

## Carbon Reduction Through Design & Innovation

When NHS England released its net zero roadmap it identified that 60% of their emissions were attributed to the supply chain, and so reaching their goal would require bringing suppliers on the journey too. This was a bold and progressive move, with nothing comparable on scale or ambition in any other country. Whilst it is ambitious, it initiated a domino-effect starting with an intense phase of carbon-literacy building with their suppliers. Essentially, to continue supplying products to the NHS, manufacturers will need to have a publicly available Carbon Reduction Plan (CRP) in place, including their Scope 1,2 and 3 emissions within a set deadline. For most organisations this kick-started their sustainability journey, and while there has been plenty of support on 'what' to do, translating this into 'how' to do it is the biggest challenge, leading to hesitation and uncertainty. Getting the right advice on 'how' to make change is a very important step. Like anything else, having a solid strategy as a foundation to build on will pay dividends in the long run. Sustainability isn't binary, but very much a journey of incremental gains. Each business is different and getting guidance on what is most appropriate for your company ensures time is well spent on achievable goals.

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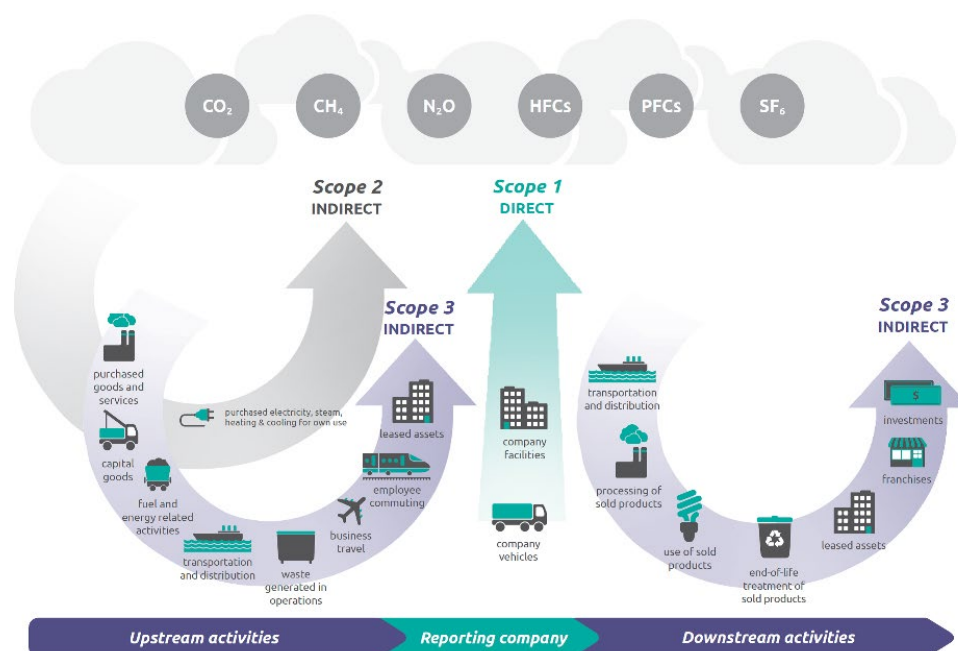
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A solid baseline on your organisation's emissions is typically the first step. Wrapping your head around Scope 1,2 & 3 (\$123) can be daunting, and again, seeking expert support with this can help in two key ways. Confidence in the numbers that will be published and used as a future benchmark, but also with capacity, since the calculation process can be time intensive. With this in mind, pd-m International has developed an inexpensive and rapid system to generate the baseline data.

The next step is to move into a carbon reduction plan. Usually Scope 1 & 2 (direct & indirect emissions) are the easiest place to start since the organisation has a greater influence over these. An approach of Eliminate, Reduce, Substitute and Compensate can help form the basis for the reduction strategy. Depending on the operations of a business these are typically in the region of 30% of total emissions and many companies have begun to reduce their corporate emissions through this route. However, Scope 3 (indirect) makes up the remaining 70% of emissions<sup>1</sup> and is heavily influenced by the products being manufactured and distributed, leaving huge potential for improvement in this area.

To keep this in context, the NHS are initially only asking for a subset of these Scope 3 emissions (5 of the 15 categories -see diagram<sup>3</sup>). In time all will be required to achieve net zero.



Pd-m International is a product design and innovation consultancy, and sustainability is important to us. As research by the Ellen Macarthur foundation has shown, 80% of a product's environmental impact is influenced by decisions made at the design stage<sup>2</sup>. As designers we're inherently linked to the emissions our products create, and so have a responsibility to ensure they are minimised.

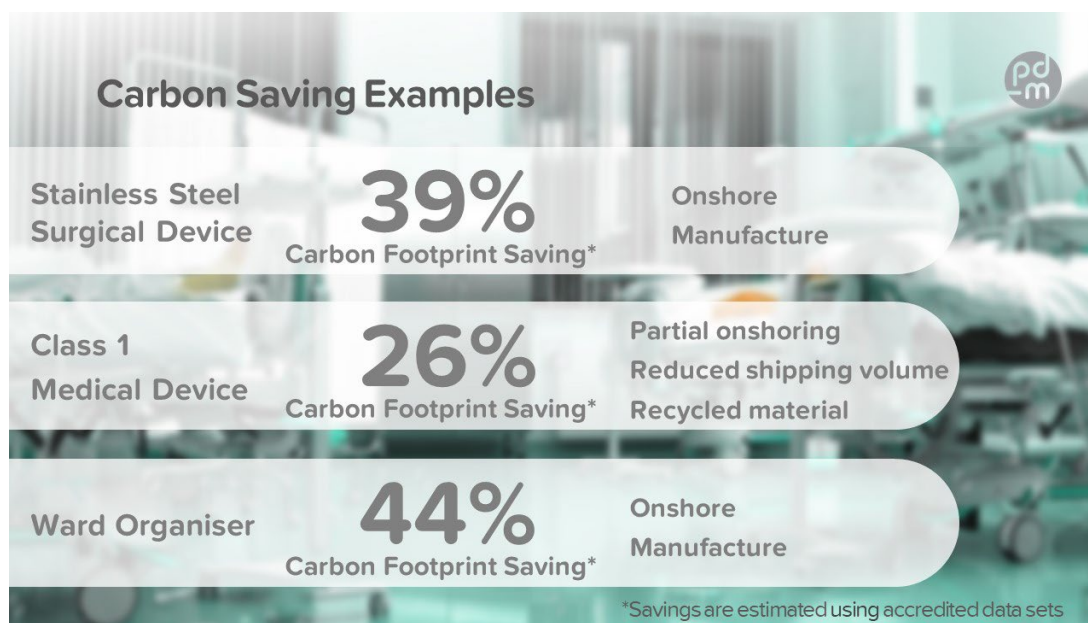
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*Products designed today are those we will account for tomorrow.*

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Measuring the environmental impact of design decisions can be incredibly difficult to quantify. A full ISO level Life Cycle Analysis (LCA) can be a significant undertaking in terms of time, cost, and complexity. Whilst this might be useful as a final verification of a product, it doesn't help designers measure the impact of their decisions dynamically during the development process. This is where sustainable design tools such as carbon and circularity calculators have a real benefit. These allow for quick comparisons to be made on factors including; materials, onshoring as well as production processes. The data they provide at a component level can build into a product carbon footprint and give indications on energy required from manufacturing to delivery. When these tools are coupled with a wider understanding of sustainable design strategies, it's possible to make significant improvements to a product carbon footprint, in turn those reduce overall emissions for the business.

Some indications of carbon savings through various methods can be seen below.



For many the first reaction to the sustainability mandate is that it's just a challenge they don't need. There's no doubt that the regulations involved in medical devices make bringing a device to market hard enough already, to factor sustainability brings a whole new set of considerations into play. The fact is, this agenda isn't going away, and with the healthcare sector responsible for 4-5% of global emissions, if anything, mandates are only going to ramp up. Therefore, there needs to be a pivot in business perspective, to see sustainability as the opportunity that delivers efficiencies and margin benefits at the same time as reducing emissions. For those who positively engage with sustainability, who innovate, who create a competitive advantage and take a leading position, there are significant benefits to be had.

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#### References

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<sup>1</sup><https://www2.deloitte.com/uk/en/focus/climate-change/zero-in-on-scope-1-2-and-3-emissions.html>

<sup>2</sup> <https://ellenmacarthurfoundation.org/news/an-introduction-to-circular-design>

<sup>3</sup> [https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard\\_041613\\_2.pdf](https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf)