

The Greener Care Plan

Environmental and
sustainability solutions



HEALTHIER PLANET
HEALTHIER PEOPLE

Contents

1.0 Foreword	4
2.0 Executive Summary	5
3.0 Introduction	6
3.1 Our Changing Climate	6
3.2 Sustainable Healthcare at LTH	6
3.3 Purpose & Scope of this Plan	9
4.0 Policy Context & Drivers	10
4.1 International Context	10
4.2 National Regulation	10
4.3 NHS Policy	10
4.4 Regional & Local Policy	10
4.5 Drivers for the Plan	11
5.0 Green Clinicians, Pathways & Support	12
5.1 Who is a Green Clinician?	12
5.2 What is a Sustainable Care Pathway?	12
6.0 Clinical Sustainability Baseline	14
6.1 Our Clinical Carbon Impact	14
6.2 Case Studies	15
7.0 Greener Care Action Plan	18
8.0 Governance & Implementation	20
9.0 Glossary	21
10.0 Abbreviations	22



1.0 Foreword

As the executive lead for Sustainability, I am pleased to present our Greener Care Plan, which outlines how Leeds Teaching Hospitals NHS Trust (LTHT) will rise to the challenge of climate change and transform the way we deliver healthcare through sustainable care models.

Achieving a Net-Zero NHS will require collaboration, innovation, and the full support of our entire team. In many areas we will be able to directly reduce the carbon intensity associated with the delivery of care. In others, a system-wide approach will be essential to improving efficiency, enhancing care quality, and minimising environmental impact. I am committed to embedding greener care throughout the Trust, supported by the dedication of our clinical leads for Sustainability & the Greener Care network. Ensuring that we take a life cycle approach to care will require continued collaboration with our ICS and partner organisations to create a joined-up approach to care models across commissioning, primary, secondary and community care.



Craig Richardson
Executive Director:
Estates & Facilities



Magnus Harrison,
Chief Medical Officer

As clinicians, we see the profound impact of health inequalities, many of which are worsened by the effects of climate change. Poor air quality, extreme weather events, and increased pressure on health services disproportionately affect the most vulnerable members of society. It is evident that urgent action is required to address these challenges and protect the health and well-being of our patients and communities.

Our Greener Care Plan reflects our commitment to embedding sustainability into every aspect of clinical care. By reducing our carbon footprint, prioritising prevention, and adopting innovative, sustainable practices, we can deliver care that is both high quality and environmentally responsible. This Greener Care Plan is a call to action for every clinician, team member and partner within our Trust.

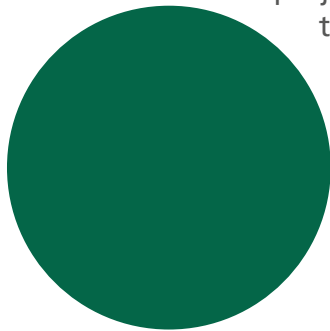


2.0 Executive Summary

In 2025, LTHT published its new Green Plan. The Green Plan is the Trust's strategy for becoming one of the greenest NHS trusts in the UK, including achieving net-zero for our direct greenhouse gas emissions by 2040 and indirect emissions by 2045 in line with NHS targets. Whilst this plan provides an overarching framework for sustainability throughout the Trust, much of the progress made so far has been as a result of estates-based infrastructural improvements. The results of a survey we have undertaken shows there is significant potential to drive further carbon reductions by upskilling, empowering, and mobilising our clinical workforce to act. This Greener Care Plan sets out the Trust's strategy towards improving the sustainability of care and acts as an enabler to help clinical staff support this aim.

Climate change is not only an environmental crisis – it is a health crisis. The Intergovernmental Panel on Climate Change (IPCC) has confirmed that global surface temperatures have risen by 1.1 °C above pre-industrial levels, and that a continued rise, as driven by man-made greenhouse gas emissions, poses significant threats to public health. The NHS accounts for almost 5% of the UK's carbon footprint, and as a large-scale acute care provider, LTHT is a substantial contributor. Over 50% of our overall carbon footprint is associated with the delivery of care. It is therefore crucial that our clinical workforce is supported in integrating sustainability into our healthcare practices to protect the long-term health of patients and communities.

The Leeds Improvement Method (LIM) is the Trust's management system for improvement and should be used by clinical staff to better the sustainability of care. With a corporate commitment on Greener Care now having been established, all Clinical Service Units (CSUs) are expected to report on the progress being made on clinical sustainability projects. The Lean2Green© programme, Greener Care Network (GCN), and Greener Care Assessment Tool have been set up to support and facilitate action amongst staff on this agenda. Sustainable improvement projects are in progress across the Trust, such as the rationalisation of surgical trays, recycling of walking aids, and the improved management of unused medicines. Each and every effort has already generated a range of quality, environmental and financial benefits which will ultimately lead to LTHT becoming a more sustainable trust. As a 'Green Clinician', this Greener Care Plan will support you to assess the sustainability of your practice and reduce the Trust's carbon footprint.



3.0 Introduction

3.1 Our Changing Climate

Climate change presents a serious threat to our environment, driving an increase in the frequency and severity of extreme weather events. The [2023 Climate Change Synthesis Report from the IPCC](#) confirms that global surface temperatures have risen by 1.1 °C above pre-industrial levels. This rapid shift in the Earth's climate poses a significant threat to society, triggering more frequent and intense climate phenomena such as heatwaves, droughts, storms, and floods, which highlights the urgency of addressing the global climate emergency. These changes have far-reaching implications for public health. Rising temperatures and extreme weather events are expected to contribute to a surge in heat-related illnesses, cardiovascular and respiratory diseases, and vector borne diseases. As a result, the healthcare sector faces increasing pressure to respond to these growing challenges and integrate sustainability and resilience into healthcare systems to protect patients and communities.

At a national level, the NHS is responsible for approximately 5% of the UK's total carbon emissions. The city of Leeds contributes an annual estimated 4 million tCO₂e, with The Leeds Teaching Hospitals NHS Trust (LTHT) currently directly contributing 59,813 tCO₂e of this. Almost 95% of residents in the city, of 8000 people consulted, have stated they are worried about the effects of climate change on future generations. In recognition that the need for healthcare organisations to act on climate change is now urgent, the NHS has set two net-zero targets, to achieve carbon net-zero by 2040 for the NHS Carbon Footprint and by 2045 for the NHS Carbon Footprint Plus. From the baseline year of 1990, NHS organisations are expected to achieve an 80% reduction in their direct carbon emissions by 2032 and indirect carbon emissions by 2039.

3.2 Sustainable Healthcare at LTHT

LTHT is committed to becoming one of the greenest NHS Trusts, with a clear ambition to enhance sustainability across our organisation and contribute to a greener future for the wider region. In 2020, we published our first Green Plan, in which our Trust committed to achieving the targets established by NHS England. Underpinning our ambition are our moral and statutory obligations in the Change Act 2008 (amended 2019), The Environment Act, and The Health and Care Act.

At LTHT, we recognise the immense challenge that climate change poses to our city and the significant impacts it is already having, and will continue to have, on our patients. Over the last few years, we have made substantial efforts to reduce our contribution to climate change and enhance our overall sustainability, outlined within our Green Plan. The improvements made so far have largely been as a direct result of investments into our estate functions, technology and infrastructure which have not directly involved clinicians. However, our net-zero challenge is significant, extending beyond physical estate-based improvements and requiring wholesale support.

To achieve net-zero by 2045, we must transform our service models to deliver high-quality care while reducing carbon intensity per patient. The provision of truly sustainable care requires the adoption of a lifecycle approach, starting with prevention by prioritising health and well-being throughout people's lives. When individuals become unwell, our goal is to provide the right care at the right time and place, aligned with the ambitions of NHS England. Additionally, we will focus on minimising the embedded carbon within our care delivery processes.



The Leeds Improvement Method (LIM) is the Trust’s improvement management system and underpins the long-term vision for the trust and all its strategic priorities (see Figure 1). LIM should be used to identify and remove waste in all its forms. Whether this be time waste, paper waste, energy waste or food waste, there are always opportunities to improve and think about how we deliver our services in a Lean and Green way. Currently, there are no other known healthcare settings to have worked on their green plan in this way, using their Lean/Quality improvement methodology to accelerate the reduction in carbon emissions and empower clinical teams to reduce their impact on the environment. The tagline for this work programme is Lean2Green© (L2G).

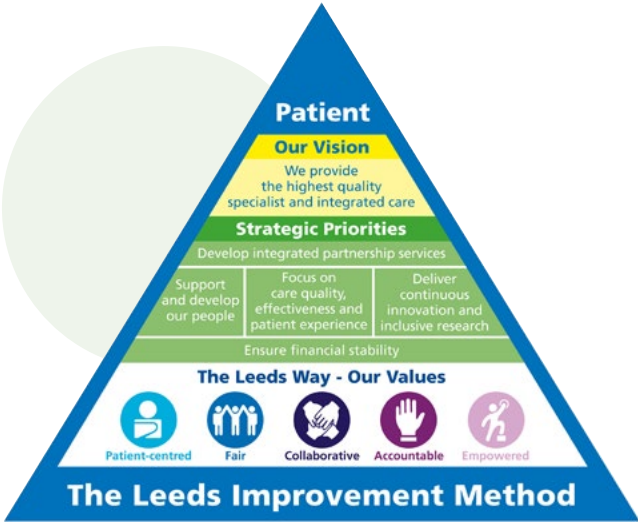


Figure 1: The Leeds Improvement Method (LTH Strategic Triangle)

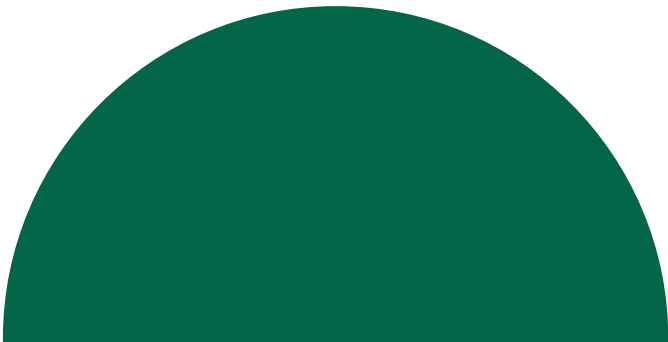
Lean2Green© was formed in April 2024 to support LTH’s corporate sustainability commitment, ‘to reduce our carbon footprint through greener care.’ This commitment supports our overall Green Plan and the Trust’s ambition to become one of the greenest trusts in the country.

The L2G team includes staff from a range of clinical and sustainability backgrounds and has been working alongside senior colleagues to empower teams to become more sustainable and think differently about how their roles can have a positive or negative impact on the wider environment (see Figure 2)



Figure 2: The Lean2Green© Team & wider colleagues

In 2024, using the lean improvement tools of the L2G Quality Management System, the Trust established several action areas and projects aimed at reducing carbon emissions and enhancing employee engagement (see Figure 3). The four elements of a Quality Management system include Quality Planning, Control, Assurance and Improvement. The L2G team have used this model to support continuous quality improvement. 5 key impact areas or ‘value streams’ were identified by the executive team and the outputs for 2024 so far are shown in the infographic on the next page (see Figure 4).



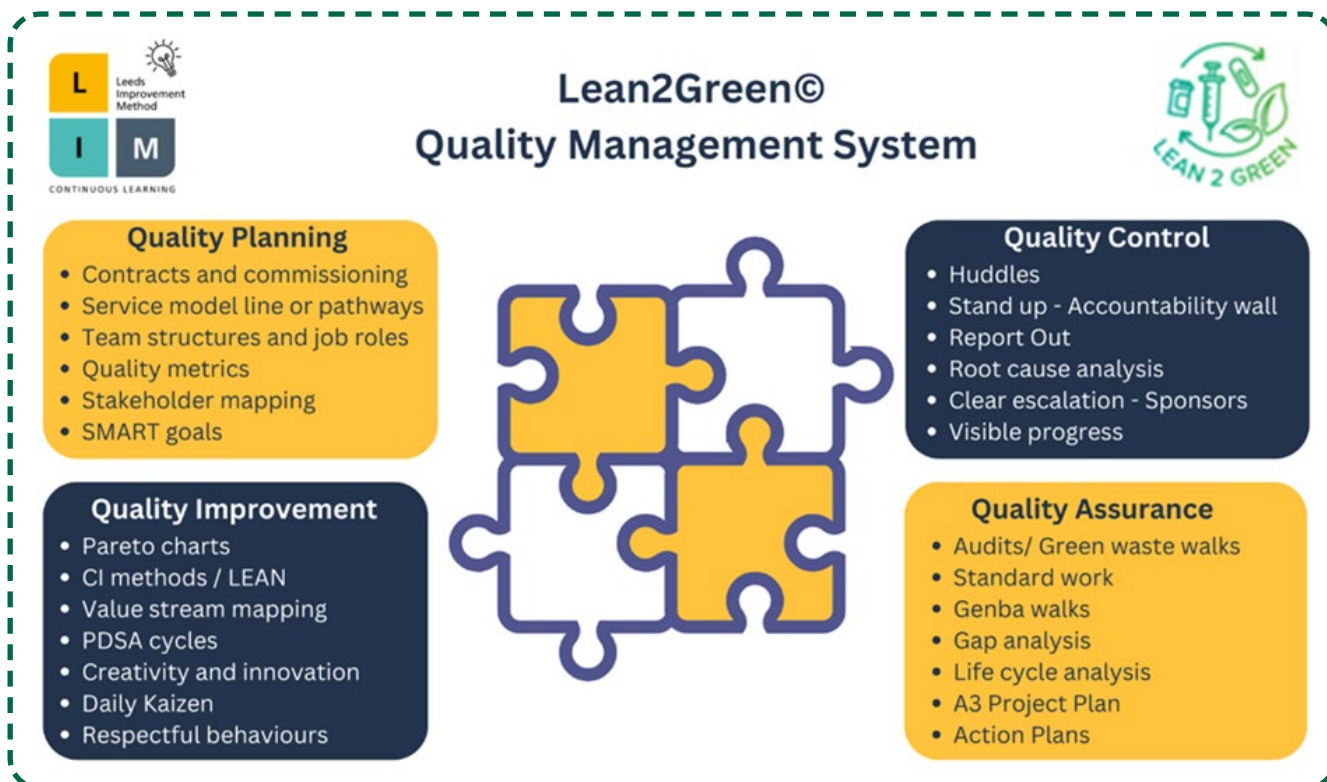


Figure 3: Lean2Green© Quality Management System

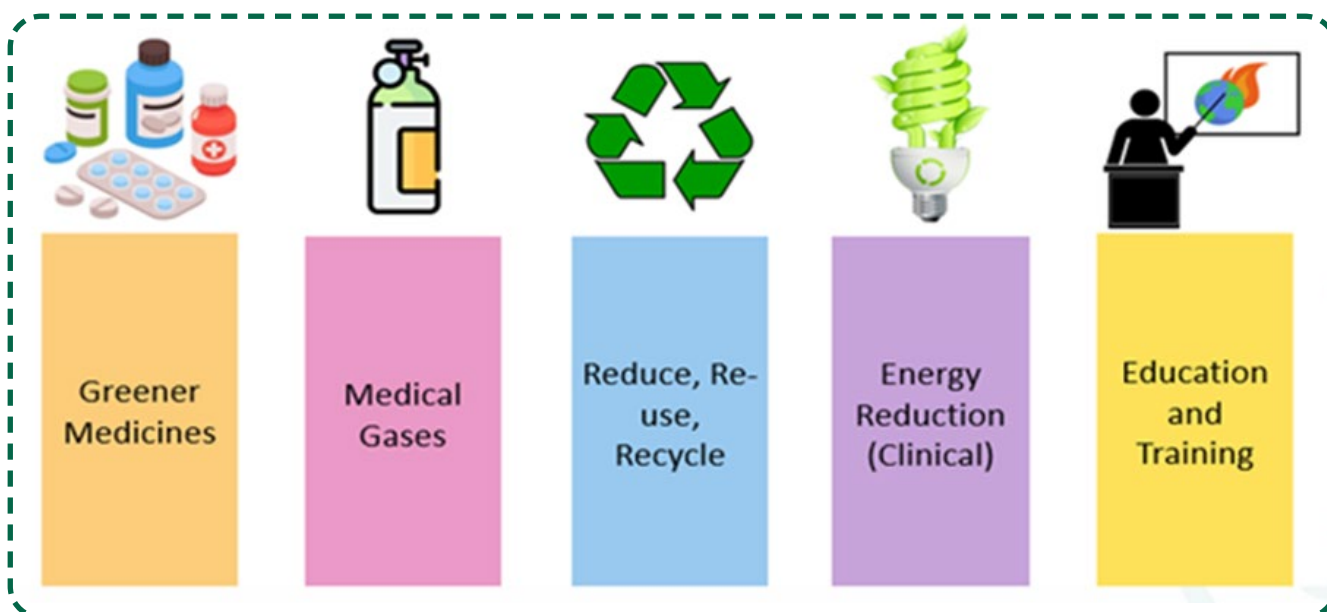


Figure 4: Lean2Green© Value Streams 2024

Key Achievements in 2024/25

- ✓ £432,507 and 6.5 tCO₂e saved from recycling medicines across the trust.
- ✓ Partnerships formed with Leeds City Council and waste management sites across the city which has enabled the recycling of mobility aids.
- ✓ A new inhaler recycling scheme has been trialled, with 1,191 inhalers collected, with a carbon footprint saving of 9.9 tCO₂e.
- ✓ Three new pharmacy support technicians were recruited to support the greener medicines workstream.
- ✓ £35,000 of funding was secured from NHSE to decommission nitrous oxide from the theatres across the trust.

Through 2023/24 we have strengthened our collaboration with health and care system partners and regional trusts by sharing best practices and scaling improvement initiatives beyond our organisation. Through these strategic priorities, we aim to further embed a culture of continuous improvement, ensuring our staff have the tools, knowledge, and support to drive greener and more meaningful change across the organisation.

3.3 Purpose & Scope of this Plan

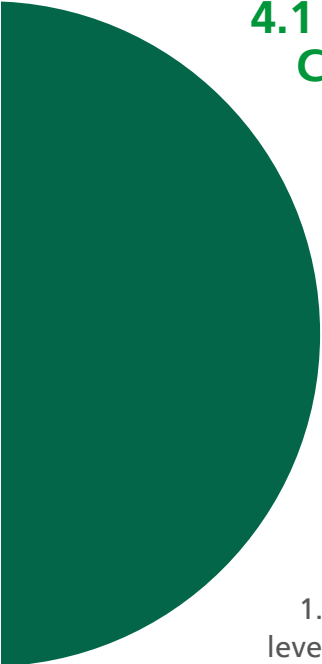
Whilst there is good evidence to show that staff are concerned about the environment and aware of the climate crisis, they do not always feel empowered to take positive action as part of their day-to-day work. This Plan establishes our strategy for engaging our clinical workforce and is a call to action for every clinician, team member and partner within our Trust. Its purpose is to increase momentum by focusing on changes to the patient pathway, and a collective commitment on greener care. This requires a Trust-wide focus, through the lens of each CSU and corporate function to identify and implement actions, which will reduce their contribution to the Trust's overall carbon footprint.

This plan is split into the following sections:

- Section 4 presents the drivers for the Trust in providing sustainable healthcare, examining the policy levers from international, national, local and organisational scales.
- Section 5 sets out what a green clinician looks like, how care pathways can be modified to reduce carbon emissions and the various support available to our clinicians in helping them to embed sustainability into their practice, such as the Greener Care Network (GCN) which will be used to engage our staff.
- Section 6 provides an overview of the Trust's carbon footprint related to clinical care and details several flagship projects which have and are already being undertaken to address this impact.
- Section 7 then establishes the Trust's Greener Care Action Plan, which details the objectives the Trust has established to reduce the carbon impact of care.
- Section 8 concludes the Plan with information on how it will be taken forward and implemented by the Trust's various stakeholders.

4.0 Policy Context & Drivers

4.1 International Context



There are various policy levers which serve as drivers for the Trust to act on the carbon impact of the care it provides. The [Paris Agreement](#), agreed at COP 21 in 2015, stated that the 196 signatory countries would pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.” Research undertaken by the UN’s IPCC suggests a global temperature increase beyond this level risks unleashing more frequent and severe climate change events such as droughts, heatwaves, and heavy rainfall, all of which result in increased health problems. Globally, healthcare is estimated to contribute approximately 5% of all carbon emissions, and so making healthcare more sustainable is critical to meeting the requirements of the Paris Agreement.

4.2 National Regulation

The [Climate Change Act 2008](#) (amended 2019) set in stone the United Kingdom’s legal requirement to achieve ‘net zero’ by 2050. It also outlines how carbon emissions are to be calculated, and how the Government should report these figures annually. The [Environment Act 2021](#) further enshrined green practices into UK law. This Act focuses on four main areas, namely air quality, water, biodiversity and

resource efficiency and waste reduction. The NHS is bound by these laws in the same way as all UK organisations, hence the inclusion of these areas in the Green Plan. The Office for National Statistics estimate the UK’s carbon footprint to be 705 million tCO₂e in 2021, the latest available data. Compared to the baseline year of 1990, this is a reduction of 36%.

4.3 NHS Policy

In 2020, the NHS pledged to become the [world’s first Net Zero Healthcare system](#). The NHS has set two targets. Firstly, to achieve net zero for carbon emissions we directly control by 2040, including an ambition to reach an 80% reduction by 2032. And secondly, to achieve net zero for indirect carbon emissions by 2045, with an ambition to achieve an 80% reduction by 2039. These aims have been enshrined in law in the [Health and Care Act 2022](#) which mandates all NHS Trusts to develop a ‘Green Plan’. This is a document outlining the framework of interventions they need to implement to reduce their carbon footprint. Each NHS Trust must also have a Board level lead for Net Zero and sustainability. The NHS has also established a commitment to reduce its indirect carbon footprint by influencing its supply chain and has implemented its [Net Zero Supplier Roadmap](#).

4.4 Regional & Local Policy

LTHT sits within the area of Leeds, and Leeds City Council have established a target to achieve net-zero by 2030. The Trust have had a ‘Green Plan’ since 2020, with the 3rd edition being published alongside this document. We have a stated aim of ‘becoming one of the Greenest Trusts’ in the UK. As of April 2025, we have reduced our direct carbon emissions by 36% compared to our baseline year of 2013/14. Whilst this is amazing progress, there is much more that we need to do.

4.5 Drivers for the Plan

A survey of clinical colleagues highlighted the need to enhance the involvement of Clinical Service Units (CSUs) in the Trust’s sustainability efforts, emphasising the importance of a care-specific Green Plan – the ‘Greener Care Plan’. The survey revealed that 39% of respondents were unaware of the Trust’s Green Plan (see Figure 5), which has been in place for 5 years, and 73% reported having had no involvement in green projects during this time (see Figure 6). These figures highlight a significant gap in staff engagement and awareness, underscoring the need to improve knowledge and understanding of sustainability within CSUs.



Figure 5: Staff Survey Q3 Responses

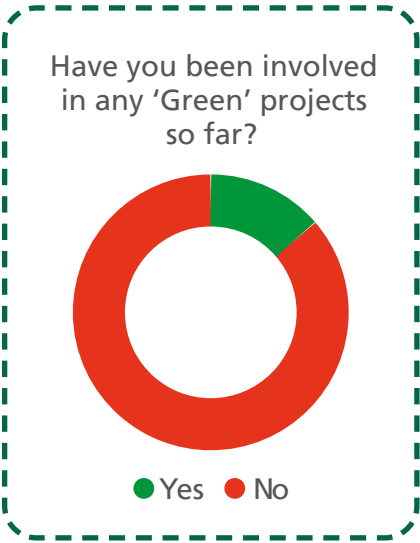


Figure 6: Staff Survey Q4 Responses

This gap was further reflected in the 28% of respondents who identified a lack of knowledge and awareness as the primary barrier to delivering greener care projects, whilst 20% also mentioned the lack of staff engagement as a barrier. Addressing these challenges requires sustainability being integrated into education and training for clinical colleagues which will help ensure improved engagement in future initiatives. One specific area for improvement here is clinicians’ understanding of how to quantify carbon savings. Only 32% of respondents felt they were able to do this, presenting an opportunity to involve staff in future carbon assessment projects (see Figure 7).

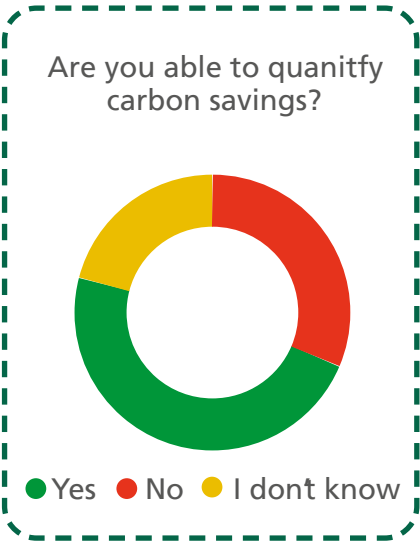


Figure 7: Staff Survey Q6 Responses

Additional barriers identified (see Figure 8), including lack of funding (36.6% respondents) and time constraints (27% respondents), highlight the important need to carefully consider support and governance in the delivery of greener care projects to ensure their success.

Figure 8: Staff Survey Q8 Responses



Overall, these findings were instrumental in driving the development of the Greener Care Plan, designed to address existing gaps and promote greater clinical involvement in sustainability efforts moving forward.

5.0 Green Clinicians, Pathways & Support

5.1 Who is a Green Clinician?

All clinicians should be Green Clinicians, whatever their professional background. Not only do we all have a responsibility to provide the best care for our patients, but to ensure that resources are managed accordingly. Many regulatory bodies now mandate these principles. The General Medical Council's (GMC) ['Good Medical Practice' guide](#) for doctors' states "you should choose sustainable solutions when you are able to, provided these do not compromise care standards. You should consider supporting initiatives to reduce the environmental impact of healthcare." The Nursing and Midwifery Council published their [Environmental Sustainability Plan](#) in April 2024, which contains proposals for similar goals.

A Green clinician is therefore someone who strives to do the best for their patients. They are a professional who examines and changes their practice to guarantee the patient's journey is as sustainable as possible. This means not only achieving the best clinical outcomes but also ensuring that every patient has equal access to resources, and that can only be achieved by protecting the environment from waste. The biggest gains can be achieved by examining our high-volume patient interactions and developing a sustainable care pathway (see Section 5.2). Only by working together across specialties, hospitals, trusts, and region-wide partners can we deliver our target.

5.2 What is a Sustainable Care Pathway?

A sustainable care pathway is one whereby every step of a patient's journey is considered and optimised to reduce carbon footprint. Every specialty and every patient journey will be different, but there are common themes that can help support carbon reduction:

- Which part(s) of the patient's journey is delivered closest to their home? Where can 'care miles' be reduced? Can patients have interventions at home rather than at hospital? Are there 'routine' appointments that could be delivered virtually? Can their local GP or pharmacy deliver aspects of their care?
- Are we making the greenest drug choices? For example, can intravenous drugs be switched to oral alternatives, especially thinking about antibiotics or painkillers? Are we considering swapping inhalers to greener alternatives? Can medicines be returned? Are anaesthetic vapours and nitrous oxide minimised?
- Are there unnecessary steps in common referral pathways, or could they be more collaborative? For example, is the patient asked to visit a surgical clinic one day, and a pre-assessment clinic the next, doubling the number of journeys? Are there guidelines that mean a standard referral process includes some early investigations? Are multiple clinics being used for multiple long-term conditions?

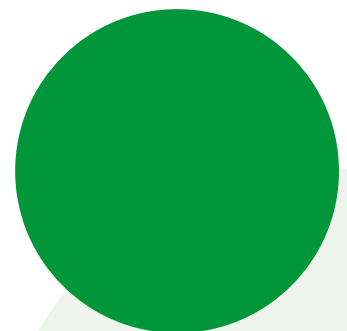
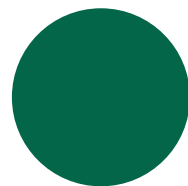
- Can we minimise the amount of time the patient spends in hospital? Is ambulatory care appropriate?
- Are we using digital processes effectively? Are we using digital rather than paper communication where appropriate? Can Artificial Intelligence help?
- Are resources used well? Is recycling of packaging available? Can we minimise disposables? Are standard procedure trays optimised to reduce waste?
- Is equipment powered down when not in use, particularly when redundant at night or at weekends? Can this be automated?
- Are we using the Leeds Improvement Method to make our processes as lean as possible?
- Are procurement decisions made with green intentions? Are alternative suppliers located nearer? Is packaging recyclable?
- Are there other areas in which specific care pathways could be improved, such as staff deployment, food options and disposal, biodiversity, and waste, and is personal protective equipment used according to guidelines?

5.3 How Green Clinicians can Help & The Support Available

Green clinicians can help support the Trust's agenda on greener care by applying LIM to any project undertaken. In assessing the sustainability of clinical practices, identifying opportunities for improvement, measuring the outcomes and implementing positive sustainable changes, we as clinicians will be directly contributing to a leaner and greener LTHT. In 2024/25, the Trust established a corporate commitment on greener care, and this has been taken forward into 2025/26. As part of this, all CSUs must contribute A3 project plans which support the execution of the greener care commitment, which also support the Trust's Green Plan. We encourage all our clinicians to get involved with and support the implementation of these projects.

Support for clinical staff will be provided by the 'Greener Care Network' (GCN) whereby similar-minded clinicians can share ideas and project work across multiple specialties and CSUs. A greener care assessment tool has also been developed to help CSUs assess their patient pathways and guide more sustainable processes, available on the trust's intranet. Further, individualised support can be offered by the [Lean2Green© team](#) where necessary. As clinical teams make progress towards sustainable care pathways, they are encouraged to use the tried and tested Leeds Improvement Method. Further assistance in this area can be provided by the [Kaizen Promotion Office \(KPO\)](#).

There are also numerous external funding sources, particularly when innovative or novel approaches are considered, or where there is a research question that can be posed. The Lean2Green© team can assist with this, facilitating partnership opportunities and applications where required.



6.0 Clinical Sustainability Baseline

6.1 Our Clinical Carbon Impact

In October 2020, NHS England published the Delivering a Net Zero National Healthcare Service report. This report details the approach being taken to achieve carbon net-zero within the NHS and establishes two targets for all NHS organisations (see Figure 5):

1. To achieve net-zero for the NHS Carbon Footprint by 2040, with an 80% reduction by 2032 from a 1990 baseline.
2. To achieve net-zero for the NHS Carbon Footprint Plus by 2045, with an 80% reduction by 2039 from a 1990 baseline.

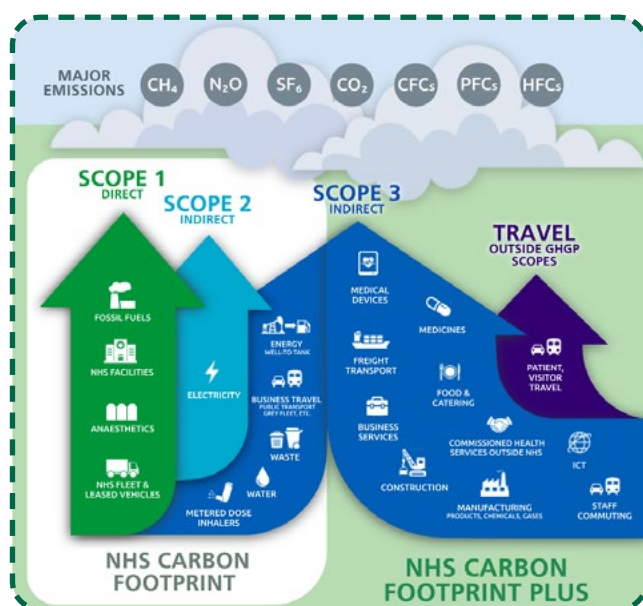


Figure 9: NHS Carbon Footprint & Carbon Footprint Plus

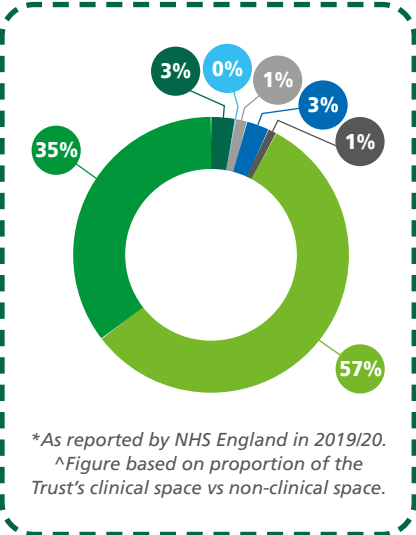
LTHT has been monitoring its NHS Carbon Footprint since its baseline year of 2013. Over this time, the Trust has been able to achieve a reduction of approximately 36% from an annual 90,434 tCO₂e in 2013/14 to 59,813 tCO₂e in 2024/25. In 2019/20, NHS England (NHSE) quantified the Trust's Carbon Footprint Plus emissions, which provided useful data on the Scope 3 emissions

aspects for which we have not been able to obtain information. By amalgamating the information we have been recording for our NHS Carbon Footprint and the information provided by NHSE for 2019/20, we have determined our overall NHS Carbon Footprint Plus to equal approximately 247,413 tCO₂e in 2023/24. For detailed information about the Trust's carbon footprint, please see the Trust's Green Plan.

LTHT find the measurement of carbon impact to be a very important contributor towards engaging our staff in the implementation of sustainable practices and making the impact of their actions easier to understand. To this end, as part of this Greener Care Plan we have undertaken an analysis of our various carbon impact datasets to understand the proportion of the Trust's carbon footprint which can either be directly affected or indirectly influenced by clinicians and their activity.

The results of this analysis show that approximately 131,515 tCO₂e of LTHT's overall carbon footprint is associated with the delivery of care and can therefore be affected or influenced by our clinical and operational staff (see Figure 10). This equates to approximately 53% of the Trust's NHS Carbon Footprint Plus. That over half of the Trust's carbon emissions can be affected or influenced by clinical staff provides a

significant mandate for action amongst these individuals, and we believe this can pave the way for sustainable change. Of note is the carbon intensity of the Trust’s procurement of medicines, chemicals and medical equipment, which collectively equate to 121,401 tCO₂e or 92% of our clinical carbon footprint.



Aspect	tCO ₂ e	
Anaesthetic Gases	3,793	
Electricity	1,624^	3%
Water	138^	1%
Clinical Waste	3,382	0%
Inhalers	1,178	3%
Medicines and chemicals	75,007*	1%
Medical equipment	46,394*	57%
Total	131,515	35%

Figure 10: Our Clinical Carbon Footprint (2023/24)

In understanding LTHT’s clinical carbon footprint, it is important to note how the carbon emissions from the above categories have been quantified. To calculate the emissions profiles from anaesthetic gases, electricity, water, clinical waste and inhalers, we have taken actual resource consumption data and applied robust and recognised carbon multipliers available from the

Department for Energy Security and Net-Zero (DESNZ). However, electricity and water are used for both clinical and non-clinical applications, and the Trust does not record the consumption of these resources using submeters. Therefore, the Trust has apportioned the carbon emission figures to our reported square meterage of clinical space. Clinical space is defined in this Plan (and in NHSE’s Estates Returns Information Collection [ERIC] Returns) as areas which are ‘directly related to clinical care and/or where patients and visitors have access, receive and recover from their treatment and are at risk.’ This includes private patient areas, pathology, clinical sterile services departments, facilities such as offices, toilets, dining rooms, and circulation spaces such as reception/waiting areas, stairways, and pharmacy areas.

It is also important to note that the carbon emission figures for medicines, chemicals, and medical equipment have been retrieved from NHSE’s study of the Trust’s NHS Carbon Footprint Plus in 2019/20, which itself used a top-down expense-based methodology to calculate carbon impact and can therefore be viewed as approximations. Nevertheless, we feel the results grant useful insight into our carbon impact and the areas which can be affected by clinical professionals.

6.2 Case Studies

At LTHT, many projects have either been completed or are already underway to support the decarbonisation of care. The case studies below detail some of the great work which has been happening, and which may inspire you to start your own projects.

Medicine Returns

This project aimed to enhance the process by which unused medications are returned from wards to pharmacy to be reissued. Our teams found that many of the receptacles designated for the return of unused medicines were being used for the disposal of other waste types. This meant everything within the contaminated receptacles had to be sent for incineration rather than allowing the valuable medicines to be returned for re-distribution. A scheme was piloted to increase awareness of these unsustainable waste management practices and what the correct disposal methods should be. This was then scaled up and consequently, the amount of

pharmaceutical waste incinerated at high temperature has been reduced, which has led to an increased resilience within our medication supply. In 2024, a total of £432,507 and 6.5 tCO₂e has been saved.

Inhaler Switch

This project aims to change prescribing habits away from harmful metered dose inhalers (MDIs) towards more sustainable respiratory care options such as dry powder inhalers (DPIs) by updating guidelines, modifying eMeds protocols, and providing education. The Trust is now also recycling used inhalers, and we are one of the first Trusts in the UK to do so. In 2024, a total of £126,000 and 9.9 tCO₂e has been saved.

Nitrous Oxide Optimisation

Having successfully removed a harmful anaesthetic vapour, desflurane, from clinical practice across the Trust, we have

now all but stopped the use of pipeline nitrous oxide in theatres. This project was a landmark sustainability achievement for the trust, driving national landscape change on nitrous reduction and leading to the publication of NHS guidance for trusts to phase down the use of nitrous oxide where clinically appropriate. Our work has massively reduced the clinical use of nitrous oxide, as well as saving money on future pipeline maintenance and saving approximately 1,311 tCO₂e.

Ethyl Chloride Spray Replacement

Ethyl Chloride has historically been used by NHS Trusts to test the effectiveness of local anaesthetic in procedures such as c-sections and upper limb surgeries. However, ethyl chloride has a high global warming potential, a high carbon footprint from production and transportation, and is a costly single-use resource which is rapidly consumed, resulting in a high financial cost for the Trust. In early 2023, LTHT trialled cool metal sticks in the hand surgical and obstetrics units at Leeds General Infirmary (LGI). The trial was highly successful, leading to the adoption of 70 metal sticks, which have nearly eliminated ethyl chloride use in theatres and anaesthesia. Pharmacy departments have since stopped ordering ethyl chloride, with savings of £38,400 annually from substituting 1,600 bottles with just 40 reusable sticks. Additionally, the sustainability team estimates a reduction of 27.13 tCO₂e annually, accounting for production, transport, and waste-related emissions.

Surgical Tray Rationalisation

LTHT has piloted a rationalisation of surgical appendectomy instrument trays, successfully reducing the number of instruments from 199 to 49. The initiative led to significant environmental benefits while improving efficiency and patient care. Using these streamlined trays, the procedure time decreased from an average of 26 minutes to just 18 minutes. These trays are sterilised at

high temperature, and so by making the trays smaller, more can be sterilised together, and transporting lighter trays produces less carbon emissions. These trays are now routinely used across the Trust across different specialities, saving 418.4kg CO₂e per surgery. These changes are readily applicable to routine procedures and, as appendectomies are among the most performed operations, have a cumulative impact that supports our Net Zero goal.

Walking Aid Recycling

LTHT is now collecting and reusing aluminium crutches and zimmer frames and partnering with Leeds City Council to improve our recycling rates. From April 2024 to January 2025, we successfully collected and recycled 154 walking aids, saving approximately £1,422 and 1.7 tCO₂e. The Trust is now exploring further opportunities and planning new recycling points across its hospitals and the wider city region.

Anaesthetic Gas Scavenging System (AGSS) Optimisation

A significant portion of the Trust's carbon footprint is associated with energy consumption. This is particularly notable in clinical areas. Our teams found that the Trust's Anaesthetic Gas Scavenging System (AGSS) units were responsible for approximately 242 tCO₂e and £187,525 annually. However, the units are energy-hungry ventilation systems which run 24 hours a day, whose use could be at least halved. The Trust has now set up a project to explore the introduction of automated systems to power down the AGSS overnight. Once implemented, we expect to

achieve a minimum annual financial saving of approximately £93,763 in energy use alone, and a carbon saving of at least 121 tCO₂e.

Carbon Literacy Training

We have provided Carbon Literacy training to various groups of staff across the Trust, including the CSUs of theatres and anaesthesia, and the intensive care unit (ICU). The aim of the training is to increase the awareness amongst our staff of the links between healthcare and climate change, and to empower and encourage staff to make their own sustainable changes. The training is open to all staff and can serve as a great starting point for individuals who wish to get involved. The Trust has trained approximately 150 staff so far, with an estimated lifetime saving of approximately 540 tCO₂e. We are already starting to see the positive impacts of the training we have delivered, with a range of Green Groups set up across several CSUs including Leeds Dental Institute (LDI), Medicines Management and Pharmacy Services (MMPS) and Children's. The purpose of these groups is for those involved to discuss, try and test the implementation of greener clinical pathways.

If your team's improvement work shares similar aspects to the above, and you would like to know more about how you can help, further details on these projects are available via the Lean2Green© team.

7.0 Greener Care Action Plan

Sustainability in healthcare is evolving, and we are transforming how it is implemented across the Trust. By actively engaging clinicians, we can harness their expertise and influence, to drive meaningful and lasting improvements in sustainable healthcare practices.

Our Greener Care Plan offers a structured, target-driven framework for integrating sustainability into patient care. The Greener Care Action Plan (GCAP) will work as a governance tool outlining the range of objectives and targets the Trust has established to achieve, in addition to listing the specific interventions clinical staff could take to reduce the carbon impact of the Trust. The overall aim of the Plan is to assist in achieving the vision of increased clinical engagement in the LTHT sustainability agenda.

Our GCAP is structured by a reformed set of 'Value Streams' and is linked directly to the Trust's Sustainable Action Plan (SAP) (see Figure 11). The Value Streams include:

- Education
- Engagement
- Greener Care Pathways



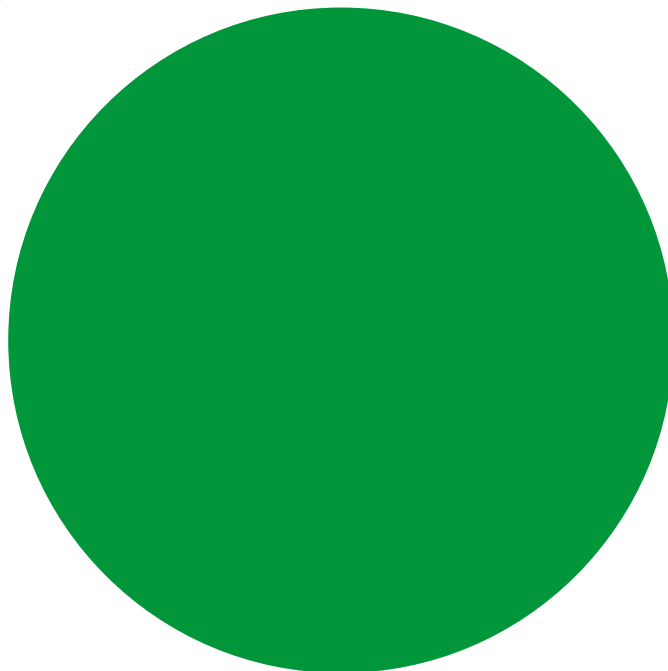
Figure 11: Lean2Green© Value Streams & Supporting Workstreams

It is important that each of the above value streams are addressed when putting sustainability into action across our CSUs. In the survey conducted amongst clinical colleagues, it was felt that the main area of focus for green action within care over the next 3 years should be reduce, re-use and recycle projects within the greener care pathways value stream. 29% of respondents felt this was the highest priority, and this was closely followed by education (22%) and projects focused on reduction of energy use in clinical areas (18%).

Whilst objectives and targets have been formulated for each value stream, the Trust acknowledges we are still in the process of exploring a vast range of clinical projects and therefore it is not possible to be certain on

what appropriate targets may be for each objective. Consequently, we have not shared our specific targets because we anticipate these will change over time. However, the Trust is committed to implementing this plan and will report on our specific targets once we have a high level of confidence in their achievability.

As can be seen in section 6.2, there are already several projects underway to address the objectives identified, such as the rationalisation of surgical trays, recycling of walking aids, the return of medicines, and changed inhaler prescribing and waste management practices amongst others. It is important that these projects are continued across the Trust and written into CSU A3 project plans to ensure continuous improvement is made on our sustainability.



8.0 Governance & Implementation

The **Greener Care Plan (GCP)**, launched in October 2025, will be governed by a framework of stakeholder groups which shall ensure its effective implementation, monitoring and continuous improvement. The **Greener Care Network (GCN)**, formed at that start of this year, shall be the primary body through which progress on our clinical sustainability objectives and targets shall be facilitated and enabled. This will ensure robust oversight, clear accountability and strategic alignment with the Trust's sustainability commitments.

Governance of the GCP aligns with existing systems within the Trust, ensuring transparency and responsibility across all levels. The Trust's **Strategic Sustainability Group (SSG)** will continue to act as the senior management group which governs the delivery of the Green Plan from the top of the organisation. The GCN will work on behalf of clinical teams to assist in the delivery of greener care projects and contribute to overall sustainability efforts for the Group (in line with the Net Zero Clinical Transformation & Medicines section of our Green Plan). As part of the GCN, there will be sustainability leads to represent each **Clinical Service Unit (CSU)**. CSUs will be responsible for reporting progress on their respective projects which are helping to support the trust's strategic clinical sustainability ambitions and objectives. Each level of this system will be responsible for ensuring actions are taken in their area and progress is made towards achieving net-zero goals of the Trust.

The Trust has developed an internal **Greener Care Assessment Tool** which can be used by CSUs for reference when creating, supporting, or assessing clinical sustainability projects.

Progress will be tracked through regular reporting, impact assessments and feedback loops to ensure actions taken are being continuously improved.

The GCN will provide a collaborative space for clinicians from different specialities and CSUs to share ideas, exchange best practices and advance sustainability efforts. By working in a cross-disciplinary approach, the network will encourage knowledge sharing on sustainable clinical practices and innovations, support CSUs in implementing greener clinical pathways, enhance clinical engagement by providing resources and support, and help turn strategies into actionable changes in patient care.

By embedding sustainability in everyday clinical practice, the GCP will drive lasting progress towards the Trust's net-zero and sustainable healthcare commitments, ensuring tangible improvements at all levels of care.



9.0 Glossary

Air Pollution

The presence and introduction into the air of a substance which is harmful to human health.

Carbon Intensity

A means of calculating the amount of carbon generated for a specific energy source (e.g., electricity).

Carbon Net-Zero

A state in which an organisation emits no carbon emissions from its activities. Or a state in which all remaining carbon emissions are offset.

CO₂e (Carbon Dioxide Equivalent)

A unit used to express total greenhouse gas emissions. There are multiple GHGs, each with a different impact on climate change. CO₂e equates all GHGs to the impact of carbon dioxide. CO₂e is used to report all GHG emissions.

Greenhouse Gas (GHG)

A gas that contributes to the greenhouse effect, leading to climate change (e.g., CO₂e).

Global Warming Potential (GWP)

A measurement that enables the comparison of global warming impacts of different greenhouse gases.

kWh (Kilowatt Hours)

A unit of measurement for energy usage (e.g., gas and electricity).

Direct Emissions

CO₂e emissions from sources which are owned or controlled by the Trust.

Indirect Emissions

CO₂e emissions from sources which are not owned or controlled by the Trust, but are generated due to the Trust's activities (e.g., purchase of electricity, procurement, waste disposal).

Scope 1 Emissions

Direct emissions from owned or controlled sources (e.g., on-site fuel combustion, company vehicles, anaesthetic gases).

Scope 2 Emissions

Indirect emissions from the generation of purchased electricity, steam, heating, and cooling.

Scope 3 Emissions

All other indirect emissions that occur in an organisation's supply chain (e.g., purchased goods, employee commuting, waste disposal).

10.0 Abbreviations

AGSS: Anaesthetic Gas Scavenging System

CL: Carbon Literacy

CSU: Clinical Service Unit

DESNZ: Department for Energy Security and Net Zero

DPI: Dry Powder Inhaler

ERIC: Estates Returns Information Collection

GCP: Greener Care Plan

GCN: Greener Care Network

GMC: General Medical Council

ICU: Intensive Care Unit

IPCC: Intergovernmental Panel on Climate Change

KPO: Kaizen Promotion Office

LGI: Leeds General Infirmary

LIM: Leeds Improvement Method

LTHT: Leeds Teaching Hospitals Trust

L2G: Lean2Green©

MDI: Metered Dose Inhaler

NHS: National Health Service

PPE: Personal Protective Equipment

QMS: Quality Management System

SJUH: St. James University Hospital

SSG: Strategic Sustainability Group

UK: United Kingdom



