



The role of pharmaceuticals in achieving net zero: Greener Pharmaceuticals in the UK

Nadine Henderson
Greener Pharmaceuticals: Policies
for an Environmentally
Sustainable Pharmaceutical
System
May 15th, 2024

Transitioning to a Net Zero health system: The UK Perspective

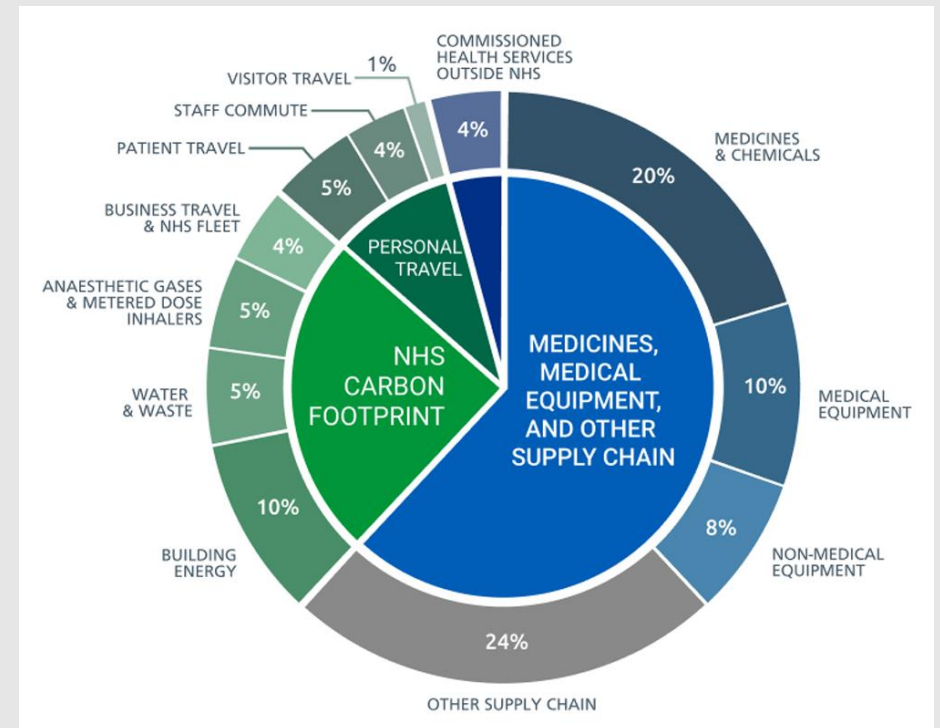
4% of the UK's carbon emissions are attributable to the NHS.

Understanding that climate change and human health are inextricably linked, in October 2020, the NHS became the first in the world to commit to delivering a net zero national health system.

The NHS Carbon Footprint: for emissions they control directly, **net zero by 2040**

The NHS Carbon Footprint Plus: for the emissions they can influence, net zero by 2045

The NHS in England became the first health system to embed net zero into legislation through the Health and Care Act 2022.



Sources of carbon emissions by proportion of NHS Carbon Footprint Plus from "Delivering a Net Zero National Health Service"

<https://www.england.nhs.uk/greenernhs/a-net-zero-nhs/>

Supporting the Era of Green Pharmaceuticals in the UK

What?

- A review of sources of carbon emissions within the pharmaceutical supply chain,
- Identification of challenges and opportunities to reduce emissions within the industry
- Recommendations for the UK government and the NHS to support greening

Why?

- To support engagement on the barriers the pharmaceutical industry faces to reducing its emissions
- To contribute to the incorporation of environmental impact in healthcare decision-making

How?

- Rapid review of evidence on carbon emissions in the pharmaceutical industry
- Semi-structured interviews with expert stakeholders
- Roundtable of industry representatives and sustainability experts



Firth, I., Hitch, J., Henderson, N. & Cookson, G. (2022) **Supporting the Era of Green Pharmaceuticals in the UK**. OHE Contract Research. Available from <https://www.ohe.org/publications/supporting-the-era-of-green-pharmaceuticals-in-the-uk/>



Firth I, Hitch J, Henderson N & Cookson G (2023) **Moving towards a more environmentally sustainable pharmaceutical industry: recommendations for industry and the transition to green HTA**, Expert Review of Pharmacoeconomics & Outcomes Research, 23:6, 591-595, <https://doi.org/10.1080/14737167.2023.2214730>

Challenges to improving environmental sustainability faced by pharmaceutical manufacturers

Challenge 1: Pharmaceutical products are highly refined, and safety for the end-user is prioritised by all stakeholders which limits the pace of change

Challenge 2: Pharmaceuticals are highly regulated and are typically supplied through complex global supply chains involving a large number of stakeholders.

Challenge 3: The resource intensity of manufacturing and low success rates in R&D mean that supply side waste-to-product ratio is high.

Challenge 4: The pharmaceutical industry is highly innovative, but future technologies may have a different environmental impact compared to established small molecule technologies.

Challenge 5: Health systems do not adequately reward sustainability.



What policy tools can be used to encourage decarbonisation?



Financial
Incentives



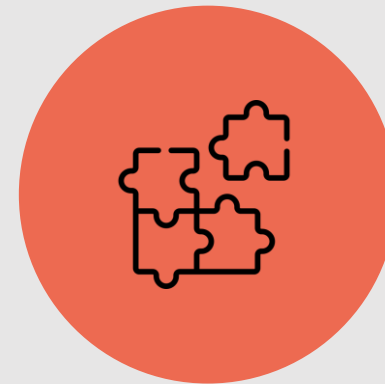
Reputational
Incentives



P&R/Procurement
Policy Incentives



Regulatory
Incentives



Collaborative
Incentives

Current incentives and commitments



Government

US Inflation Reduction Act

\$60 billion in incentives to foster energy efficiency, electrification and advancements in green chemistry

UK Industry Energy Transformation Fund

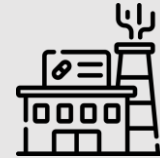
£220 million between 2021 to 2027 towards decarbonising energy-intensive industry

EU Pharmaceutical Strategy

Aims to make drug manufacturing and distribution more sustainable

India's Net Zero Roadmap

Encourages adoption of renewable energy and assessment of Scope 3 climate impacts



Industry

AstraZeneca Ambition Zero Carbon

Aims to achieve carbon neutrality across value chain by 2030

Novartis

Aims to achieve carbon neutrality across Scope 1, 2 and 3 by 2040

























Takeda

Commitment to net zero GHG by 2040

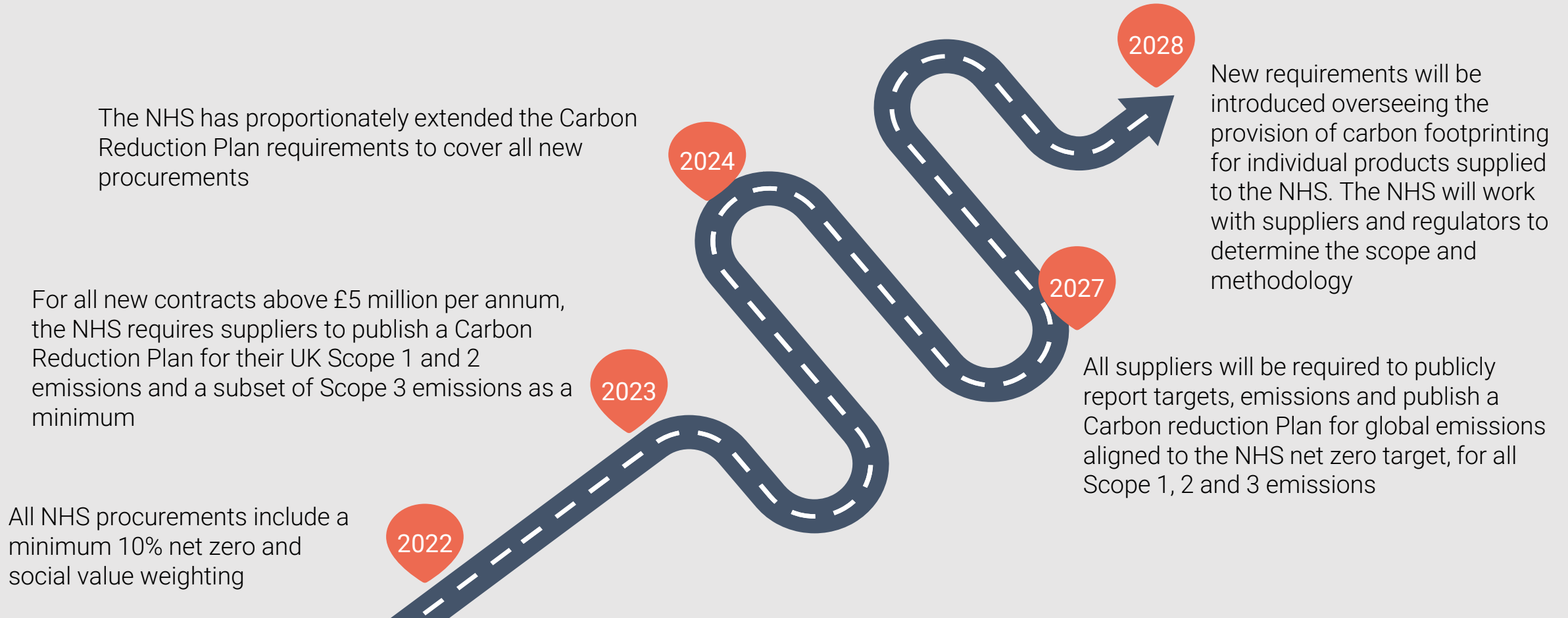
...and others

but only 8 of the top 100 companies have committed to net zero

Our recommendations for industry, the NHS and government

Challenges to reducing emissions faced by the pharmaceutical industry	NHS Recommendations	UK Government Recommendations	Industry Recommendations
 <p>1. Priority of Safety and Regulation</p>		 <p>International leadership to align regulatory standards for sustainability</p>	 <p>Engage in industry wide collaboration on sustainability</p>
 <p>2. Complex Global Supply Chain</p>	 <p>Implement an industry roadmap</p>	 <p>Invest in national grid decarbonisation</p>	 <p>Report and disclose greenhouse gas footprints</p>
 <p>3. High Waste to Product Ratio</p>	 <p>Implement models of circularity to align incentives to reduce waste</p>		 <p>Partner with the NHS on waste</p>  <p>Invest in improvements in energy efficiency</p>
 <p>4. Innovation Must Continue</p>		 <p>Invest in people, skills, institutions involved in green innovation</p>	
 <p>5. Inadequate Reward for Sustainability</p>	 <p>Meaningfully build sustainability into procurement decision-making</p>  <p>Engage in public-private partnerships for infrastructure investment</p>  <p>Partner in innovation with industry</p>	 <p>Support the NHS's sustainability activities</p>  <p>Invest in implementation projects</p>	 <p>Investment in product-level life cycle assessments</p>
<p>Legend:  Investment  Collaboration and knowledge sharing  Change to business model  Leadership</p>			

NHS Net Zero Supplier Roadmap



Can HTA policy accelerate the pace of change towards net-zero?

Progress towards decarbonising the pharmaceutical industry is gaining momentum.

- Should environmental effects be considered in HTA or reimbursement processes?
- What are the practical hurdles?
- What are the unintended consequences?
- How much health gain are we willing to trade for a reduction in environmental impact?