

DHI OPERATIONS: CARBON EMISSIONS FOOTPRINT

BASELINE 2024/25

INTRODUCTION

DHI hosted a 4-month Step Up to Net Zero placement (SUTNZ) from December 2024 to end March 2025. This was supported by the Glasgow Chamber of Commerce and funded by Glasgow City Council and the UK Shared Prosperity Fund. The placement was designed to support the organisation to better understand the terminology and processes associated with monitoring and reducing the level of carbon emissions to meet Scotland's Net Zero targets.

"To play our part in tackling the climate crisis, NHS Scotland is aiming to become a net-zero health service by 2040 at the latest."

Humza Yousaf, Cabinet Secretary for Health and Social Care, Aug 2022

A crucial element of the placement was informing the development of a baseline carbon footprint for DHI operations, from which a reductions strategy could be developed and progress monitored. *"Without accurate measurements it is impossible for health and care organisations to manage greenhouse gas emissions (GHG), or to assess the sustainability of sustainability initiatives."*¹

The chosen timeline for the DHI baseline was 1st August 2024 to 31st July 2025 as this represented a full year of DHI operations during the period when the placement was partially in situ. This report provides an overview of the activity progressed and establishes an initial carbon emissions baseline for DHI as at 31st July 2025.

BACKGROUND

Based on guidance from the University of Strathclyde, currently there are 3 main types of GHG emissions;

- **Scope 1** - Direct (Gas and oil; Buildings and facilities)
- **Scope 2** - Indirect (Electricity - *not included in Scope 1, as emissions generated elsewhere*).
- **Scope 3** - Indirect (Emissions from all other activities such as Staff commuting; Business travel; Waste; Water use; Supply chain)

These formed the framework for DHI's approach. The SUTNZ placement advised that for DHI there is no individually identified Scope 1 emissions data, as there is no gas or oil supply in DHI's HQ. Indeed, the Inovo building occupied by DHI is considered a very well performing building from a low carbon emissions perspective. This initial DHI baseline has therefore focused on Scope 2 & 3 emissions.

¹ [Sustainability in the NHS: the criticality of data in achieving net zero](#) | Digital Leaders

CALCULATING DHI OPERATIONS BASELINE

SCOPE 2: INDIRECT - ELECTRICITY USAGE

Following discussions with DHI staff, the Colliers Facilities Management team and the University of Strathclyde sustainability team, it was clarified that the University is responsible for the procurement of electricity for the Inovo building². The following data was obtained from the University of Strathclyde's Sustainability Operations Manager.

As DHI's offices occupy only part of the building, the estimate on electricity usage has been based on the size of the floor area occupied. Colliers advised that the DHI office space is covered by the 1st Floor East electricity meter within the Inovo building, and that the space occupied by the DHI offices represents 29.86% of the lettable space on the first floor.

Table 1: DHI Inovo Electricity Usage	Calculated emissions kg CO ₂ e	Calculated emissions t CO ₂ e ³
AUG 2024	356.4	0.356
SEP 2024	282.1	0.282
OCT 2024	317.0	0.317
NOV 2024	345.9	0.346
DEC 2024	346.9	0.347
JAN 2025	391.7	0.392
Total	2040.0	2.0
Monthly average	340.0	0.3
Estimated annual*	4080.0	4.1

* Estimated annual has used monthly averaged based on Aug-Jan 2025 data

As it has been difficult for DHI to obtain information from Strathclyde for the period Feb 2025 to July 2025, a monthly average has been identified from the previous 6 months and applied to a whole year period. There is a risk that this estimate is inaccurate and further efforts will be made to secure the actual data to inform future calculations.

² No estimates for the Moray Rural Centre of Excellence (MRCE) are included in this baseline.

³ tCO₂e stands for tonnes of carbon dioxide equivalent, which is the single, consistent metric used for measuring and comparing the global warming potential of different greenhouse gases.

SCOPE 3: INDIRECT – OTHER ACTIVITIES

Scope 3 includes all indirect emissions that occur as part of DHI's value chain. Scope 3 emissions are usually the greatest share of an organisation's carbon footprint and generally cover emissions associated with the following 15 categories (Diagram 1).

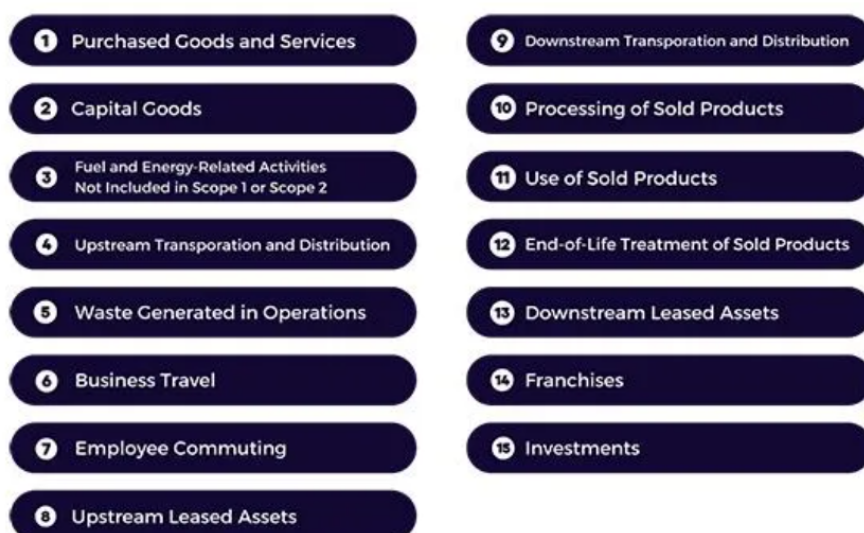


Diagram 1: Typical Scope 3 Emission Categories⁴

There are also additional categories that could usefully be introduced and measured for digital organisations such as DHI, including home working emissions and data storage. Emissions for the following 6 categories have been identified as the most relevant areas to inform DHI's initial baseline.

3.1 Home Working & Employee Commuting

DHI has a significant proportion of home/remote working as part of its routine business operations. The organisation has not previously collected data which would allow for the estimation of time spent working from home/remotely, or information related to commuting. A survey was undertaken in Feb 2025 to obtain information about staff working patterns in order to estimate time spent working from home/remotely, office use and commuting habits for DHI activities. There was an excellent staff response rate to the survey with 37 responses from 40 members of staff. The figures below have been adjusted to reflect total number of staff at Feb 2025.

Table 2: Combined Estimates for Home Working & Employee Commuting (Feb 2025)

Average per employee	Annual (kg CO2e)	422.4	513.9
Estimated for 40 employees	Annual total (kg CO2e)	16897.4	20554.7
Estimated for 40 employees	Annual total (t CO2e)	16.9	20.6

⁴ <https://www.compareyourfootprint.com/difference-scope-1-2-3-emissions/>

3.2 Business Travel

Table 3 summarises DHI's business travel-related carbon emissions for the reporting periods August 2024 to January 2025 and February to July 2025. Total emissions changed from 4.26 tCO₂e in the first period to 8.18 tCO₂e in the second period. This increase appears to be primarily due to the extent of air travel over the second period which accounts for the largest proportion of DHI emissions in both reporting windows. Other travel modes (rail, own transport mileage, taxi hire, and bus travel) remain comparatively small contributors.

Table 3: Overview of Business Travel Emissions Data

Travel Emissions Data:		Aug 24 - Jan 25		Feb - Jul 2025	
Mode of transport		kg CO2e	t CO2e	kg CO2e	t CO2e
TB001 - Rail Travel		499.3	0.5	385.82	0.3858
TC002 - Own Transport Mileage		637.4	0.64	1077.86	1.0779
TI001 - Taxi Hire		65.4	0.07	55.37	0.0554
TC001 - Air Travel		3051.5	3.05	6638.48	6.6385
TO001 - Bus		0	0	24.08	0.0241
Total Co2e		4253.6	4.26	8181.61	8.1816

This equates to Total tonnes of CO₂ equivalent (tCO₂e) contribution of **12.5**.

3.3 Waste Generated in Operations

Two categories of waste which are relevant to DHI have been identified. These are 1) electronic & electrical waste and 2) Inovo office waste.

3.3.1 Electronic and Electrical Waste:

This is generally managed under the University of Strathclyde's Waste Management policy. IT Services advised that equipment is reused where possible, and usually when equipment is replaced it is because it is no longer fit for purpose. The university Waste Electrical and Electronic Waste (WEEE) contractor is then contacted to arrange collection and disposal of non-reusable equipment. IT services estimate that approximately 6 x DHI laptops are replaced as non-reuseable every year. The carbon emissions from laptop disposal or recycling are very low, often reported as less than 1kg CO₂ equivalent per unit. Extending laptop life significantly avoids new manufacturing emissions which are estimated to generate an estimated 200 to 300kg of CO₂. Estimate of carbon emissions for laptop disposal = tCO₂e 6.

DHI's other electrical items relate to the office photocopier, camera/video equipment, 3 x large office screens in Inovo and DSE peripheral devices. Large screen TV's are generally noted to be energy-intensive devices with their carbon footprint estimated by both manufacturing and operational energy usage. Energy usage is included within Scope 2/Table 1, although it is noted that turning screen brightness down can reduce energy usage by up to 20%. The estimated carbon footprint for manufacturing a large screen TV typically falls in the range of 50 – 150kg of CO₂e. Generally DHI's electrical items are deployed until they reach end of life with an estimated 5 year lifecycle (3 x 100kg of CO₂e) ÷ 5 = 60.

The extent of DHI's annual electronic and electrical waste has been estimated at **Total t CO₂e of 66**.

3.3.2 Office/Events Waste:

Discussions have taken place with the Strathclyde facilities management team to determine how it might be possible to practically assess quantities of DHI office waste. It would not be feasible for the Inovo building waste contractor ENVA to collect DHI's waste separately within the waste storage area in the building, therefore, any measurements would need to be carried out before the waste leaves the DHI office.

DHI office waste is removed twice a week by the cleaning team, and DHI would require to manually weigh this in advance of it being removed to accurately assess emissions. The nature of DHI's operations and the extent of home working would make this impractical on an ongoing basis.

It has been estimated that DHI office waste is predominantly generated through the events that it holds in the office. Therefore an events waste and carbon impact tracker has been developed and populated with information from the systematic recording of all in-office events involving catering held in October and November 2025.

During the monitoring period, five catered office events were recorded. Across these events, approximately 23.9 kg of waste was generated, primarily food waste and general waste. This resulted in estimated emissions of 0.79 kg CO₂e for the period measured, equivalent to **0.79 tCO₂e**.

Table 4: Estimated Carbon Emissions associated with DHI Office Events

Event	Date	Total participants	Food waste (kg)	General waste (kg)	Total waste (kg)	Estimated CO ₂ e (kg)
Masters Induction	08/10/2025	42	3.6	3.2	6.8	0.44
Social Care Workshop	06/11/2025	14	2.87	1.18	4.05	0.04
DigiInventors Bootcamp – Day 1	17/11/2025	30	3.4	1.7	5.1	0.12
DigiInventors Bootcamp – Day 2	18/11/2025	32	3.2	1.4	4.6	0.06
KAMK Finland Delegation	25/11/2025	16	2.11	1.26	3.37	0.12
TOTAL						0.79

Based on total attendance, this equates to an average of approximately 0.18 kg of waste per person, with associated emissions of approximately 0.006 kg CO₂e per person. This per-attendee figure provides an initial baseline metric for events-related waste.

For the purposes of inclusion within the 2024/25 carbon emissions baseline, the measured emissions from the October–November 2025 monitoring period have been used to estimate an annual equivalent based on event frequency. Assuming an indicative equivalent of around 20 catered in-office events per year, and a similar waste profile to those recorded during the monitoring period, events-related office waste is estimated to contribute approximately **3.2 kg CO₂e per annum, i.e. tCO₂e = 3.2**.

3.4 Water Usage

Information on water usage has been requested from the University of Strathclyde facilities management and from our water supply company, but no information has been received to date.

3.5 Purchased Goods & Services

The types of goods and services purchased by DHI include Comms & Marketing materials, software licenses, software development, events catering. Further detail on purchased goods and services will be included as a new area of activity to be reviewed, and to identify what clauses relating to contributions to Net Zero are included as part of procurement requirements to better influence DHI's supply chain management policies.

3.6 Data Storage

With the increasing use of digital devices as fundamental to DHI's operating model with associated data storage requirements this will be an important future aspect of its carbon emissions. This can be informed by auditing current data volumes across the estate, which will be complicated by DHI staff employed and provided with electronic equipment and storage facilities by different organisations. The introduction of artificial intelligence within future operational aspects is assumed to bring additional carbon emissions considerations due to extensive data storage requirements.

SUMMARY

Establishing an initial baseline for DHI's carbon emissions has been complex, frustrating and time-consuming. Different degrees of relevant data were available, and different methodologies have been deployed to provide estimates. On the positive side, this has resulted in an increased understanding of the language and monitoring mechanisms currently being used to inform the establishment of an organisations carbon footprint.

The initial baseline is set out in Table 5 below and is acknowledged to very likely be an inaccurate estimate of DHI's carbon emissions. However, it can be regarded as a useful springboard to inform future action. The highest contributors to carbon emissions are associated with estimated electronic waste (est. 62% of emissions) and home working/staff commuting (est. 19% of emissions). Both require to be analysed in further detail.

Table 5: DHI Carbon Emissions Baseline 1st August 2025 (2024/25)

SCOPE	Activity	t CO2e Baseline
SCOPE 2 INDIRECT	Electricity Usage (Inovo)	4.1 (4%)
SCOPE 3 INDIRECT	Home Working & Staff Commuting	20.6 (19%)
	Business Travel	12.5 (12%)
	Electronic & Electrical Waste	66.0 (62%)
	Office/Events Waste	3.2 (3%)
	Water Usage	tbc
	Purchased Goods & Services	tbc
	Data Storage	tbc
TOTAL Annual t CO2e 2024/25		106.4

RECOMMENDATIONS

These recommendations are designed to provide a realistic starting point on DHI's carbon reduction journey. DHI's approach to carbon emission reduction should not include any carbon offsetting to focus effort on activities which prioritise what it can do directly to minimise emissions.

Scope 2 is considered an area which is relatively well performing and not one where DHI can exert influence to support any significant improvement (it could consider the implications of turning off the large screen TV units in the office and ensuring any other electrical equipment is switched off when not in use).

It is recommended that DHI focus its attention over the next 12 months on improving its understanding and performance on Scope 3 Indirect Emissions as outlined below.

Recommendation	Timeframe (Short/Medium/Long)*
Scope 2: Complete Actual Electricity Usage Figures Feb 25 – July 25	Short
Develop Low-Carbon Home Working Guidance	Short
Develop Sustainable Business Travel Guidance	Short (see appendix)
Undertake Research to inform Digital Footprinting	Medium (see appendix)
Research & develop DHI Data Storage Guidance	Medium
Implement Electronic & Electrical Equipment Replacement Policy	Short (see appendix)
Analysis of Purchased Goods & Services 2025/26	Short
Undertake Review of DHI Carbon Emissions 2026/27 by end March 2028	Medium
Continue Knowledge Sharing Activities to enhance learning	Ongoing

**Short (1 year), Medium (2-3 years), Long (5+ years)*

Digital Footprinting: It is noted that there are no current 'digital' dimensions in any of the typical emission categories, other than estimates relating to ICT replacement. While energy efficiency is improving all the time, the rapid growth in data demand and digital equipment has the potential to add to emissions unless we specify lower carbon digital products and services. For example, the increasing establishment of large data centres to support the expanded use of artificial intelligence (AI) has associated raw materials costs and water usage to cool servers.

This is an area where DHI could play an important role. Further research is being planned to map Scotland's digital health and care activity relating to sustainability and Net Zero to inform DHI's approach on this. In addition, the development of advice to the DHI wider team on how we might assess and reduce our current digital footprint e.g. data storage management guidelines could also progress.

Purchased Goods & Services Category:

DHI will undertake a more detailed analysis of this category for 2025-26 expenditure to better understand our current approach and explore options to improve in this area. This may then inform a future recommendation around favouring suppliers that provide circular economy options (refurbish, take-back schemes etc.), Environmental Product Declarations (EPD's) and energy efficient devices.

Appendix 1: Overview of Key Guidance Documents

Sustainable Business Travel Guidance:

To support improved data quality and greater accuracy in future reports, a DHI Sustainable Business Travel Policy will provide updated guidance and will be issued to all staff. This will clarify additional details required when completing travel and subsistence claims on FMS, including:

- What information must be provided when submitting expenses
- How to correctly record travel modes and distances
- What travel card or booking data must be captured
- Any additional details required to ensure emissions can be calculated consistently

This guidance will help ensure DHI has complete and reliable information for all business travel activity across the organisation, enabling better forecasting, compliance and environmental reporting going forward. *(Insert link to guidance)*

Low-Carbon Home Working Guidance:

Over the next year, DHI will take a coordinated approach to reducing carbon emissions by embedding more sustainable working and travel practices across the organisation. This will include maintaining flexible and home working arrangements to minimise commuting, adopting a virtual-first approach to meetings, and encouraging the use of low-carbon travel options while reducing travel frequency through better planning of in-person activities. Alongside this, DHI will promote energy-efficient home working behaviours and prioritise digital and low-carbon equipment choices to reduce indirect emissions. These actions will be supported by clear guidance, improved data capture, and ongoing staff engagement, enabling more accurate reporting and continuous improvement in line with DHI's Net Zero commitments.

Digital Footprint Guidance:

To reduce the environmental impact of its digital activities, DHI will adopt a more sustainable approach to data management, digital infrastructure, and everyday digital practices. This includes working with host institutions to improve the efficiency of digital systems, implementing responsible data storage and retention practices, and prioritising energy-efficient and longer-lasting digital equipment. Staff will be encouraged to adopt low-impact digital behaviours, such as reducing unnecessary data storage, managing files efficiently, limiting large email attachments, and using digital tools more consciously. Together, these actions will help minimise DHI's digital carbon footprint while supporting effective and innovative ways of working.

Electronic & Electrical Equipment Guidance:

DHI will adopt a rolling 5 year replacement programme for laptops, 5 year upgrades of Surface Hubs and deploy camera equipment until obsolete.