000. Those between 100 and 1,000 are rounded to the nearest 100, and those lower than a 100 are rounded to the nearest 10.
N/A=Not available at time of writing.

Table 1d: Top 20 emitting sites in NHS Scotland estate (as selected in 2023/24 based on data available for 2022/23)

Source: NHS National Services Scotland - National Energy Management System

Health Board	Site	2022/23 (tCO_2e)	2023/24 (tCO_2e)	2024/25 (tCO_2e)
NHS Grampian	Foresterhill Health Campus, includes Royal Cornhill Hospital	36,000	37,000	38,000
NHS Greater Glasgow & Clyde	Queen Elizabeth University Hospital Campus	29,000	30,000	31,000
NHS Tayside	Ninewells Hospital	24,000	24,000	22,000
NHS Greater Glasgow & Clyde	Glasgow Royal Infirmary	18,000	16,000	16,000
NHS Lothian	Royal Infirmary of Edinburgh	15,000	15,000	16,000
NHS Lothian	Western General Hospital	14,000	13,000	11,000
NHS Highland	Raigmore Hospital	15,000	13,000	14,000
NHS Lothian	St Johns Hospital & Howden Health Centre	12,000	11,000	11,000
NHS Greater Glasgow & Clyde	Gartnavel Health Campus	11,000	11,000	12,000
NHS Fife	Victoria Hospital	10,000	10,000	10,000
NHS Forth Valley	Forth Valley Royal Hospital	9,000	9,000	8,000
National Waiting Times Centre	Golden Jubilee National Hospital	8,000	9,000	9,000
NHS Dumfries & Galloway	Dumfries & Galloway Royal Infirmary	7,000	7,000	6,500
NHS Greater Glasgow & Clyde	Royal Alexandra Hospital	7,000	7,000	7,000
NHS Lanarkshire	Wishaw District General Hospital	6,500	6,000	6,000
NHS Lothian	Royal Hospital for Children & Young People, Edinburgh	6,000	6,000	6,000

NHS Ayrshire & Arran	Crosshouse Hospital Campus including Ayrshire Maternity	6,000	6,000	5,000
NHS Borders	Borders General Hospital	5,000	5,000	6,000
NHS Lanarkshire	Monklands District General Hospital	5,000	6,000	6,000
NHS Tayside	Perth Royal Infirmary	5,000	5,000	4,000

Note: These figures are based on data recorded on NHS Assure's central energy data system. Some figures for 2024/25 will be subject to change, due to resolution of billing issues, for example. Updated figures for 2024/25 will be available in the next Annual Report.
Note: In this table, figures over 1000 are rounded to the nearest 1,000. Those between 100 and 1,000 are rounded to the nearest 100, and those lower than a 100 are rounded to the nearest 10.

Medical Gas Emissions

Table 2a: N_2O emissions, including Entonox, breakdown by Health Board (tCO_2e)
Source: Scottish Government

Health Board	2018/19 (baseline)	2021/22	2022/23	2023/24	2024/25
NHS National Waiting Times Centre	170	81	93	119	273
NHS Ayrshire & Arran	1,195	1,118	814	904	831
NHS Borders	562	487	488	205	307
NHS Dumfries & Galloway	642	502	433	445	306
NHS Fife	1,327	1,303	1,154	1,220	1,077
NHS Forth Valley	1,066	969	1,191	625	596
NHS Grampian	3,657	3,544	3,578	2,655	2,145
NHS Greater Glasgow & Clyde	5,734	4,505	5,078	4,904	4,595
NHS Highland	1,059	1,119	802	841	721
NHS Lanarkshire	2,142	1,792	1,606	1,654	1,524
NHS Lothian	4,098	3,799	3,634	3,132	2,287
NHS Orkney	80	97	76	81	76
NHS Shetland	101	89	138	46	48
NHS Tayside	2,009	1,984	2,151	2,439	1,855
NHS Western Isles	113	180	150	114	53
Scottish Ambulance Service (Entonox only)	1,188	1,077	1,135	1,132	1,076
Total	**25,143**	**22,646**	**22,521**	**20,516**	**17,769**

Table 2b: Volatile gas - desflurane, sevoflurane and isoflurane - emissions breakdown by Health Board (tCO_2e)

Source: Scottish Government

Health Board	2017/18 (baseline)	2021/22	2022/23	2023/24	2024/25
NHS National Waiting Times Centre	29	22	26	55	31
NHS Ayrshire & Arran	685	78	76	51	53
NHS Borders	70	15	16	12	12
NHS Dumfries & Galloway	111	27	17	20	33
NHS Fife	151	50	41	47	45
NHS Forth Valley	419	41	41	46	49
NHS Grampian	1,350	222	133	82	75
NHS Greater Glasgow & Clyde	3,954	394	470	419	391
NHS Highland	349	43	43	40	40
NHS Lanarkshire	916	77	108	101	89
NHS Lothian	1,403	308	257	236	207
NHS Orkney	22	10	26	3	3
NHS Shetland	25	14	7	26	3
NHS Tayside	669	55	89	79	89
NHS Western Isles	19	9	7	5	9
Total	**10,170**	**1,365**	**1,356**	**1,223**	**1,129**

Table 2c: Desflurane emissions by Health Board (tCO_2e)

Source: Hospital Medicines Utilisation Database (HMUD), Public Health Scotland (PHS)

Health Board	2017/18 (baseline)	2021/22	2022/23	2023/24	2024/25
NHS National Waiting Times Centre	13	5	2	-	4
NHS Ayrshire & Arran	620	35	25	-	-
NHS Borders	55	6	5	-	-
NHS Dumfries & Galloway	87	7	1	-	6
NHS Fife	95	9	-4	-	-
NHS Forth Valley	365	0	-	-	-
NHS Grampian	1,235	152	58	1	-
NHS Greater Glasgow & Clyde	3,576	112	142	73	16
NHS Highland	297	-	-	-	-
NHS Lanarkshire	816	9	21	10	-
NHS Lothian	1,128	158	87	66	54
NHS Orkney	20	7	22	-	-
NHS Shetland	22	11	4	23	-
NHS Tayside	591	-5	12	5	16
NHS Western Isles	16	5	3	-	4
Total	**8,937**	**511**	**378**	**179**	**99**

*Negative numbers represent pharmacy returns.

NOTE: Note: Boxes marked "–" indicate that data was not recorded on the HMUD.

Table 2d: NHS Scotland Piped Nitrous Oxide emissions by year (tCO_2e)
Source: Hospital Medicines Utilisation Database (HMUD), Public Health Scotland (PHS) and BOC, NHS NSS

Health Board	2017/18	2021/22	2022/23	2023/24	2024/25
NHS National Waiting Times Centre	180	-	-	-	-
NHS Ayrshire and Arran	538	482	242	290	220
NHS Borders	241	214	219	26	74
NHS Dumfries & Galloway	231	140	87	157	44
NHS Fife	188	193	193	299	-
NHS Forth Valley	246	57	420	4	-
NHS Grampian	1,601	1,165	1,133	732	101
NHS Greater Glasgow & Clyde	2,509	1,517	1,790	1,513	1,401
NHS Highland	359	359	131	114	79
NHS Lanarkshire	733	171	223	271	35
NHS Lothian	1,750	864	405	353	214
NHS Orkney	30	35	9	13	-
NHS Shetland	30	26	66	-	-
NHS Tayside	895	637	754	1,016	401
NHS Western Isles	59	114	96	48	-
Total	**9,590**	**5,973**	**5,768**	**4,837**	**2,570**

Note: Boxes marked "–" indicate that data was not recorded on the HMUD.

Travel and Transport

Table 3a: Health Board fleet greenhouse gas emissions (tCO_2e)

Source: Health Board Public Bodies Climate Change Duties Reports (rounded to nearest 10)

Health Board	2019/20	2023/24	% Change
NHS Ayrshire & Arran	1,280	950	- 26
NHS Borders	-	140	-
NHS Dumfries & Galloway	20	420	2,000
NHS Fife	440	480	9
NHS Forth Valley	380	270	- 29
NHS Grampian	1,030	-	-
NHS Greater Glasgow & Clyde	-	1,320	-
NHS Highland	-	1,070	-
NHS Lanarkshire	-	570	-
NHS Lothian	1,530	1,030	- 33
NHS Orkney	70	-	-
NHS Shetland	-	40	-
NHS Tayside	770	660	- 14
NHS Western Isles	-	50	-
NHS National Waiting Times Centre	-	40	-
The State Hospital	-	-	-
Public Health Scotland	No fleet	No fleet	-
Healthcare Improvement Scotland	-	-	-
NHS Education for Scotland	No fleet	No fleet	-
NHS National Services Scotland	160	2,350	1,369
NHS 24	No fleet	No fleet	-
Scottish Ambulance Service	20,560	19,370	- 6

Note: Boxes marked "–" indicate that data was not available at the time of writing, or that data was not reliably comparable.

Note: In some cases reported emissions have risen during this period, but some of this at least is likely to be explained by improvements in reporting over this period.

Table 3b: Health Board business travel greenhouse gas emissions (tCO_2e)
Source: Health Board Public Bodies Climate Change Duties Reports and NHS NSS (rounded to nearest 10)

Health Board	2019/20	2023/24	2024/25	% change 2023/24 – 2024/25
NHS Ayrshire & Arran	1,890	1,720	1,000	-42
NHS Borders	-	420	400	-5
NHS Dumfries & Galloway	-	480	580	21
NHS Fife	1,400	860	940	9
NHS Forth Valley	600	510	550	8
NHS Grampian	-	1,250	1,160	-7
NHS Greater Glasgow & Clyde	-	3,180	2,470	-22
NHS Highland	-	1,140	1,400	23
NHS Lanarkshire	760	1,360	1,530	13
NHS Lothian	1,420	1,550	1,450	-6
NHS Orkney	-	50	40	-20
NHS Shetland	1,150	1,840	40	-98
NHS Tayside	-	1,160	1,090	-6
NHS Western Isles	-	110	130	18
NHS National Waiting Times Centre	-	70	10	-86
NHS State Hospital	-	0	0	0
Public Health Scotland	-	50	20	-60
Healthcare Improvement Scotland	-	30	20	-33
NHS Education for Scotland	260	100	125	25
NHS National Services Scotland	2,010	170	100	-41
NHS 24	-	50	50	0
Scottish Ambulance Service	80	260	190	-27

Note: Boxes marked "–" indicate that data is not available or not reliably comparable.

Table 3c(i-iv): Composition of NHS Fleet by Health Board, April 2025
Source: NHS National Services Scotland (National Fleet Management System), NHS Ayrshire and Arran, NHS Tayside, Scottish Ambulance Service

Table 3c(i): Composition of NHS Fleet by Health Board, April 2025 (Cars)

Health Board	EV	Fossil Fuel/Hybrid	Total	% EV
NHS Ayrshire and Arran	234	16	250	94
NHS Borders	14	29	43	33
NHS Dumfries and Galloway	23	74	97	24
NHS Fife	22	29	51	43
NHS Forth Valley	59	6	65	91
NHS Grampian	3	186	189	2
NHS Greater Glasgow and Clyde	36	69	105	34
NHS Highland	99	299	398	25
NHS Lanarkshire	0	8	8	0
NHS Lothian	291	87	378	77
NHS Orkney	32	0	32	100
NHS Shetland	35	2	37	95
NHS Tayside	95	27	122	78
NHS Western Isles	1	10	11	9
NHS National Services Scotland	8	25	33	24
Scottish Ambulance Service	306	181	487	63
The State Hospital	0	0	0	0
Total	**1258**	**1048**	**2306**	**55**

Table 3c(ii): Composition of NHS Fleet by Health Board, April 2025 (Light Commercial Vehicles)

Health Board	EV	Fossil Fuel/Hybrid	Total	% EV
NHS Ayrshire and Arran	8	105	113	7
NHS Borders	11	27	38	29
NHS Dumfries and Galloway	2	25	27	7
NHS Fife	36	32	68	53
NHS Forth Valley	72	20	92	78
NHS Grampian	12	95	107	11
NHS Greater Glasgow and Clyde	60	135	195	31
NHS Highland	12	200	212	6
NHS Lanarkshire	57	4	61	93

NHS Lothian	95	79	174	55
NHS Orkney	5	0	5	100
NHS Shetland	11	5	16	69
NHS Tayside	46	57	103	45
NHS Western Isles	7	11	18	39
NHS National Services Scotland	7	35	42	17
Scottish Ambulance Service	35	52	87	40
The State Hospital	3	3	6	50
Total	**479**	**885**	**1364**	**35**

Table 3c(iii): Composition of NHS Fleet by Health Board, April 2025 (Heavy Vehicles)

Health Board	EV	Fossil Fuel/Hybrid	Total	% EV
NHS Ayrshire and Arran	0	2	2	0
NHS Borders	0	0	0	0
NHS Dumfries and Galloway	0	1	1	0
NHS Fife	0	0	0	0
NHS Forth Valley	0	0	0	0
NHS Grampian	0	15	15	0
NHS Greater Glasgow and Clyde	2	22	24	8
NHS Highland	0	4	4	0
NHS Lanarkshire	0	7	7	0
NHS Lothian	5	17	22	23
NHS Orkney	0	0	0	0
NHS Shetland	0	0	0	0
NHS Tayside	0	14	14	0
NHS Western Isles	0	0	0	0
NHS National Services Scotland	0	0	0	0
Scottish Ambulance Service	8	993	1001	1
The State Hospital	0	0	0	0
Total	**15**	**1089**	**1104**	**1**

Table 3c(iv): Composition of NHS Fleet by Health Board, April 2025 (Motorbikes)

Health Board	EV	Fossil Fuel/Hybrid	Total	% EV
Scottish Ambulance Service	0	10	10	0
Total	0	10	10	0

Table 3d: Bike Use in NHS Scotland territorial Health Boards as at March 2024
Source: Health Board Annual Climate Emergency and Sustainability Reports 2023/24

Health Board	Bikes	ebikes
NHS Ayrshire & Arran	0	0
NHS Borders	0	0
NHS Dumfries & Galloway	21	19
NHS Fife	0	0
NHS Forth Valley	0	0
NHS Grampian	0	31
NHS Greater Glasgow & Clyde	-	-
NHS Highland	-	-
NHS Lanarkshire	0	0
NHS Lothian	0	22
NHS Orkney	-	-
NHS Shetland	0	12
NHS Tayside	4	15
NHS Western Isles	6	4

Note: Boxes marked – indicate that either a report was not available or the number of bikes/ebikes was not stated in the report.

Waste

Table 4: NHS greenhouse gas emissions from waste disposal, tCO_2e
Source: Health Board Annual Public Bodies Climate Change Duties Reports

Health Board	2019/20	2023/24	% Change
NHS Ayrshire & Arran	325	450	38%
NHS Borders	N/A	120	N/A
NHS Dumfries & Galloway	235	249	6%
NHS Fife	N/A	310	N/A
NHS Forth Valley	271	190	-30%
NHS Grampian	590	592	0%
NHS Greater Glasgow & Clyde	148	2008	1257%
NHS Highland	N/A	746	N/A
NHS Lanarkshire	54	906	1578%
NHS Lothian	N/A	947	N/A
NHS Orkney	48	15	-69%
NHS Shetland	N/A	18	N/A
NHS Tayside	1242	601	-51.6%
NHS Western Isles	N/A	55	N/A
State Hospital	38	53	39%
Scottish Ambulance Service	13	33	154%
Health Improvement Scotland	6	NA	NA
National Waiting Times Centre	N/A	186	N/A
NHS 24	11	N/A	N/A
National Services Scotland	28	35	25%
Public Health Scotland	N/A	N/A	N/A
National Education Scotland	N/A	N/A	N/A

Note: NA=Not available.

© Crown copyright 2025

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit **nationalarchives.gov.uk/doc/open-government-licence/version/3** or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: **psi@nationalarchives.gsi.gov.uk**.

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available at **www.gov.scot**

Any enquiries regarding this publication should be sent to us at

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-80643-495-4 (web only)

Published by The Scottish Government, December 2025

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS1681426 (12/25)