Sustainable healthcare for net zero: How to scale collaborative communities and empower staff to lead green projects

BMJ Future Health Conference

Gareth Thompson
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Masterclass: Innovating for Sustainability and Net Zero

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For BMJ Future Health November 19th 2024

Workshop Schedule 45 minutes

Imperial College Healthcare NHS Trust

1. Welcome & Who is Here?
2. My Journey into Sustainability
3. Climate Change & Health
4. Empowering Staff – Building Relationships key to starting any Green Projects
5. Example Green Projects
   - Consider walking aids and newer smaller scale projects?
6. How to structure Green Projects – QI and SusQI tools and frameworks
   - Sustainability as a domain of quality
7. Emissions Calculations
   - Presenting data in a relatable way
8. Group Workshop Exercise **15 minutes**
   - Choose one approach to accelerating sustainability at your Trust

Green Plan

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Welcome & Who is Here?

My Journey into Sustainability

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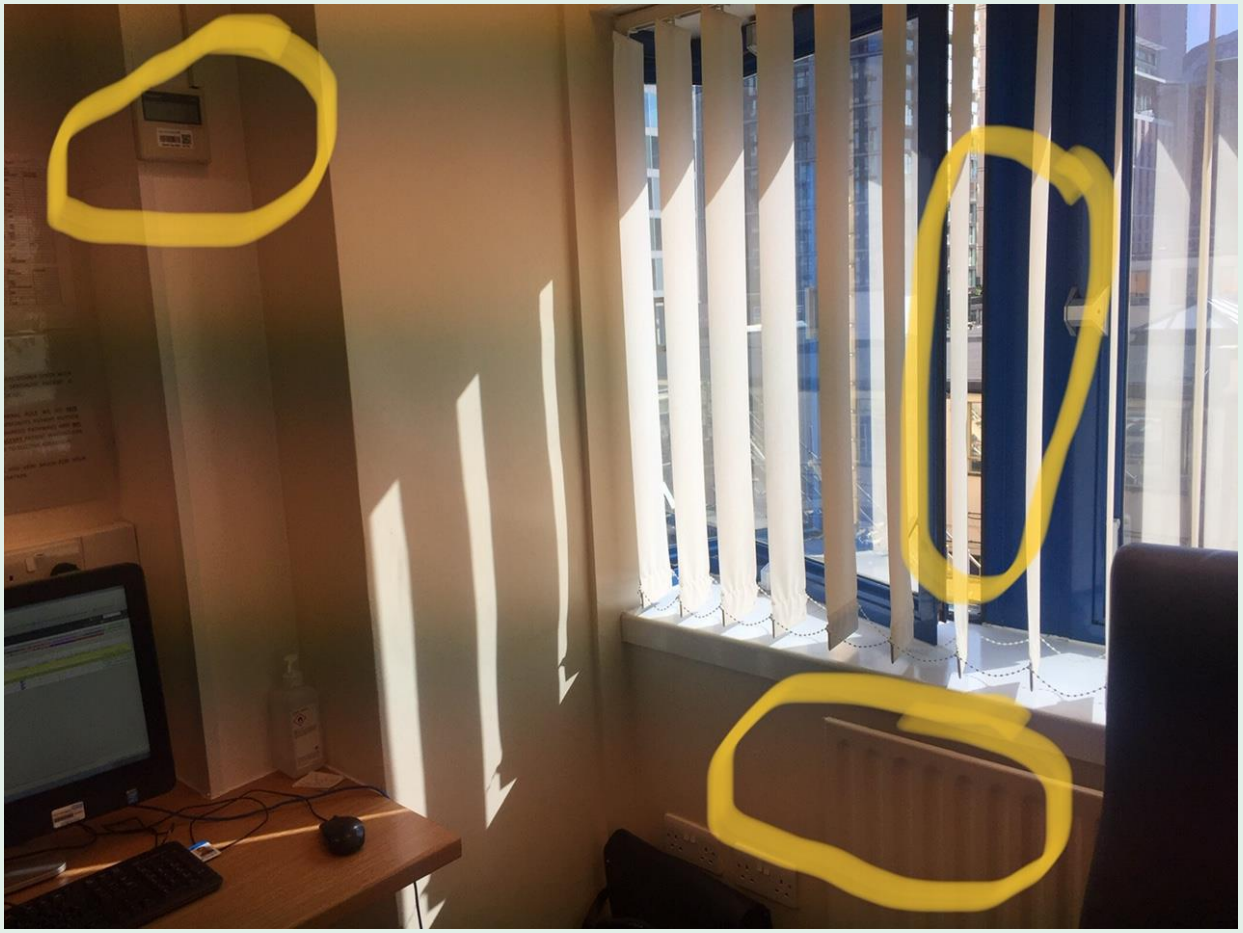

Clinic photo July 2019 showing radiator on, window open, and AC cooling the room at the same time

Green Plan

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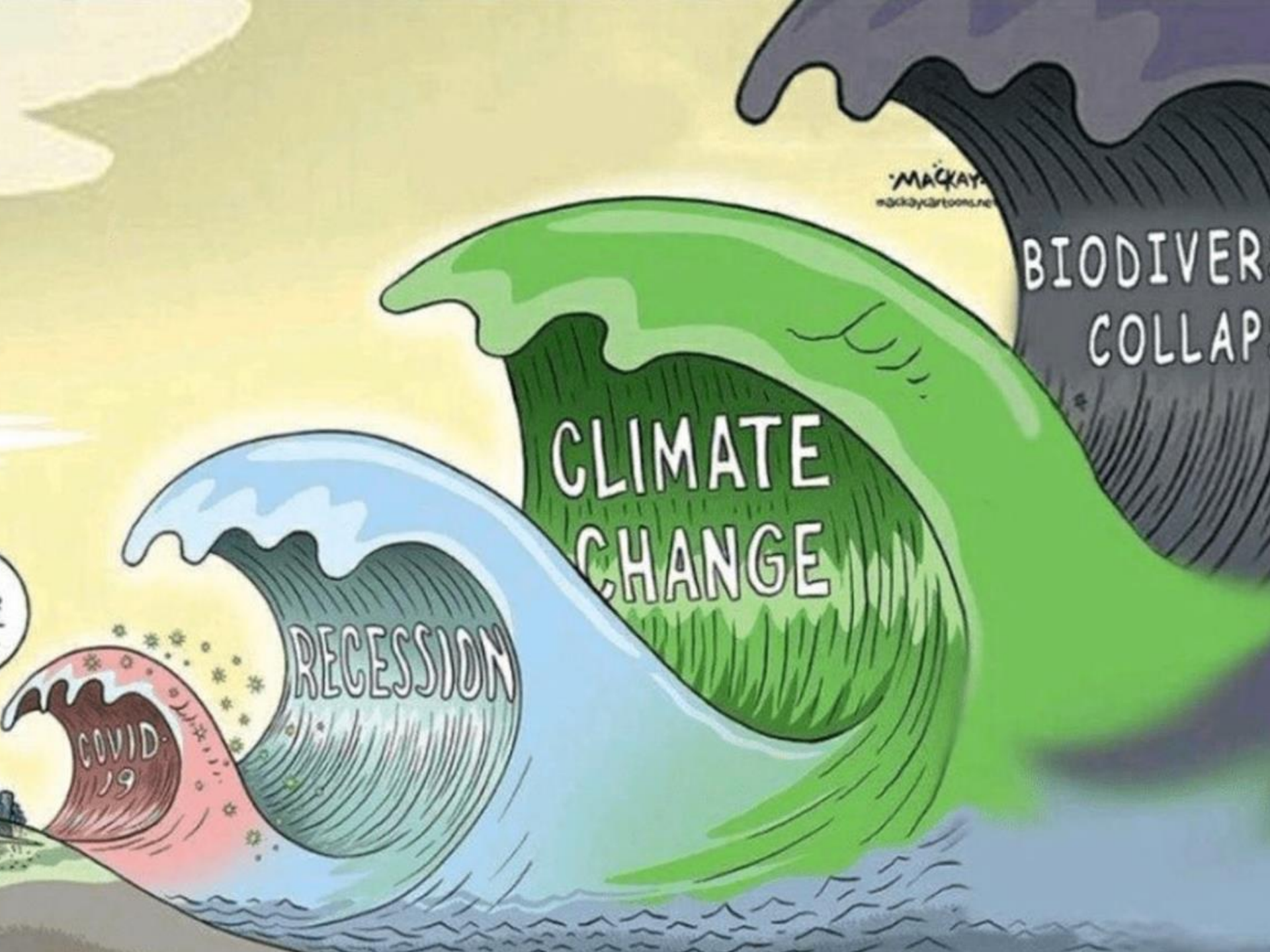
Climate Change & Health


COVID-19
RECESSION
CLIMATE CHANGE
BIODIVER
COLLAP

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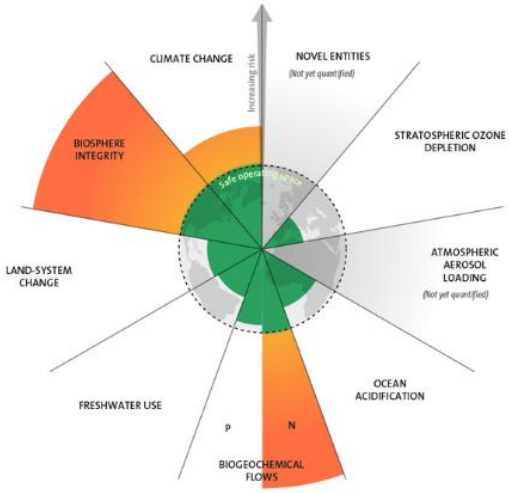
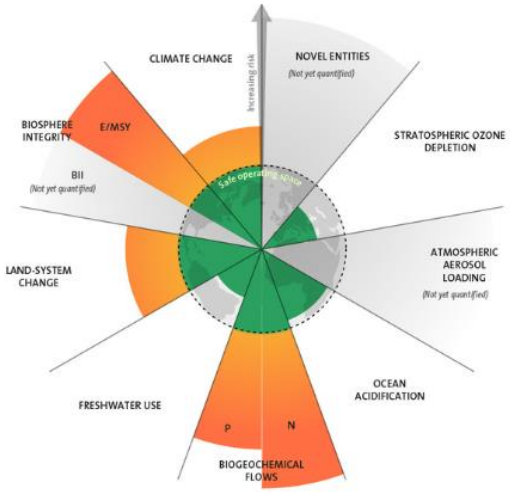
Planetary boundaries

2009



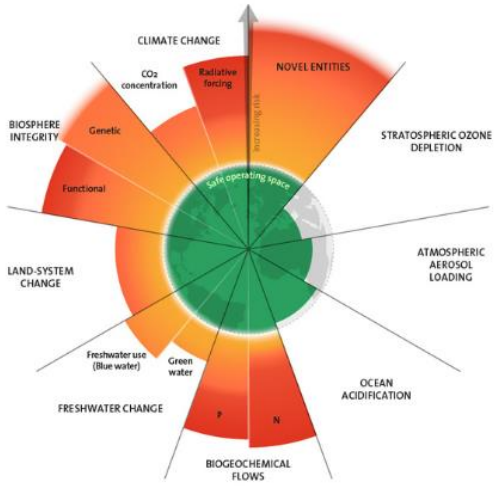
7 boundaries assessed,
3 crossed

2015



7 boundaries assessed,
4 crossed

2023



9 boundaries assessed,
6 crossed

The evolution of the planetary boundaries framework. Licenced under CC BY-NC-ND 3.0 (Credit: Azote for Stockholm Resilience Centre, Stockholm University. Based on Richardson et al. 2023, Steffen et al. 2015, and Rockström et al. 2009) Click on the image to download.

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Climate Change is *Accelerating*..

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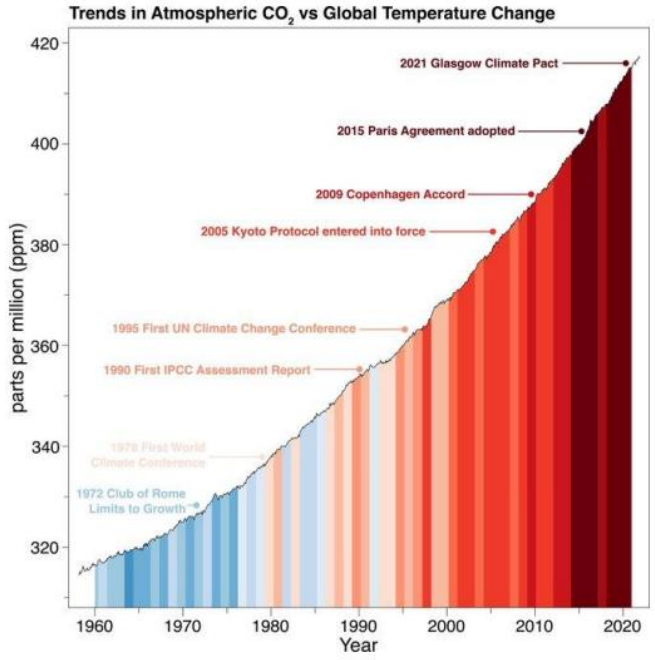
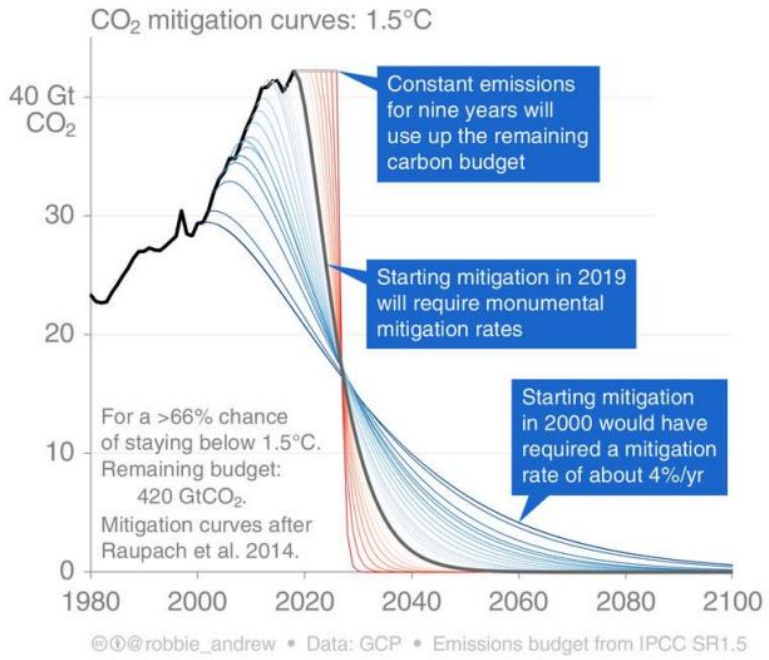
Effectiveness of Current Approaches





Earth's average surface temperature in **2023 was the warmest on record** since record keeping began in 1880

Green Plan

The NHS is vulnerable

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PUBLIC HEALTH

Climate crisis likely to increase demand for nurses, says ICN

18 NOVEMBER, 2019 | BY REBECCA GILROY

Immediate action is needed to tackle climate change, an international nursing body has warned, after a report found that it will have lifelong effects on children's health.

London NHS trust cancels operations as IT system fails in heatwave

Guy's and St Thomas' trust having to postpone and divert appointments, with doctors unable to see patients' notes

INSIDE DEVELOPMENT | DEVEX NEWSWIRE

Devex Newswire: Climate change comes for medical supply chains

By *Helen Murphy* // 17 March 2023

Green Plan

First, **do no harm**

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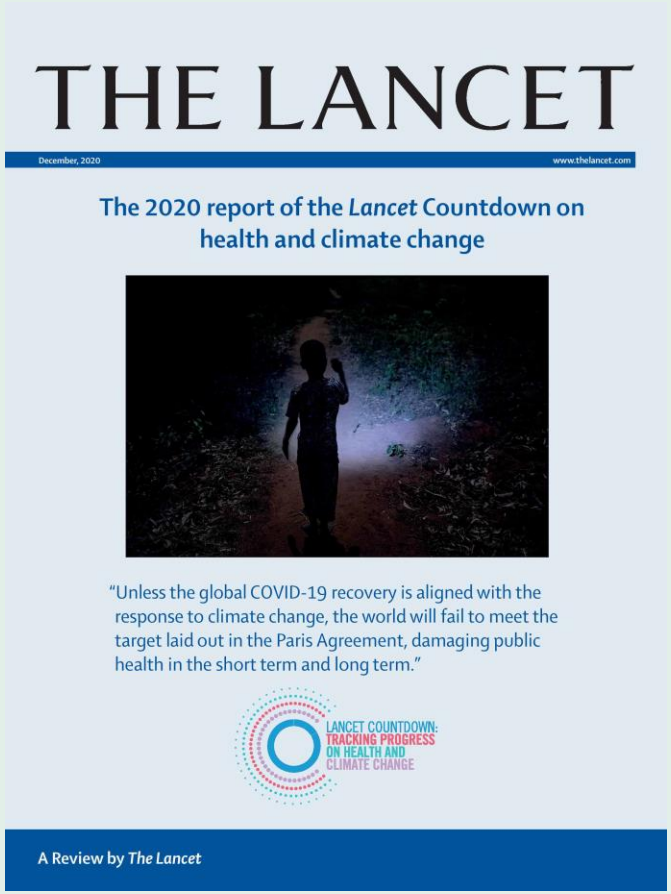

"Climate change is the biggest threat to human health in the 21st century."

Green Plan

The Big Smoke

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- December 1952 the Great Smog of London - lasted 4 days
- Contributed to up to 12,000 deaths from air pollution (Bell, et al 2004)
- Led to the Clean Air Act 1956

- **40,000 deaths occur per year in the UK in the *present day* due to air pollution**
- NHS service activity contributes to air pollution

Brittanica

Green Plan

Human health is the face of climate change

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Ella Adoo-Kissi-Debrah

Climate change to cause more severe and frequent adverse weather: heat waves, cold spells and floods	Heat-related deaths are projected to more than triple to 7,000 a year by the 2050s
Air pollution is associated with 40,000 premature deaths each year	Poor air quality is particularly harmful to the lungs of young children
40% of reduced life expectancy of the most deprived in NW London attributed to circulatory and respiratory reasons	1 in 4 primary schools in London are in poor air areas, with four in five of these in the most deprived areas
On average four Londoners, including one child, hospitalised every day due to asthma caused by air pollution	Toxic air pollution costs the NHS and social care £157M

Green Plan

Every day our Trust produces 100 tonnes of Co2 from our direct activities

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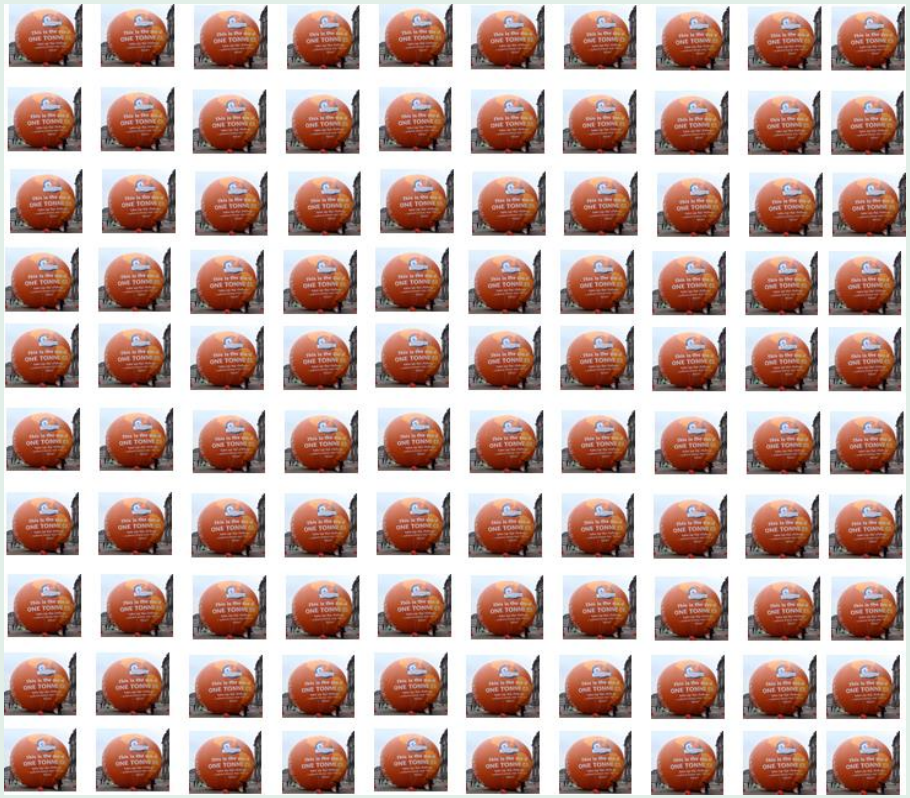

Green Plan

The NHS committed to ‘Net Zero’ by 2045 to help stop climate change

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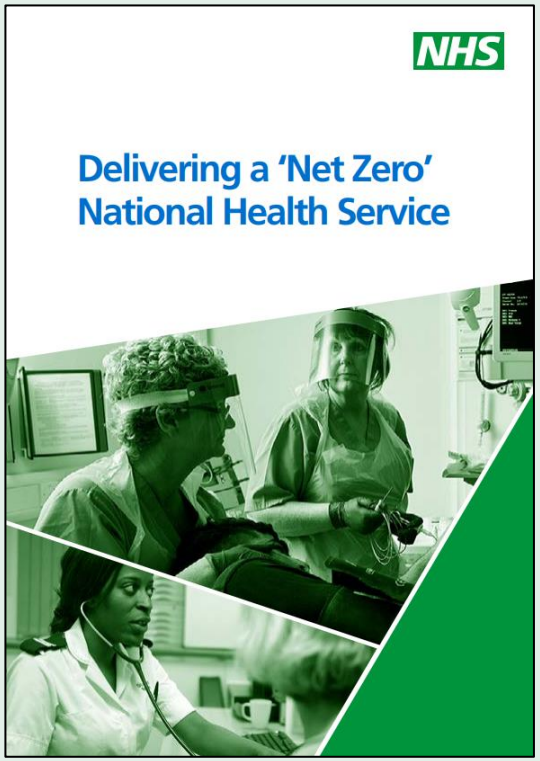

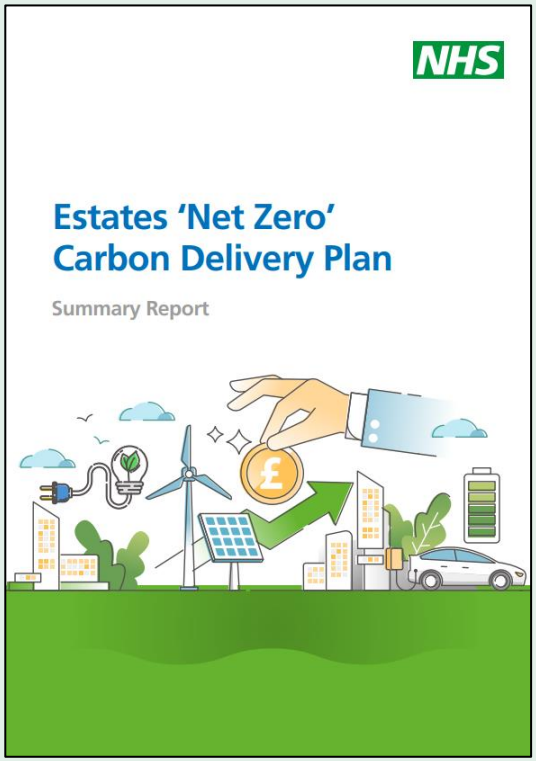

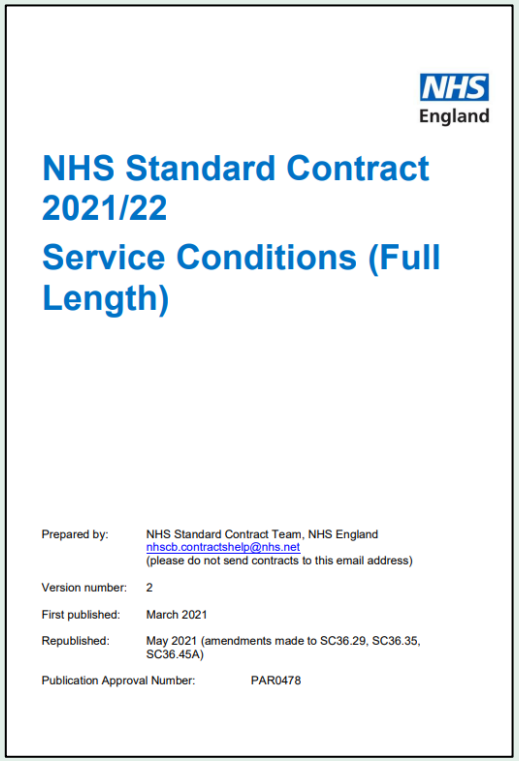

Green Plan

Pause for Q&A

Any thoughts or questions?

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Empowering Staff and Building Relationships is the Foundation

Our staff green projects were nominated for the HSJ ‘Towards Net Zero’ Award in 2023

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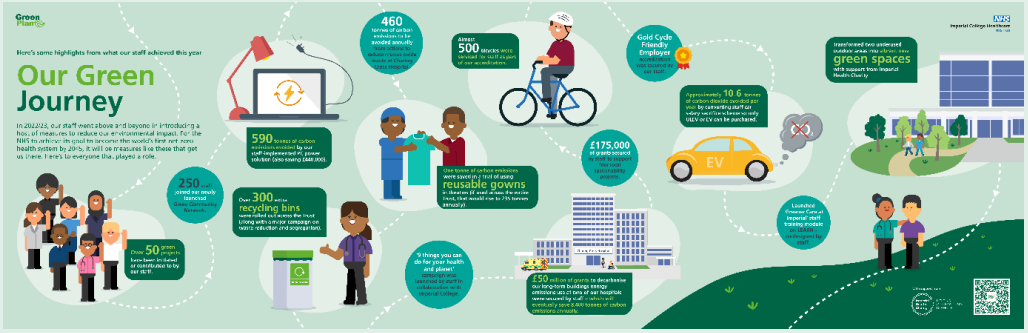

Over 50 Staff Green Projects!

CO^2

10,000 tonnes

£850,000
Eight hundred thousand pounds

Green Plan

These 5 projects alone will save 10,000 tonnes of CO2e, and £850,000 annually

Green Plan

Reality check – How do we empower our people under very difficult circumstances?

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Green Plan

A focus on ***support*** in order to leverage our small Green Team for impact is essential

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Our Green Team Mission

*"Our contribution to better health, for life (for generations to come) is to **support** action, provide **expertise** and **initiate change** that protects our planetary natural resources."*

We respond to all inbound enquiries

Green Team Staff: 2.6FTE

Green Plan

We launched our Green Plan in May 2021 in the middle of the pandemic..

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Our **Green Plan** is our commitment to reduce our impact on the environment and to deliver sustainable healthcare, helping to secure ***better health, for life*** for generations to come.

Our approach: inspire, enable and **empower** our staff to act

Dr Bob Klaber, Net Zero Board Lead

Our journey to empower our staff involved careful design at each stage

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Green Plan 2021

Green Community Network 2022

Green Champions Programme 2024

Our staff **Green Community Network** enables connection, sharing and action

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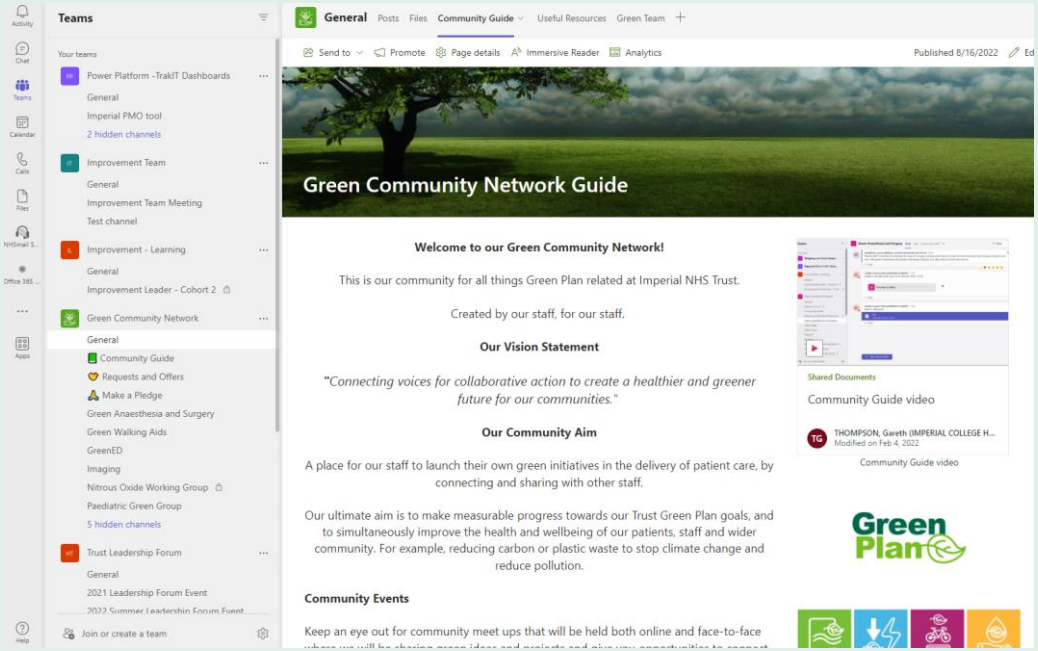
- Launched October 2022
- **700+ members currently**
- Online Lunch N Learns
- Lobby Promotions
- MS Teams as a digital hub



Community brings staff together towards a shared purpose

Green Plan

Green Champions Programme Launched April 2024

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- **Highly motivated individuals** who formed the core of our Green Community Network
- **Replicated this as a Trust-Wide initiative**
  - Champions will represent their local ward/area
  - Communicate green messages
  - Support / Lead Green Projects

62 Green Champions Registered

How are **Green Champions** supported?

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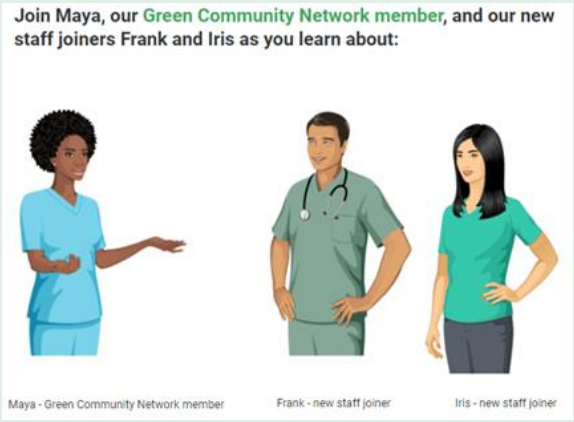
1. **Regular online check-ins with the Green Team**
2. **Protected time**
3. **Educational resources**
4. **Named contact on the Green Team**
5. **Recognition**

Green Plan

Bottom up community building supported by top down system change resources

- Greening Your Ward Crib Sheet
- Education Module Green Newsletters
- Better Waste Segregation Campaign



Green Plan

Wards can score higher in the Ward Accreditation Programme by being green

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White

No Green Champion/s appointed.

Bronze

Appoint green champion/s AND…

Silver

50 % of ALL ward-based staff complete ‘Intro’ module.

Gold

Green QI Project Started.

- System change resource
- Wards score points by appointing a Green Champion
- Green Champions then assist ward to score even higher
- Creates a **scalable mechanism** with influence across all our hospitals

Green Plan

What is Next? – We will scale our Green Community Network and Green Champions

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2024 to 2027

Staff in the Green Community Network:

600 to 3000

Green Champions:

20 to 200

- Staff in the Green Community Network pool of green supporters
- Green Champions are the **most active** members of the Green Community Network
- Ward Accreditation will cover the entire Trust over 3 years

By 2027 this enables us to have a Green Champion in **all wards** in our 5 hospitals

Green Plan

Key Takeaways to empower staff

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Top Down

Embed systemic mechanisms and resources to scale change

Encourage diversity with multidisciplinary stakeholder engagement both clinical and non-clinical

Give permission to act with senior support

Move beyond target-setting and create strong **foundations in people** instead

Utilise Improvement Methodology to train staff, use existing tools and enable impact measurement

Lend support to enable staff to be **autonomous** on green projects, rather than hierarchical control

Create a community safe space to listen to staff ideas and obstacles

Bottom Up

Green Plan

Pause for Q&A

Any thoughts or questions?

Five Big Green Projects & Some Smaller Ones

Greener facilities: electric heat pumps replacing gas heating systems

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Green Plan

Decommissioned nitrous manifold at Charing Cross Hospital

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Green Plan

Reduced energy use: automatically powering down idle computers

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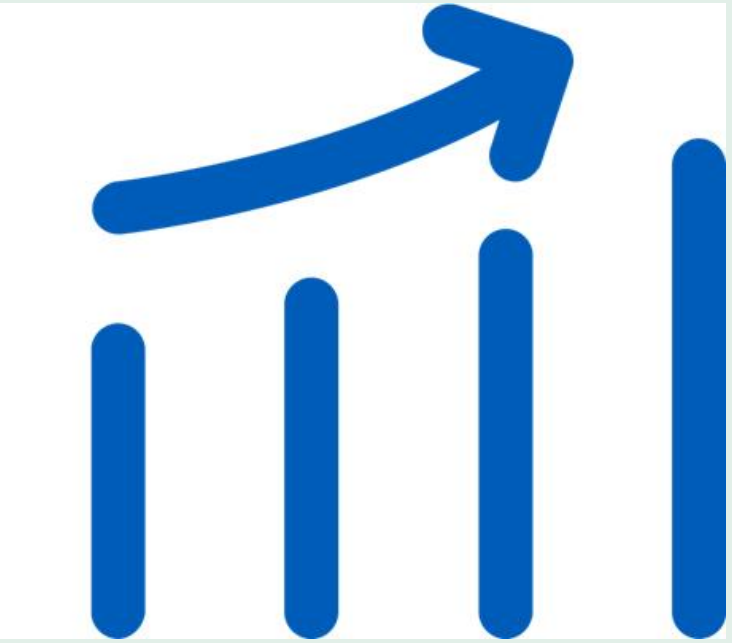

Green Plan

Innovative care: reusable theatre gowns added to tender for linen contract

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Imperial College Healthcare
NHS Trust
Green Surgery Challenge Team

Switched from disposable surgical gowns to reusable gowns in two theatres over an 8 week period

Saved 1.025 tonnes CO2e*
If spread to the whole trust, this change could save
~234.7 tonnes CO2e/year

Saved £118.52*
If spread to the whole trust, this change could save
£27,131.69 in one year

* Calculations for two theatres, over an 8 week period

Green Plan

New better waste segregation resources

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Full Size bin labels to relabel orange bins as tiger stripe

Tiger waste 23% to 45% of clinical waste across Trust from 2022 to 2023

Green Plan

Switched to Ecosia as the default browser

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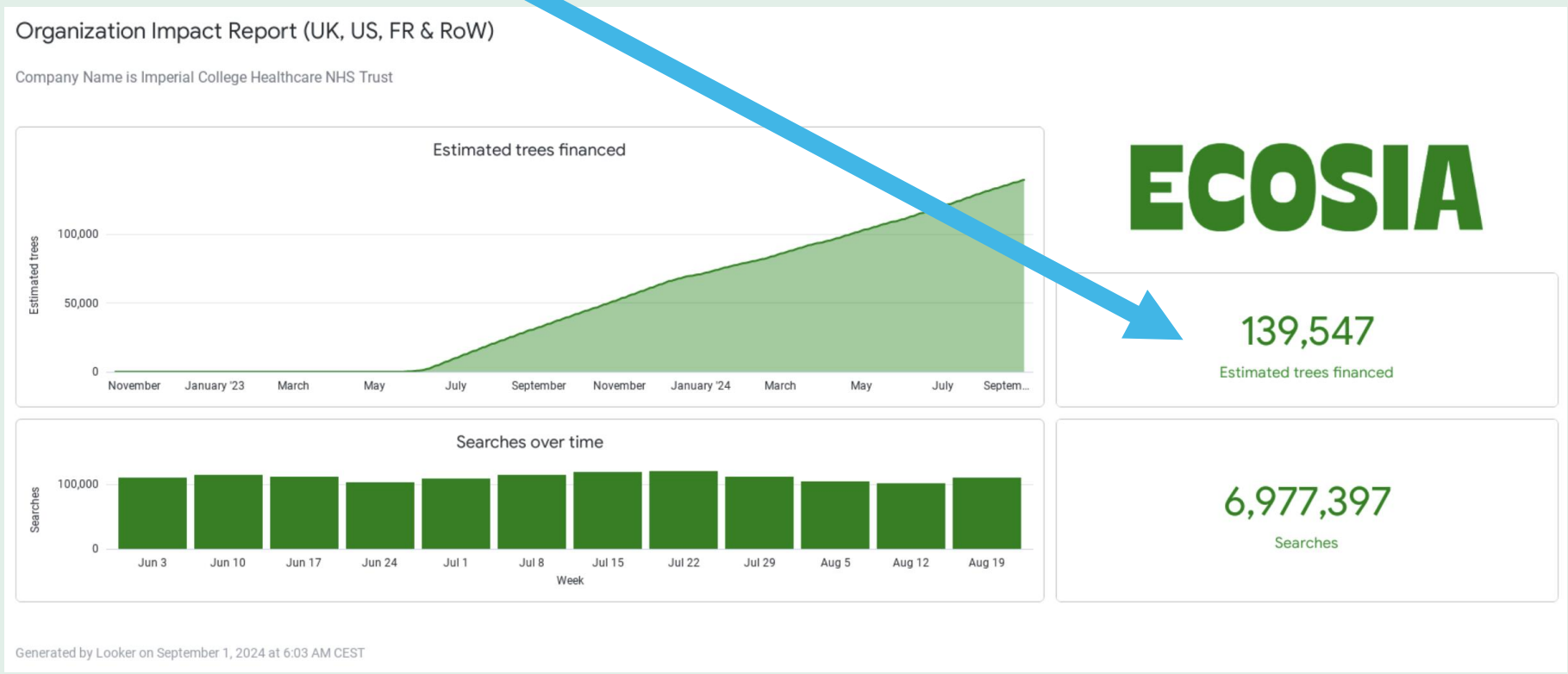

Green Plan

A Selection of Green Clinical Projects

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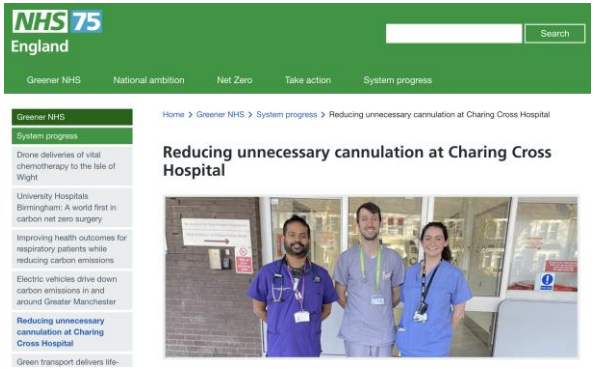

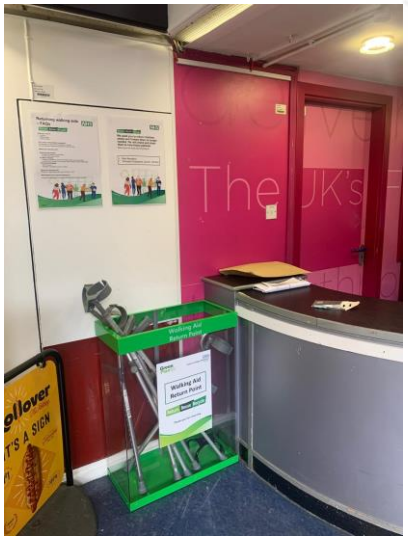

PDI Prevantics Skin Swab 1.6mls

Order Code: VJT526

Chloraprep 1.5mls

PDI Applicator 3mls

Order Code: 3mls Clear
DMK85006
3mls Tinted
DMK85010

We have reduced our direct carbon footprint by 17% since 2019/20

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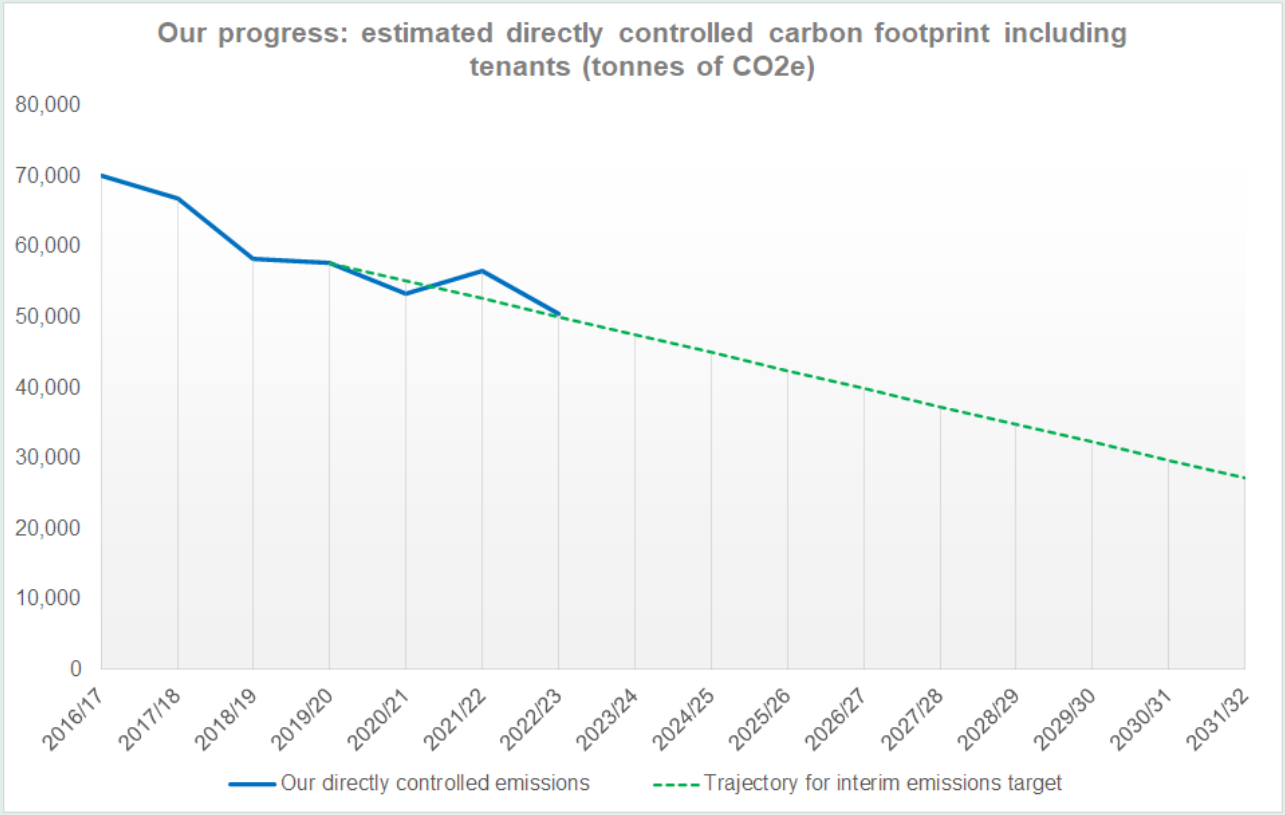

Green Plan

Pause for Q&A

Any thoughts or questions?

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How To Structure Green Projects

What if… Sustainability Became Part of Quality Improvement?

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Improving Clinical Care

Core mission

Sustainability

Secondary Add-On?

Green Plan

Our Green Plan embedded QI Method and we work alongside the Improvement Team

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Improvement Methodology*

1. Leadership and capacity
2. Data, measurement and impact
3. Communication
4. Engagement and learning

5. Visible action
6. Partnerships
7. Governance

Green Plan

Sustainability can be seen as a 7th Domain of Quality Care

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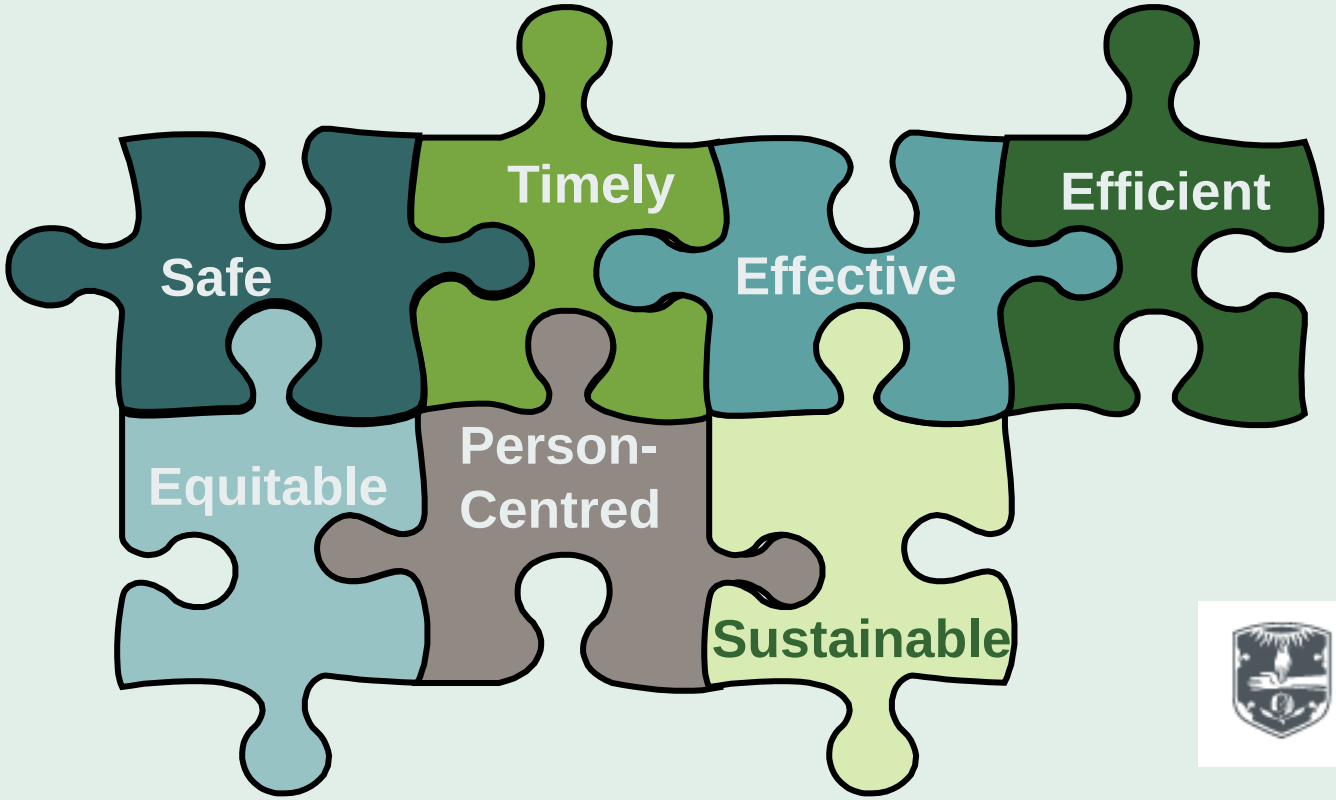

Royal College of Physicians

Green Plan

Sustainability is A Measure of Value, Which Goes Beyond Financial Value

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$$\text{Sustainable value} = \frac{\text{Outcomes for patients and populations}}{\text{Environmental + social + financial impacts}}$$

Mortimer et al., Future Healthcare Journal 2018, Vol 5, No 2: 88-93

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Green Plan

Quality Improvement Offers a Ready-Made Set of Tools and Resources

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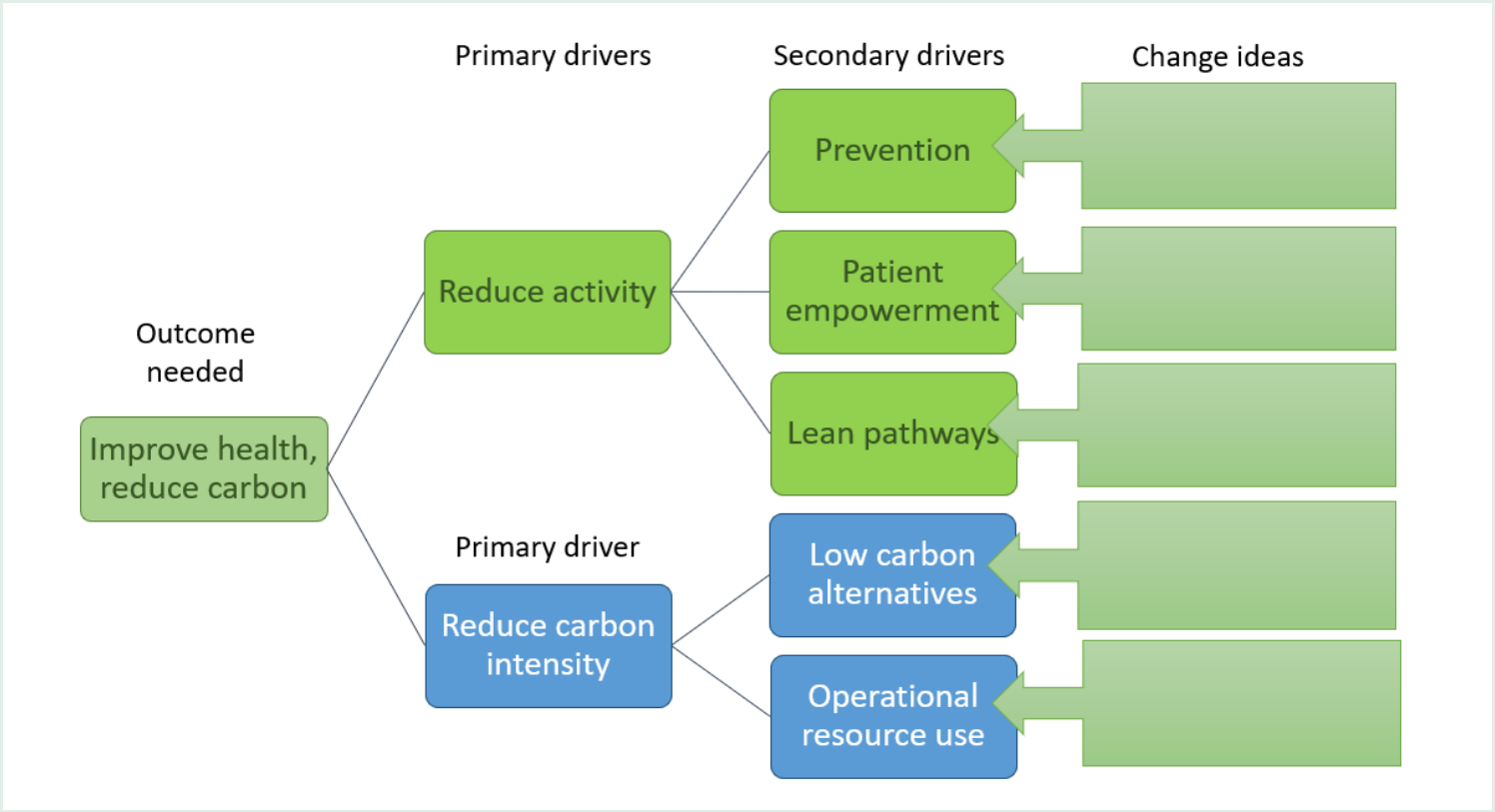

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Green Plan

Q&A

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Any thoughts or questions?

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Emissions Calculations

Calculating a carbon footprint: what it *really* takes to multiply two numbers

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CO2e (Carbon Dioxide Equivalent) = a unit used to express total greenhouse gas emissions. There are many greenhouse gases, each with a different impact on climate change. CO2e equates all greenhouse gases to the impact of carbon dioxide. CO2e is used to report all GHG emissions and is measured in kilograms (kgCO2e) or tonnes (tCO2e) where 1 tonne = 1,000 kilograms.

Green Plan

Emission sources and emissions factors

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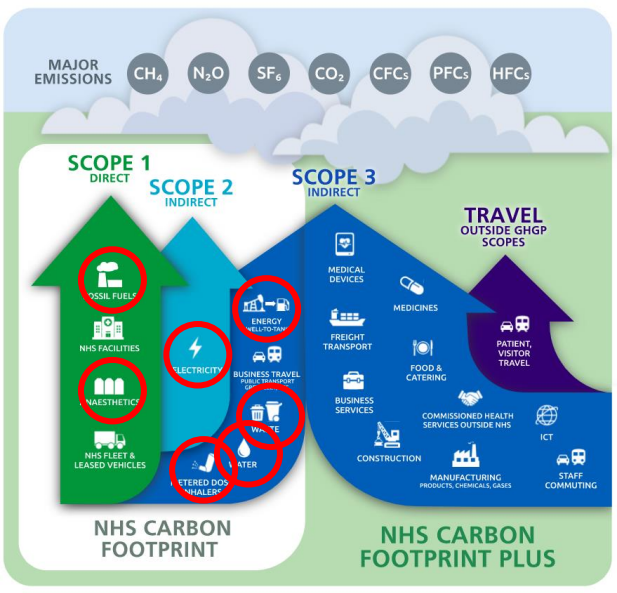

Emissions Factors (tCO2e/kWh)

		2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Source
Electricity	Generated UK electricity (Gross CV)	0.00041205	0.00035156	0.00028307	0.00025560	0.00023314	0.00021233	0.00019338	BEIS
	Transmission and distribution (Gross CV)	0.00003727	0.00003287	0.00002413	0.00002170	0.00002005	0.00001879	0.00001769	BEIS
	Generated WTT (Gross CV)	0.00006188	0.00005605	0.00004198	0.00003565	0.00003217	0.00005529	0.00004625	BEIS
	WTT Transmission and distribution (Gross CV)	0.00000560	0.00000524	0.00000358	0.00000303	0.00000277	0.00000489	0.00000423	BEIS
	Emissions Factor TOTAL (tCO2e/kWh)	0.00051680	0.00044572	0.00035276	0.00031598	0.00028813	0.00029130	0.00026155	Aggregated BEIS

Emissions Factors (tCO2e/kWh)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Source
; CV)	0.00018400	0.00018416	0.00018396	0.00018385	0.00018455	0.00018438	0.00018000	BEIS
ross CV)	0.00002499	0.00002785	0.00002557	0.00002391	0.00002391	0.00003135	0.00003110	BEIS
TOTAL (tCO2e/kWh)	0.00020899	0.00021201	0.00020953	0.00020776	0.00020846	0.00021573	0.00021110	Aggregated BEIS

Emissions Factors (tCO2e/Litre)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Source
	0.00296572	0.00295351	0.00297049	0.00275821	0.00275776	0.00275857	0.00276000	BEIS
tres)	0.00055747	0.00063038	0.00063253	0.00063253	0.00063253	0.00063253	0.00063253	BEIS
TOTAL (tCO2e/Litre)	0.00352319	0.00358389	0.00360302	0.00339074	0.00339029	0.00339110	0.00339253	Aggregated BEIS

Emissions Factors (tCO2e/m3)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Source
)2e/m3)	0.000344	0.000344	0.000344	0.000344	0.000344	0.000149	0.000149	BEIS
(tCO2e/m3)	0.000708	0.000708	0.000708	0.000708	0.000708	0.000272	0.000272	BEIS

Emissions Factors (tCO2e/Litre)

	2016/17	2017/18	2018/19	2019/20	2020/21	92	2022/23	Source
)2e/Litre)	0.000493	0.000493	0.000493	0.000493	0.000493	0.000493	0.000493	https://mygascote.netlify.app/
e/Litre)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	https://mygascote.netlify.app/
2e/Litre)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	https://mygascote.netlify.app/
/Litre)	0.79	0.79	0.79	0.79	0.79	0.79	0.79	https://mygascote.netlify.app/

Emissions Factors (tCO2e/Tonne)

	2016/17	2017/18	2018/19	2019/20	2020/21	92	2022/23	Source
cal Waste) - Yellow Sharps and Burn Bins	0.901289978	0.901289978	0.901289978	0.901289978	0.901289978	0.901289978	0.901289978	https://future.nhs.uk/Estates_and_Facilities_Hub/view?objectId=177700229
ent (Clinical Waste) - Orange Infectious Clinical Waste	0.35929	0.35929	0.35929	0.35929	0.35929	0.35929	0.35929	https://future.nhs.uk/Estates_and_Facilities_Hub/view?objectId=177700229
l Waste) - Tiger bag	0.0213538	0.0213538	0.0213538	0.0213538	0.0213538	0.0213538	0.0213538	https://future.nhs.uk/Estates_and_Facilities_Hub/view?objectId=177700229
ncineration - Clear bag	0.0213538	0.0213538	0.0213538	0.0213538	0.0213538	0.0213538	0.0213538	https://future.nhs.uk/Estates_and_Facilities_Hub/view?objectId=177700229
,andfill	0.5865138	0.5865138	0.5865138	0.5865138	0.5865138	0.5865138	0.5865138	https://future.nhs.uk/Estates_and_Facilities_Hub/view?objectId=177700229
Recycling - Green bag	0.0213538	0.0213538	0.0213538	0.0213538	0.0213538	0.0213538	0.0213538	https://future.nhs.uk/Estates_and_Facilities_Hub/view?objectId=177700229

Emissions Factors (tCO2e/amount of propellent in one unit)

	2016/17	2017/18	2018/19	2019/20	2020/21	92	2022/23	Source
tered Dose Inhaler)	0.028	0.028	0.028	0.028	0.028	0.028	0.028	https://doi.org/10.1111/bcp.15135
tered Dose Inhaler)	0.036	0.036	0.036	0.036	0.036	0.036	0.036	doi: 10.1136/bmjopen-2018-028763
etered Dose Inhaler)	0.036	0.036	0.036	0.036	0.036	0.036	0.036	doi: 10.1136/bmjopen-2018-028763
ose Inhalers)	0.015	0.015	0.015	0.015	0.015	0.015	0.015	ICHT Pharmacy
Inhalers)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	ICHT Pharmacy

Green Plan

Collect data by building relationships

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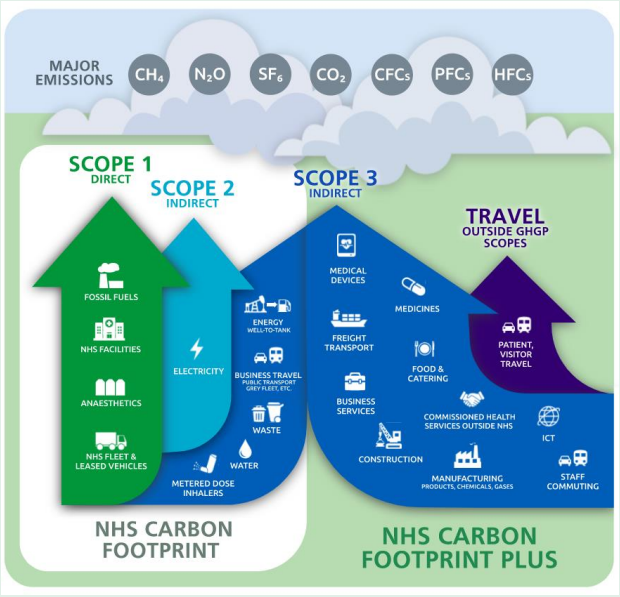
Meter readings, billing information, Hard FM maintenance records, pharmacy purchasing data, supplier returns data, local logbooks, local vehicle data, fuel card data, transport supplier data, payroll data, staff benefits data, academic journals, medicines databases, waste collected data



Supplier data, local surveys, national surveys

Procurement and finance data

Green Plan

Calculate and interpret

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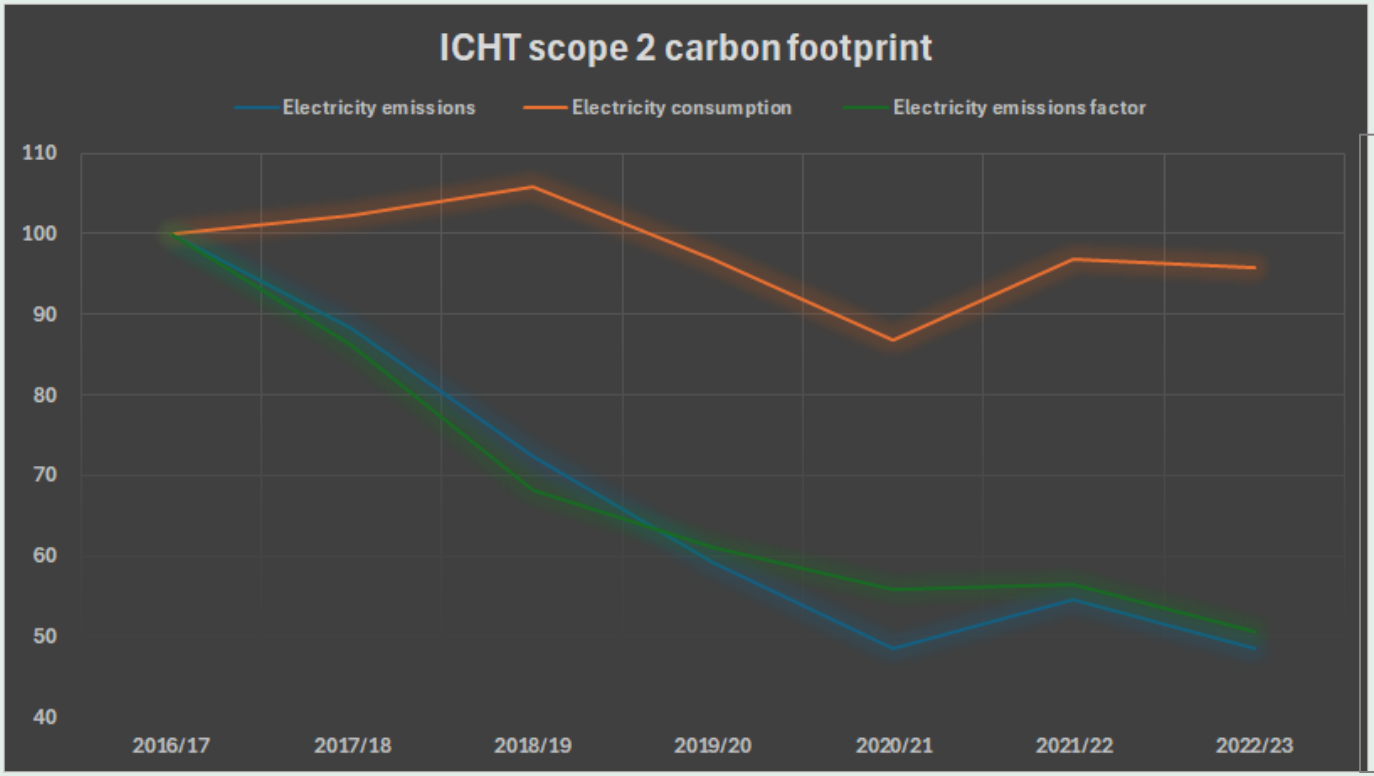

Here the scope 2 carbon footprint has fallen by 51%

But the consumption of electricity has only fallen by 4%

Why? Because the emissions factor has fallen by 49% due to the UK grid decarbonising

And, from 2023/24 we expect our electricity consumption to go up due to new innovations

But the benefits will be seen in our scope 1 gas consumption and emissions

Green Plan

Convert Your Data Into Everyday Easy to Compare Metrics

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Description of Work	Saving tCO_2e pa
High efficiency fans	56
BMS optimisation	389
Lighting retrofit	180
Pipework insulation	492
VSD pumping	10
Heat pumps	6,199
Total	**7,326**

7,326 tCO2e is equivalent to:

- ❑ **Driving a small car** 5,737 X 7,362 = **42 million miles**
- ❑ That is the same as driving around the earth **1,700 times**

Green Plan

Q&A

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Any thoughts or questions?

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Group Workshop Exercise

Go to Menti.com to start the exercise

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1. Enter code: **2902 3783**
2. Complete the questions
3. Pair up with another participant and share your plans on your next steps to accelerate sustainability innovation in your Trust/Org.
4. Each pair share plans with room (time allowing).

Green Plan

Thank You!

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Any final thoughts or questions?

Green Plan