

## Board of Directors (in Public)

### Item 3.1

**Subject:** Green Plan Update 2021  
**Date of Meeting:** Tuesday 30<sup>th</sup> November 2021  
**Prepared by:** Tom White, Interim Sustainability Lead  
**Presented by:** Jonathan Develing, Director of Strategic Partnerships & Green Executive Lead  
**Purpose of Report:** To Note

BAF Ref	Impact on BAF
BAF 9	Demonstration of Progress in the delivery of the Trust Green Plan

Level of assurance (please tick one)					
✓	<b>Acceptable assurance</b>	<input type="checkbox"/>	<b>Partial assurance</b>	<input type="checkbox"/>	<b>Low assurance</b>
	Controls are suitably designed, with evidence of them being consistently applied and effective in practice		Controls are still maturing – evidence shows that further action is required to improve their effectiveness		Evidence indicates poor effectiveness of controls

### 1. Executive Summary

The purpose of this report is to review Liverpool Heart and Chest Hospital's (LHCH) approach to sustainability – as agreed in the March 2020 Green Plan - and produce appropriate recommendations to further our Green Ambition.

In summary this report demonstrates progress made against the Trusts Green Plan and savings, environmental and financial, that have been realised through our October Green Month Initiative.

#### Environmental Savings

- 1,073,217 kg CO<sub>2</sub>e is being saved from being released into the atmosphere every year, the equivalent of powering 1,233 homes for a whole year.<sup>1</sup>

<sup>1</sup> [Average Electricity Usage in the UK: How Many kWh Does Your Home Use? | OVO Energy](#)  
[KWH-to- CO2 \(rensmart.com\)](#)

## Financial Savings

- LHCH is saving £163,710 per annum due to the range of sustainability initiatives outlined in this paper.

## **2. Background**

In October 2020 the NHS Chief Executive said “...as the largest employer in Britain, responsible for around 4% of the nation's carbon emissions, if this country is to succeed in its overarching climate goals the NHS has to be a major part of the solution. It is for this reason that we are committing to tackle climate change by reducing our emissions to ‘net zero’. In doing so, our aim is to be the world’s first ‘net zero’ national health service.”<sup>2</sup> Two clear and feasible targets are outlined in the Delivering a ‘Net Zero’ National Health Service report:

- The NHS Carbon Footprint: for the emissions we control directly, net zero by 2040
- The NHS Carbon Footprint Plus: for the emissions we can influence, net zero by 2045.

In March 2020, the LHCH Board agreed to a Sustainable Development Management Plan (Green Plan). Since that date initiatives have been brought forward but not coordinated and captured in a systematic way.

At the request of the Director of Strategic Partnerships, a Graduate Management Trainee was recruited for a short-term flexible placement as a Sustainability Lead, with three clear objectives:

- Produce an initiative repository which documents the green, sustainable projects the Trust has undertaken following the approval of the March 2020 Green Plan and calculate their cost and environmental impacts.
- Review and refresh the Trust’s Green Plan.
- Run a ‘Green Awareness Month’ in October to coincide with the Conference of the Parties (COP26) and the anniversary of the NHS’ pledge to net-zero (October, 2020).

## **3. Context**

The March 2020 Green Plan had several objectives which can be summarised as follows:

- reducing energy costs
- improving waste management and recycling
- sustainable procurement
- active and efficient travel
- developing links within the community and other NHS organisations.

These provided the structure for the October 2021 Green review, recognising that some of these activities are direct interventions – that is, within the scope of the Trust and some indirect interventions – that being external interventions such as reduced travel arising from the Trust approach to agile working.

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<sup>2</sup> <https://www.england.nhs.uk/greenernhs/wp-content/uploads/sites/51/2020/10/delivering-a-net-zero-national-health-service.pdf>

Delivering a ‘Net Zero’ National Health Service. [delivering-a-net-zero-national-health-service.pdf](https://www.england.nhs.uk/greenernhs/wp-content/uploads/sites/51/2020/10/delivering-a-net-zero-national-health-service.pdf) (england.nhs.uk). 2020.

### 3.1 October Green Awareness Month

In October 2021, we facilitated a Green awareness month.

The purpose was to celebrate the sustainability initiatives that LHCH have undertaken in the last two years, discuss the NHS' role in climate change, and highlight our responsibilities in achieving the NHS' net-zero ambition.

It consisted of daily communications on different topics, incorporating LHCH's green projects as well as key climate dates, such as, but not limited to: The UN Biodiversity Conference, Conference of Parties (COP26), World Mental Health Day and the International Day of Climate Action.

In summary the following initiatives took place during October 2021:

- The hospital was lit Green.
- Two webinars took place on Electric Vehicles and the Cycle to Work scheme, facilitated by our salary-sacrifice partners: NHS Fleet Solutions and Cyclescheme. We had over 50 viewers across the two events, demonstrating LHCH's passion for sustainability.
- To increase biodiversity, staff members volunteered to plant wildflowers and install bird boxes during their lunch break (pictured below). The ambition is to create a 'Green Space' for patients and staff to enjoy, sit and reflect.
- A pod cast was also presented through 'Heart and Chest Matters' so as to align with the COP 26 and the anniversary of the NHS' 'One Year On' NHS net-zero pledge.
- A sustainability initiative competition was held, where staff were encouraged to submit sustainability ideas. The best idea was selected by a panel and the winner was awarded an electric bike (donated through our associated charity). 49 submissions, containing nearly 70 ideas from 31 different areas across the Trust were received. The winning idea challenged the Trust to swap metered-dose inhalers to dry-powder inhalers which have a lower carbon footprint.
- The Trust registered for the Queens Green Canopy (Tree planting initiatives celebrating Her Majesty the Queens Platinum jubilee in 2022). This will result in 20 new trees and shrubs being planted on the LHCH site, with tree varieties being aligned to the respective names of each of our clinical/ward areas. (Elm, Birch, Maple, Rowan, Cherry etc.)
- A recurrent emergent theme from staff was the subject of recycling and waste segregation initiatives. Currently, our waste is recycled off-site by Veoila, however only 11% is graded as appropriate to be recycled.
- Successful applications for Grants have been realised through the Low Carbon Skills Fund (£30k) and Salix (£57k) which have funded projects such as reviewing heat decarbonisation with theatres and plant rooms.

#### Specific Green Initiatives

##### Energy

- Low level energy lighting.
  - The replacement of LED lighting has been ongoing, and LEDs are included in the development of any new building program, such as the catheter labs. However, there

are still areas using older lighting that should be considered as part of the Trust's capital plan.

- Reduction in energy usage.

- Passive infrared sensors (PIR) light sensors have been installed in office areas to reduce energy use, automatically switching lights off unless motion is detected. These sensors will soon be expanded to the theatre air-filtration systems, which currently run 24 hours a day. This is expected to yield a significant reduction in energy use.
- Personal accountability - all laptop, desktop and personal computer screens are fitted with protocols to power down to standby mode when not in use.
- Energy alternatives. Exploration of alternative power sources (solar and wind) required a bespoke survey as this is an area of intent that is highly specialised. This was included within the Six Facet Surveys (property appraisal).
- The installation of smart meters to better understand, monitor and reduce energy consumptions and costs does not currently feature in capital plans due to the prioritisation process. Whilst there is a potential long-term return on investment the capital cost of installation is circa £44k inclusive of VAT. This is an important monitoring tool, as it is not currently possible to monitor the geographical use of our energy, and thereby target areas to improve efficiency. This should be considered as a priority for future capital programmes.

**LHCH achieved energy efficiency savings of 804,099 kWh when compared to the 2018/19 period. Based on a price of £0.12p per kWh, this resulted in a cost-saving of £96,491 and prevented 187,468kg CO<sub>2</sub>e from being released into the atmosphere.**

- Reduction in gas usage.

- Improvement to building management systems, installation of new boilers, smart system upgrades and a replacement protocol boiler system (heat-synchronisers).
- This work was partly supported by £30k from the Low Carbon Skills Fund to support the development of a Heat Decarbonisation Plan.
- **LHCH achieved efficiencies resulting in a 765,909 kWh savings when compared to the 2018/19 period. Based on a price of £0.12p per kWh, this resulted in a cost-saving of £91,909 and prevented 178,564kg CO<sub>2</sub>e from being released into the atmosphere.**

#### Recycle – [indirect emissions]

- New waste systems.

- The introduction of Clinismart a waste segregation system includes specifically designed procedures, education tools and products to ensure optimisation of waste disposal processes at point of care. This provides cost effective, compliant, and safe management of healthcare waste whilst contributing to a cleaner patient environment. Typical results following installation of the Clinismart system would provide 50-80% reduction in clinical waste volumes and between 20-30% reduction in waste management costs. This will be implemented at the end of October.

- Recycling initiatives.

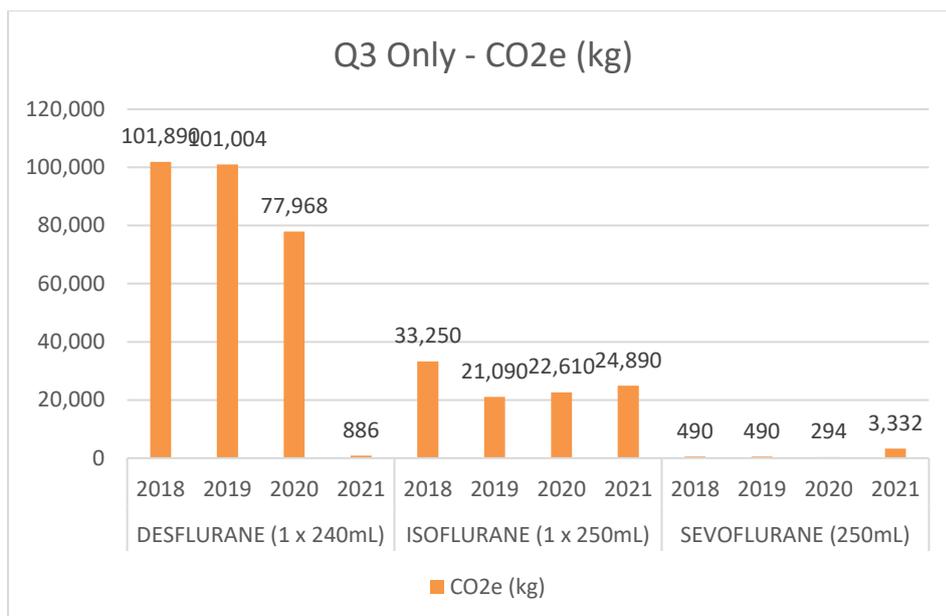
- Reduction in single use plastic items. Known as the `Steady cycle` initiative the use of single use items has increased during the covid-19 period because of the demand

for personal protective equipment (PPE). Data provided by the Broadgreen Sustainability team indicates that only 11% of our waste is recycled by Veolia, with 89% being incinerated to produce energy.

- Whilst there will be a benefit of incineration to produce energy, quantifying this for LHCH within a wider agreement of waste provider across site has not been feasible at the time of this report. There is a widespread appetite to introduce recycling bins in all areas, this option should be explored with a cost and environmental appraisal.
- Waste Reduction.
  - Intent to undertake an audit following the disposal of waste on and off site so providing assurances that recycling off site is fully compliant with standards.
  - **LCHC achieved efficiencies when compared to 2019/20, of £22,708 saving in waste costs. However, with increased use of PPE and other single use plastics during Covid there have been an additional 1,995kg CO2e per annum.**
- Re-usable gowns
  - From 1st April 2021 (following a successful trial) LHCH operating theatres signed a deal with Elis to provide re-usable gowns. This has reduced Trust clinical waste by approximately 8 tonnes a year. The Catheter labs intend to follow this pilot.
  - **This has resulted in total savings of £22,200 and 23,520kg CO2e per annum.**
- Intranet Based eBay system
  - The WARP IT pilot, a system by which surplus items can be sold to staff rather than put into landfill has been implemented but has not yet reached its full potential.

#### **Procurement** – [Direct emissions]

- Approvals and Procurement
  - Specialised provider alliance. Harmonisation of approach across the four specialist providers to ensure that Green policies are developed as the first principle of procurement. This will evolve policy and approach in sourcing goods locally, which will reduce LHCH's carbon footprint and support the local economy.
- Anaesthetic gases – Desflurane
  - The Anaesthetic team recently removed Desflurane vaporisers from use in June 2021. This has resulted in a significant impact and accounts for a quarter of our success to date. In Q3 alone, this has saved 71,764kg CO2e.
  - **The projected per annum saving is 287,056kg CO2e and an estimated recurring cost-saving of at least £17,283.**



### Travel – [indirect emissions]

It is worth noting as background that approximately 3.5% (9.5 billion miles) of all road travel in England relates to patients, visitors, staff, and suppliers to the NHS, contributing around 14% of the system's total emissions.<sup>3</sup> This includes approximately 4% for business travel and fleet transport, 5% for patient travel, 4% for staff commutes and 1% for visitor travel.

#### • Agile working

- Staff survey indicated opportunities for more agile working, thereby reducing the overall carbon footprint of the Trust. Cycle work to work policies have been updated following the latest guidance. New walking routes across the trust planned as part of a charitable funds application. Overall, Agile working policies have resulted in a significant decrease in staff commuting miles.
- **On average, 1,185,018.9 commuting miles are saved per year, resulting in a 367,360kg CO2e reduction per annum.**

#### • Electric Vehicle Charging Stations

- Ten new electric vehicle (EV) charging stations were installed this year which supports staff, encourages sustainable travel, and generates income. 62% of staff that have outstanding orders with the salary sacrifice scheme have selected EV cars, with 13% opting for hybrids, for a total of 75% of staff choosing a battery powered or supported vehicle (below). This demonstrates that there is an increasing trend towards battery-powered vehicles.

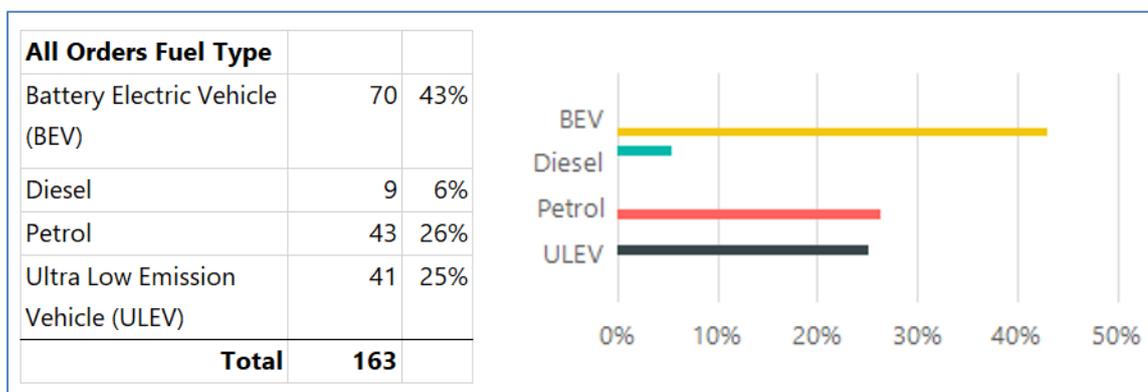
<sup>3</sup> NHS Sustainable Development Unit. [Reducing the use of natural resources in health and social care](#). 2018.

Vehicles On Order		
Battery Electric Vehicle	16	62%
Petrol	3	12%
Ultra Low Emission Vehicle (ULEV)	7	27%
<b>Total</b>	<b>26</b>	



- Based on the period July to September and extrapolated, the Trust can expect a **recurring income of at least £3,278 with 23,244kg CO2e saved per annum** (when compared to combustion engines).
- There is a willingness to expand electric-vehicle parking to other areas on-site.
- The Trust will review tariffs for EV charging on a regular basis to track current energy prices and ensure competitive rates for staff.
- The Trust recently hosted a webinar, run by our provider NHS Fleet Solutions to discuss the benefits of the salary sacrifice scheme, as well as to discuss the advantages of battery-powered vehicles.
- The table below shows the breakdown of staff who have engaged with the salary sacrifice scheme, which constitutes 10% of all staff (163). Combining battery electric vehicle and ultra-low emission vehicles, 68% of staff on the scheme chose an electrically powered (or supported) vehicle. Considering the table above which shows current orders, of which 89% of staff chose an electric or hybrid, there is a general trend towards battery-powered vehicles amongst LHCH staff. This should be considered when reviewing the amount of electric charging stations available to staff.

**Figure 10:**



Go Green – Corporate and Culture – [indirect emissions]

All aspects including community engagement, veteran’s covenant, championing personal accountability opportunity and awareness raising will be taken into consideration within the People Strategy.

The Trust is currently applying for the Social Value Award ([Social Value Business](#)), with the long-term aim of developing LHCH into an anchor institution.

Green Space

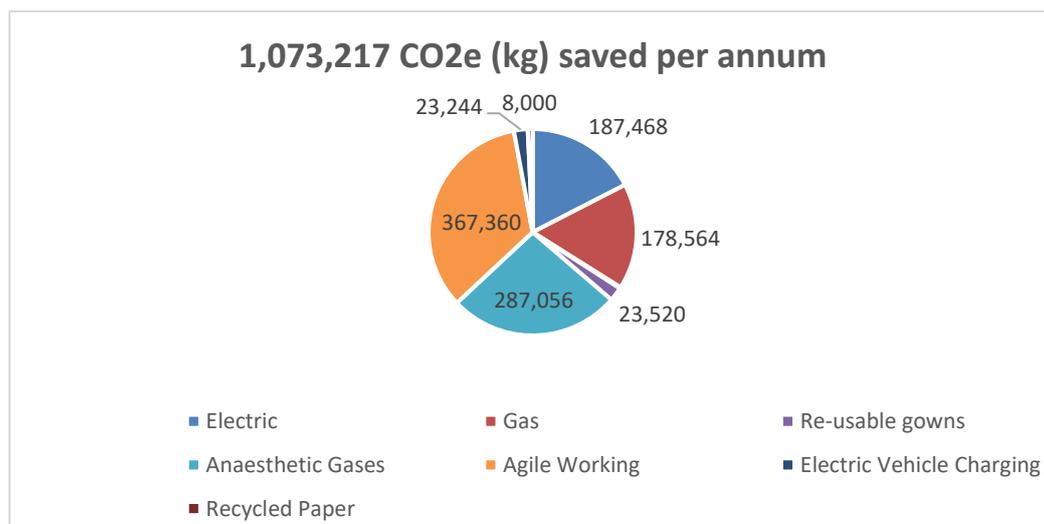
- The last 18 months have demonstrated the importance of being out, and exercising in, nature. Research has shown that being in nature can reduce stress levels, boost our mood, as well as be beneficial for our social relationships. The evidence is so strong that spending time in nature can be medically prescribed for its wellbeing

benefits, and science continues to try to understand what it might do for our physical health.<sup>4</sup>

- The Trust is creating a 'Green Space' for staff by planting up to twenty new trees and shrubs, three wildflower patches and installing four bird boxes to increase biodiversity and create a wellbeing centre for staff to enjoy.
- The trees will be a part of the NHS Forest Project ([Welcome | NHS Forest](#)) and the Queen's Green Canopy initiative ([The Queen's Green Canopy \(queensgreencanopy.org\)](#)). The species have been selected to coincide with the names of our clinical areas. The carbon offset of these new trees, and how it benefits the local air pollution, are yet to be explored.

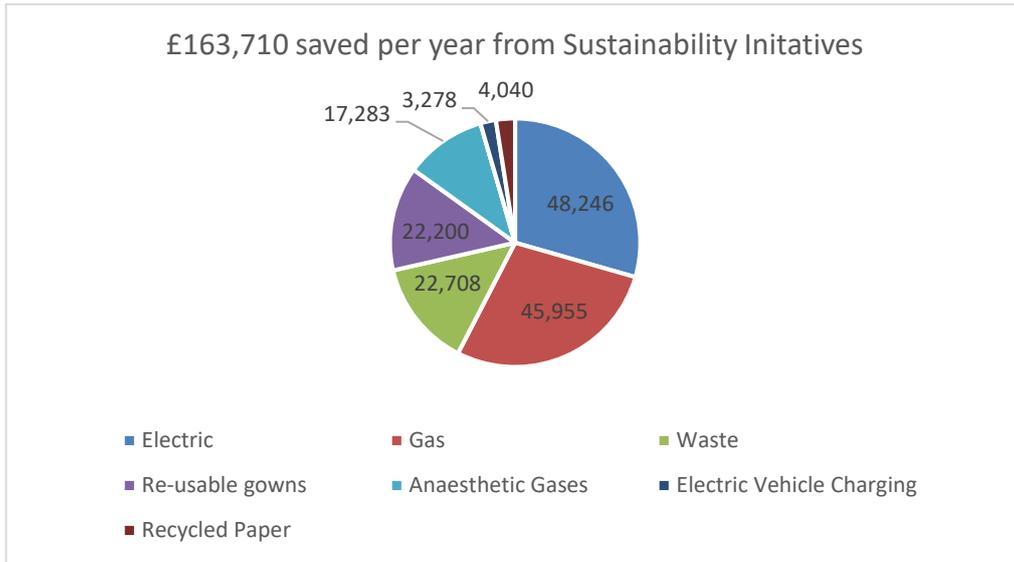
#### 4. Conclusion

- **LHCH is saving £163,710 per year when compared to 2018** due to the range of sustainable initiatives outlined in the review.
- **LCHCH is saving 1,073,217 kg CO<sub>2</sub>e** from being released into the atmosphere. If converted back into electricity, that could power **1,233 homes for a whole year.**<sup>5</sup>



<sup>4</sup> Visiting green space is associated with mental health and vitality: A cross-sectional study in four European cities. [Visiting green space is associated with mental health and vitality: A cross-sectional study in four european cities - ScienceDirect](#), 2016.

<sup>5</sup> [Average Electricity Usage in the UK: How Many kWh Does Your Home Use? | OVO Energy](#)  
[KWH-to- CO2 \(rensmart.com\)](#)



**5. Recommendations**

As we aspire to improve population health and become an anchor institution the Trust will continue to accelerate our Green plan. For information, Appendix 1 provides a summary of further ambitions and opportunities for further consideration.

The Board of Directors are asked to note the progress and success of the Green Plan review and October awareness raising initiative during October 2021.

## Appendix 1

### Energy – [direct emissions]

- Additional low energy lighting rollout to older areas of the estate, PIR sensors installed in all areas (including in the theatre air-filtration systems)
- Installation of SMART meterage across the full site circa £44k
- Reduction of site footprint – improved cycling facilities and showers to encourage active commuting, continuing virtual outpatient follow-ups and cementing agile working practices wherever appropriate
- Continued improvement to building management systems
- Green energy procurement (100% of energy used would be from a renewable source)
- Personal accountabilities – turning off equipment at source, estimated to save £0.7p per device, per night.
- Energy alternatives – solar and wind survey bespoke site survey of alternative power usage. If not included within the six-facet site survey, then it would cost circa £5k.
- Further utilisation of the Salix Public Sector De-Carbonisation scheme.

### Recycle & Waste – [indirect emissions]

Waste takes many forms across, and it is an aspect that most staff seem to focus and anchor onto. LHCH has enthusiastic and willing staff, but the infrastructure does not support their ideals. During Green Awareness month, recycling was the most common idea cited in the sustainability competition, with 21 submissions asking for recycling or better waste segregation. It is clearly an area that staff are passionate about and requires further examination.

- Single use plastics – requires investigation to determine what must be single-use and what could be recycled. Procurement should then seek reusable items where possible
- Recycling bins – currently Veolia recycles 11% of waste and incinerates 89% to create green energy. Broadgreen have recently changed contracts to a new provider. This should be followed-up and a lifecycle of our waste should be recorded and audited. If the new provider does not recycle in sufficient quantities, then LHCH should work with Broadgreen to procure a new, sustainable provider. Installing recycling bins in all areas should be considered as a viable and visible waste strategy, but this is only feasible if a provider is willing to collect recyclable material. I recommend that a full waste review be conducted and shared with staff, to alleviate their concerns and investigate the most appropriate, effective green waste solutions.
- Recycling of Medical Devices – the same investigation could examine which devices could be washed, cleaned, and reused. The water and energy cost of this process should be assessed against the potential benefits.
- Anaesthetic Gases – continue to utilise sevoflurane instead of desflurane and isoflurane. No recommendations necessary.
- Recycled Paper – from the 1<sup>st</sup> November, 2021, the Trust will move to only procuring recycled paper. This is projected to save £4,040 recurrently and 8,000kg CO<sub>2</sub>e. This has been included in the overall calculations provided in the conclusion.

### Procurement – [indirect emissions]

Procurement is one of the biggest influences on how the NHS produces carbon, and it needs to be embedded across the whole of the hospital.

- An Environmental Impact Assessment akin to an Equality Impact Assessment should be a priority for every procurement decision. This must be done as part of changes to services / major projects.
- The new Specialist Provider Alliance joint-procurement team should demand sustainable methods of production and supply, for example for reduction in plastics, to reduction in vehicle emissions for delivery, to sourcing sustainable and environmentally friendly components. There is also further opportunity to explore a medium-term joint vision

### Travel – [indirect emissions]

An LHCH Travel Plan should be devised that seeks to reduce the health and environmental impact of fossil-fuelled vehicles to-and-from LHCH by providing better alternatives, incentives to reduce car travel and a switch to greener, cleaner, and healthier forms of transport.

The main benefits that can be expected from an associated Travel Plan are:

- Help make LHCH an environmentally responsible institution
- Deliver on sustainability commitments by reducing CO2 emissions
- Deliver health benefits to staff, children, young people, families, and visitors, through an increase in exercise and reduced conflicts between traffic and pedestrians.

The objectives of the Green Travel Plan should be:

- Increase the level of walking, cycling and public transport use to our sites.
- Reduce the Trust's environmental impact and the impact upon the local community by encouraging alternatives to driving alone.
- Promote electric and hybrid vehicles including an expansion of electric-vehicle parking on-site.
- Encourage staff to lead a healthy lifestyle by promoting active travel modes such as walking and cycling.
- Offer an improved choice of travel options to all patients, staff, and visitors.

In implementing this plan, LHCH need to not only concentrate on the hospital and associated buildings, but also other sites outside of the immediate main footprint. Everywhere that LHCH staff are required to travel to work to should be considered for its implications on its contribution to becoming net zero.

Additionally, there is a wider opportunity to collaborate with local NHS partners, e.g., from the Broadgreen and Alder-Hey sites, to develop a vision for travel for the whole area, that improves access to the local rail station, public transport services, walking and cycling routes in a fundamental way. This should be a medium-term view of what travel and the environment could look like that fundamentally challenges assumptions and practices around car usage, in favour of delivering a green alternative that changes the space we work and commute in permanently and radically.

### Resources

There needs to be a clear shared programme for LHCH to follow with a regular steering group led by a Sustainability Lead. It should be noted that there are funds and grants available to NHS organisations that could support this work. LHCH has been successful in two grants funded by the Low Carbon Skills Fund and Salix's Public Sector Decarbonisation Scheme ([Public Sector Decarbonisation Scheme \[now Phase 1\] | Salix Finance](#)). The £30k

from the Low Carbon Skills Fund was used to support the development of a Heat Decarbonisation Plan in 2020, and £57k from the Public Sector Scheme is being used to conduct a full energy survey in 2021.

This paper has outlined the potential savings and environmental impact of accelerating the Green Plan. To achieve this, we will explore a specific role dedicated to pursuing sustainability initiatives that focuses on project management, administrative support, and acquiring funds and grants to support workstreams.

Crucially, the Sustainability Manager would benchmark the Trust's carbon footprint. This is important so that all future improvements can be assessed against that baseline. This would allow the Trust to create a long-term map to net-zero carbon emissions. Completing this project internally will save on external professional fees.

## Useful Reading:

1. NHS England and NHS Improvement. [Greener NHS campaign to tackle climate 'health emergency'](#). 2020.
2. Delivering a 'Net Zero' National Health Service. [delivering-a-net-zero-national-health-service.pdf \(england.nhs.uk\)](#). 2020.
3. NHS Net Carbon plan <https://www.england.nhs.uk/greenernhs/a-net-zero-nhs/>
4. Royal College of Physicians. [Breaking the fever: Sustainability and climate change in the NHS](#). 2017.
5. NHS England. [The NHS Long Term Plan](#). 2019.
6. NHS Sustainable Development Unit. [Reducing the use of natural resources in health and social care](#). 2018.
7. NHS Sustainable Development Unit. [Workforce insights study](#). 2018.
8. NHS England and NHS Improvement. [We are the NHS: People Plan for 2020/2021 – action for us all](#). 2020.
9. Defra. [UK's carbon footprint](#). 2020.
10. Department for Transport. [National Travel Survey](#). 2020.
11. A4S Chief Financial Officer Leadership Network. [CAPEX: A practical guide to embedding sustainability into capital investment appraisal](#).
12. <https://www.mycarbonplan.org/post/uk-carbon-offset-providers-and-schemes>
13. <https://www.iucn-uk-peatlandprogramme.org/funding-finance/introduction-peatland-code>
14. <https://www.woodlandtrust.org.uk/partnerships/how-our-partnerships-work/>
15. <https://environmentagency.blog.gov.uk/2021/05/10/carbon-offsetting-reviewing-the-evidence/>