



Gwasanaeth Ynni
Energy Service

Primary Care in Wales

**A carbon footprint assessment of estimated emissions for
primary care contractors in Wales**

June 2024

About the Welsh Government Energy Service

The Energy Service supports community and public sector organisations in Wales to develop energy efficiency, renewable energy and low-emission vehicle projects that will lower carbon emissions and provide cost savings, income generation and wider community benefits.

The Energy Service provides technical, commercial and procurement support through a team of experts with extensive experience in developing energy projects in Wales.

Analyst	Ben Robertson
Author	Anthony Dale
Peer Review	David Powlesland

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Executive Summary

Primary care accounts for over 90% of people's contact with the NHS in Wales and as such it is a critical aspect of the healthcare sector. Primary care relates to services provided as the first point of care. In Wales, there are 1,951 contractor sites that deliver primary care services via **General Practitioners (GP) practices, community pharmacies, community dental and community optometry practices**. Primary Care contractors are commissioned by health boards to provide NHS services in line with tripartite contract agreements annually. Funding for primary care delivered NHS services is paid for by NHS Wales via health board allocations.

NHS Wales is committed to tackling the climate emergency and, through strong legislative support at the Welsh Government level, has ambitious targets for decarbonisation. Up until this point the carbon footprint of primary care in Wales has not been understood. Building on the 2018/19 carbon footprint for NHS Wales, this report seeks to estimate an initial, high-level carbon footprint for the four primary care contractor groups in Wales, and better understand the proportion of NHS Wales purchased goods and services emissions attributable to this specific part of the health system. This footprint represents the first step to identifying the highest emissions areas in what will be an iterative process to guide and improve the understanding of primary care emissions in Wales over the coming years.

This assessment is a desk-based study to estimate the carbon footprint of the primary care sector from centrally available data. The scope did not extend to directly engaging with or collecting data from primary care providers to accurately define each provider's emissions or define the overall total. The outputs from this work provide an initial estimate of emissions, and due to the paucity of primary data, caution should be taken when interpreting the results.

For primary care buildings in Wales, we used a register of all primary care sites based on available Welsh Government and NHS Wales Shared Service Partnership (NWSSP) data. To calculate the carbon footprint, Display Energy Certificate (DEC) data was used to estimate the energy consumption. Results were then extrapolated across sites without available data using averaged DEC kWh/m² benchmarks. Using UK Government emissions factors, the [scope 1 and 2 emissions](#) were estimated based on the estimated energy use. Through consultation with NHS Wales Shared Services Partnership (NWSSP), the procurement spend for primary care across the 7 NHS Wales health boards has also been assessed to determine the associated [scope 3](#) emissions from the procurement of primary

care goods and services. The emissions calculation approach utilised is closely aligned with the Welsh Public Sector Net Zero Reporting Guidelines.

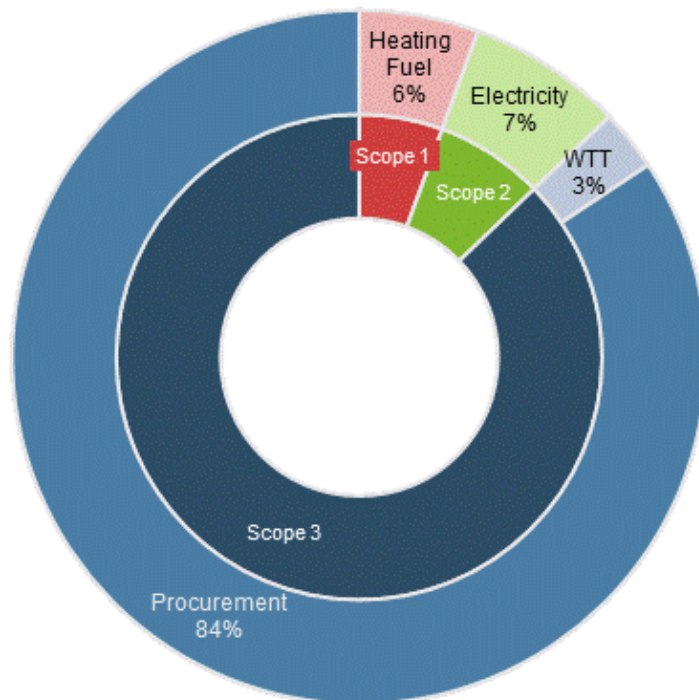
The carbon footprint attributable to primary care contractors providing NHS healthcare in Wales for the reporting period of financial year (FY) 2022/2023 is estimated to be **227,627 tCO₂e**. This footprint is broken down as follows:

- **Scope 1 emissions of 12,673 tCO₂e (5.6%),**
- **Scope 2 emissions of 16,479 tCO₂e (7.2%),**
- **Scope 3 emissions 198,474 tCO₂e (87.2%).**

The following chart shows the scope 1, 2, and 3 emissions proportions and the split for the type of use. Key insights from the carbon footprint assessment are as follows:

- Procurement emissions are the most significant at 84% (note that these are highly estimated)
- Procurement emissions assessed were identified against £1,248m of spend
- Building emissions are evenly split between fossil fuel heating fuels (mainly natural gas) and purchased electricity
- Building emissions are ~33% attributable to GP, ~31% to pharmacies, ~19% to optometrists, and ~17% to dentists
- Of 165 sites with DEC's (excluding GPs), only 14 were found to have solar PV assets

Overview of emissions



Through undertaking this assessment, a number of recommendations have been identified to improve accuracy and understanding of primary care emissions, and ultimately support decarbonisation efforts across the sector. The table below shows our key recommendations which are numbered to link recommendations listed throughout this report.

These recommendations have been included for Welsh Government consideration and prioritisation on how best to take forward, along with wider stakeholders yet to be engaged, as part of the next steps in supporting the decarbonisation of health and social care in Wales.

Ref	Topic	Recommendation	Responsibility
1	Stakeholder engagement	Communicate the footprint, alongside basic carbon literacy resources, to primary care service providers to increase their understanding of emissions and awareness of NHS Wales's ambitions and build momentum for the net zero transition.	WG / Wider Stakeholders
2	NWSSP spend data	Work with NWSSP and finance personnel across NHS Wales health boards to gain a better understanding of primary care procurement spend, and how this spend is allocated in centralised finance software.	WG / NWSSP / Wider Stakeholders
3	Supplier engagement	<p>Scope 3 procurement related emissions are highly estimated, both for NHS Wales overall and the primary care procured goods. Progress to engage NHS Wales suppliers to understand market based emissions should be tracked and incorporated into future primary care emissions assessment (e.g. pharmaceutical supplier company and product reported emissions attributable to NHS Wales and/or primary care). NWSSP is undertaking a market based reporting exercise, this should be assessed to understand the outcomes and the level of engagement from primary care contractors. Further, learnings and good practice from NHS England's supplier routemaps and assessment tools should be considered. Progressing market based reporting will also support Welsh Government aims through its <i>Welsh Procurement Policy Notes for decarbonisation through procurement</i>.</p> <p>Through engagement with suppliers, alongside the aim to collect market based emissions data, NWSSP and health boards should encourage suppliers to decarbonise by sharing NHS Wales's decarbonisation ambitions, and signpost providers to further decarbonisation support and</p>	WG / NWSSP / Wider Stakeholders

		opportunities, such as through Business Wales and the Development Bank of Wales.	
4	Contractor engagement	Explore opportunities to strengthen market-based reporting to improve the accuracy of the carbon footprint. Although not all sites will be able to provide high-quality data, the accuracy of the footprint will improve the more data is collected.	WG / Wider Stakeholders
5	Primary care working group	Consider the role of a primary care provider working group to help develop and continually monitor future carbon footprint assessments and market based reporting.	WG / Wider Stakeholders
6	Data collection	The scale of extrapolation from the lack of DEC's was significant (~88%) – it is proposed targeted survey work be undertaken to understand compliance with DEC's, and to ask for data.	Wider Stakeholders
7	Data management	Promote the use of Unique Property Reference Numbers (UPRNs) to create a detailed asset registry for primary care sites. This information may be difficult to attain for some properties due to complex ownership models.	Wider Stakeholders
8	Performance metrics	With improved carbon footprint data for buildings and providers, consider how best to measure progress over time, and seek to engage directly with the largest emission providers.	WG / Wider Stakeholders
9	Scope 3	Widen scope 3 emissions categories, with a focus on transport and waste to capture activities such as staff commuting, patient/visitor travel, overprescribing and recycling which are likely to have a higher material impact than other categories (i.e. water).	WG / Wider Stakeholders

This assessment represents the first step in determining a carbon footprint for primary care in Wales. This high-level report has been conducted to assist Welsh Government in gaining a better understanding of the scale of the emissions from this sector. Therefore, caution should be expressed when interpreting the results, but it is hoped that this report can provide a foundation from which to build in future years.

Background

The climate emergency in Wales

The UK Climate Change Act formally committed decarbonisation targets into UK law in 2008. This was later enacted within Welsh legislation in the Environment (Wales) Act in 2016. These legislations have set the groundwork for numerous policy decisions and more recent legislation to combat the anthropogenic rise in carbon emissions at both the UK and devolved Welsh national level.

In 2019, the Climate Change Committee (CCC) recommended a new emissions target for the UK to emit net zero greenhouse gases by 2050. In addition, the Well-Being of Future Generations Act (2015) requires public bodies to account for the impact of today's decisions on future generations.

In April 2019, the Welsh Government declared a climate emergency. Wales has a legally binding target to deliver net zero carbon emissions by 2050 and the ambition of a net zero public sector by 2030.

These targets will drive a decisive shift away from fossil fuels and a reduction in carbon emissions. Wales is committed to maximising the wider benefits of the transition to a low-carbon economy, ensuring a fairer and healthier society for all.

The Welsh Government published its Net Zero Wales Carbon Budget 2 (2021 – 2025), its second statutory decarbonisation plan in October 2021. This describes the policies and approach the Welsh Government intends to take and proposes policies and actions for the longer term.

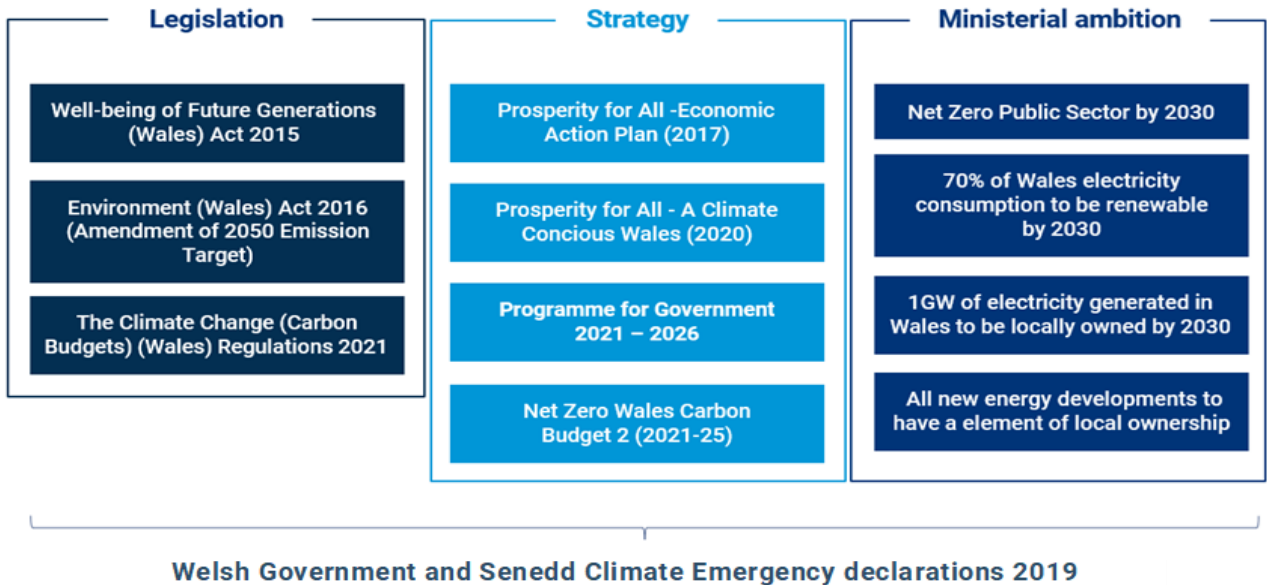


Figure 1: Legislation and key drivers for decarbonisation in Wales

The Welsh Government has also set a target for the public sector within Wales. ‘*The Net Zero Carbon Status by 2030 routemap for decarbonisation across the Welsh public sector*’ provides a strategic overview of the priority areas for action, and milestones needed, for the Welsh public sector to collectively reach net zero by 2030. The framework is intended to support public sector organisations in the development of their own strategic plans setting out a three-staged journey towards net zero:

**Moving up a gear
2021–2022**

Where understanding the context and what needs to be done is vital, and where action needs to accelerate.

**Well on our way
2022–2026**

Where there is an expectation that low carbon is becoming the norm and we are definitely on the way to a net zero Welsh public sector.

**Achieving our goal
2026–2030**

Where choosing zero carbon has become routine, culturally embedded, and self regulating.

Figure 2: Welsh public sector net zero routemap stages

Public sector organisations in Wales fall under the target of a net zero public sector by 2030, this includes NHS Wales and its primary care supply chain. However, for private sector primary care contractors themselves, as they may also undertake commercial or private activity on their premises, they are only directly subject to the wider Wales 2050 target for net zero. It is, however, recognised that they have a vital contribution to make in supporting NHS Wales in its efforts to achieve collective public sector net zero by 2030.

The Welsh Government has also launched the *Welsh Public Sector Net Zero Carbon Reporting Guide*. This sets out how emission reporting will be undertaken, including procured primary care services where they fall under the control of health boards. The guidance will evolve and require further engagement and data sharing between suppliers and public sector commissioners. This is backed up by the Welsh Procurement Policy Note for decarbonising procurement, which strongly advocates supply chain engagement.

NHS Wales Context

Following the actions taken by the Welsh Government at a public sector level, in 2021 NHS Wales produced its Decarbonisation Strategic Delivery Plan, which outlined the key actions that NHS Wales will take between 2021 and 2030 to reduce the emissions from its operations. However, whilst health board delivered (co-located) primary healthcare falls within the Strategic Delivery Plan (SDP), and the supporting NHS Wales Carbon Footprint, contracted primary care services do not. Welsh Government, therefore, now wants to take the first steps to more specifically explore decarbonisation of the primary care sector.

This work is a desktop assessment of the estimated emissions from the sector – including emissions from General Medical Services (GPs), Community Pharmacy Services, Primary Care Dental Services, and Community Optometric Services (see [Project scope](#) for more detail).



Figure 3: NHS Wales Decarbonisation SDP (with link)

Primary Care in Wales

Primary care strategy overview

Within the healthcare setting, primary care relates to services provided as the first point of care. These services are delivered primarily within **general practice sites, community pharmacies, community dental and community optometry practices**. This is separate from secondary healthcare, which is most commonly carried out under the care of a specialist in a hospital setting. Primary care accounts for over 90% of people's contact with the NHS in Wales¹. As set out in the Welsh Government's plan for health and social care in Wales: 'A Healthier Wales', the primary care model for Wales aims to put people at the centre to make sure the right care is available from the right source at the right time². This model³ focuses on:

- Service developments based on demand; planning and transformation is led through coordinated local care teams.
- The promotion of healthy living by making well-being less of a medicalised term.
- Service planning and delivery across local communities.
- A more preventative, proactive and coordinated care system which includes general practice and a range of services for communities.
- A whole system approach that integrates health, local authority and voluntary sector services and is facilitated by collaboration and consultation.
- Care for people that incorporates physical, mental and emotional well-being, which is linked to healthy lifestyle choices.
- Integrated and effective care on a 24/7 basis, with priority for the sickest people during the out-of-hours period.
- Creating stronger communities by empowering people and giving them access to a range of assets, ranging from access to debt and housing advice, to social prescriptions for gardening clubs and the leisure centre.
- Advice and support to help people remain healthy, with easy access to local services for care when it is needed.
- Strong and professional leadership across sectors and agencies to drive quality improvement.
- Technological solutions to improve access to information, advice and care, and to support self-care.

¹ [Primary Care Roles in Wales - Primary Care One \(nhs.wales\)](https://www.nhs.uk/primary-care-roles-in-wales/)

² [A healthier Wales: long term plan for health and social care | GOV.WALES](https://gov.wales/a-healthier-wales-long-term-plan-for-health-and-social-care/)

³ primarycareone.nhs.wales/files/pacesetter-projects-2018-2020/primary-care-model-for-wales-pdf/

The [Strategic Programme for Primary Care \(SPPC\)](#) is an All-Wales Health Board-led programme that works in collaboration with Welsh Government to bring together and develop all previous primary care strategies and reviews at an accelerated pace and scale, whilst addressing emerging priorities highlighted within [A Healthier Wales \(2018\)](#). The programme is made up of six themes under which local initiatives and potential solutions are implemented to continually improve primary care services in Wales:



Figure 4: The six categories of the Strategic Programme for Primary Care (SPPC)

Sustainability in Primary Care

Alongside the SPPC, sits the [Greener Primary Care Wales Framework and Award Scheme](#) to assist primary care providers to meet the sustainability ambitions of the wider sector. This framework, launched in 2022, was created by the primary care division, Public Health Wales, and is fully aligned with the aims and objectives of the NHS Wales SDP. It aims to help primary care contractors improve their sustainability and environmental impact. The scheme allows individual practices to achieve a bronze, silver or gold standard as they implement certain actions that mitigate their environmental impact.

Methodology

Objectives

The primary objective of this commission was to estimate the carbon footprint of primary care in Wales for the following services: General Medical Services (GPs), Community Pharmacy Services, Primary Care Dental Services, and Community Optometric Services. This assessment has been conducted as a desktop exercise, supplemented with insights from a small group of key NHS Wales stakeholders (e.g., primary care leads in WG, NWSSP).

Project scope

The following areas of primary care are within the scope of this study:

- Emissions associated with buildings with an NHS contract that provide general medical services, community pharmacy services, primary care dental services, and community optometric services which are outside of secondary care sites.
- Contractual procurement spend for the 7 NHS Wales health boards managing each of the primary care contracts.

The following areas are outside of the project's scope:

- Emissions from commercial primary care businesses without an NHS contract.
- Emissions from secondary care and from buildings that may provide primary care but are not classified under the 4 main primary care services listed above.
- Procurement spend on primary care from NHS trusts or public bodies outside of the 7 NHS Wales health boards.
- Fleet emissions.
- Scope 3 emissions outside of procurement of goods and services and upstream fuel and energy related activities (see [carbon accounting](#) for more detail).

Engagement

The scope of work did not extend to engagement or data collection from the wider sector, however, a small working group was established to support the carbon footprint exercise. This included public sector representation from Welsh Government policy leads and

NWSSP. The scope of work did not cover wider engagement to multiple stakeholder groups, including the front-line primary care contractors or their representative bodies.

The stakeholder group supported the methodology and assumptions around the work (for instance, boundary setting with NHS Wales emissions) and provided review/feedback during the final report review.

Primary care emissions limitations

Primary care is an extensive sector that has numerous complexities and interactions with other healthcare, private and commercial services. These complexities have contributed to challenges in undertaking detailed analysis. The scope of this desktop assessment has been to use existing available data to give an *estimate* of emissions only.

This assessment faced several challenges when using available data to calculate emissions. For example, pharmacy and optometry that have both NHS and commercial elements to their business model, dental practices that may conduct both private (out of scope) and NHS dentistry (within scope), or the procurement emissions that all primary care contractors may generate from spending that is not accounted for via NWSSP (i.e. frames for optometry, shampoo for pharmacy, or any premises purchasing tea and coffee for staff rooms). It is not possible to distinguish between scope 1 & 2 emissions for NHS activity and scope 1 & 2 emissions for non-NHS activity. Therefore, scope 1 & 2 emissions reported refer to the total energy consumption of all buildings that carry out any NHS contracted primary care services, regardless of their funding structure.

Future iterations of the primary care footprint could investigate these nuances more fully; however, it should be noted that this is likely to be very challenging and will need direct stakeholder engagement alongside considerable financial and time resource to investigate.

Carbon Accounting

The Greenhouse Gas (GHG) Protocol provides a comprehensive, and globally used framework standard for measuring and managing emissions from private and public sector operations, value chains, products, cities, and policies. The GHG Protocol is recognised by the UK Government as an independent standard for reporting greenhouse gases and provides the basis of numerous schemes requiring emissions calculations. The GHG Protocol divides emissions into three Scopes.

- **Scope 1:** Direct emissions from combustion of gas and other fuels
- **Scope 2:** Emissions resulting from the generation of electricity and other energy purchased
- **Scope 3:** Emissions made by third parties in connection with operational activities

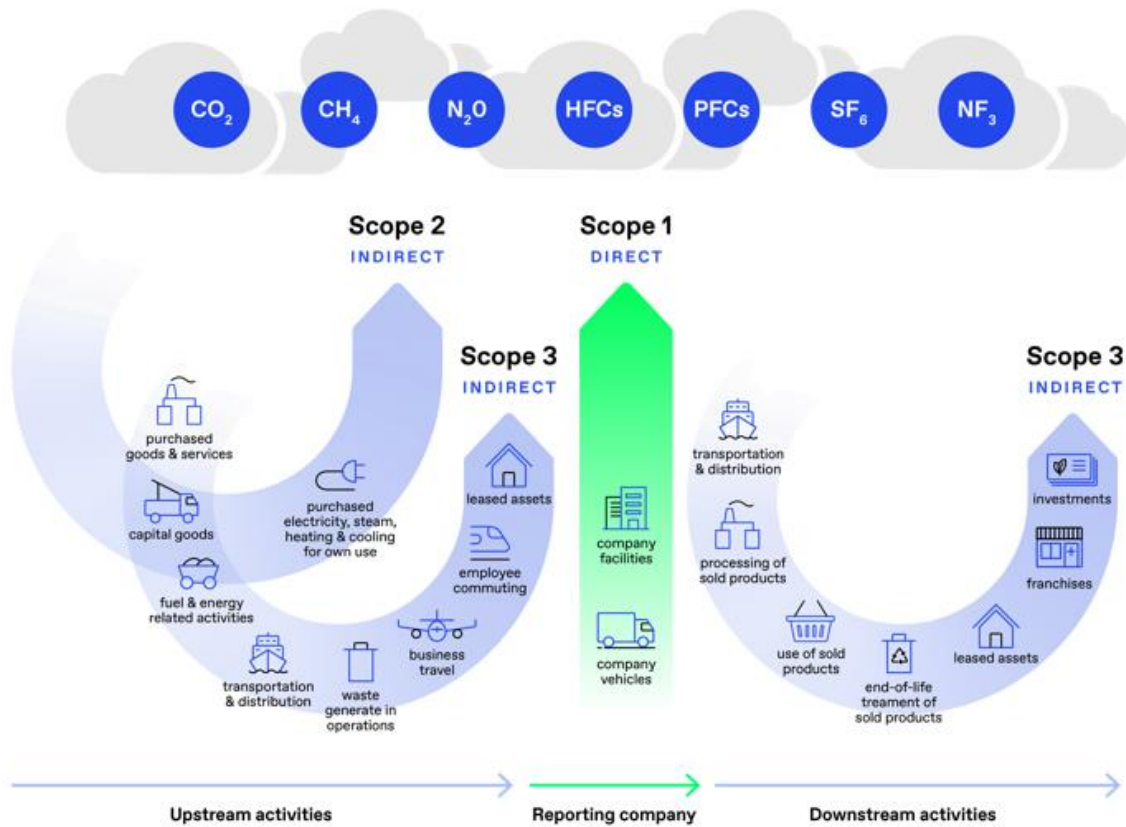


Figure 5: GHG Protocol carbon emissions scopes

Figure 6 provides a visualisation of the emissions footprint boundary for this study. Emissions are categorized by Scope and are named in line with the GHG Protocol emission types. Notably, the majority of emission types considered outside of the Footprint Boundary (shown in grey) are ‘Scope 3’ emissions.

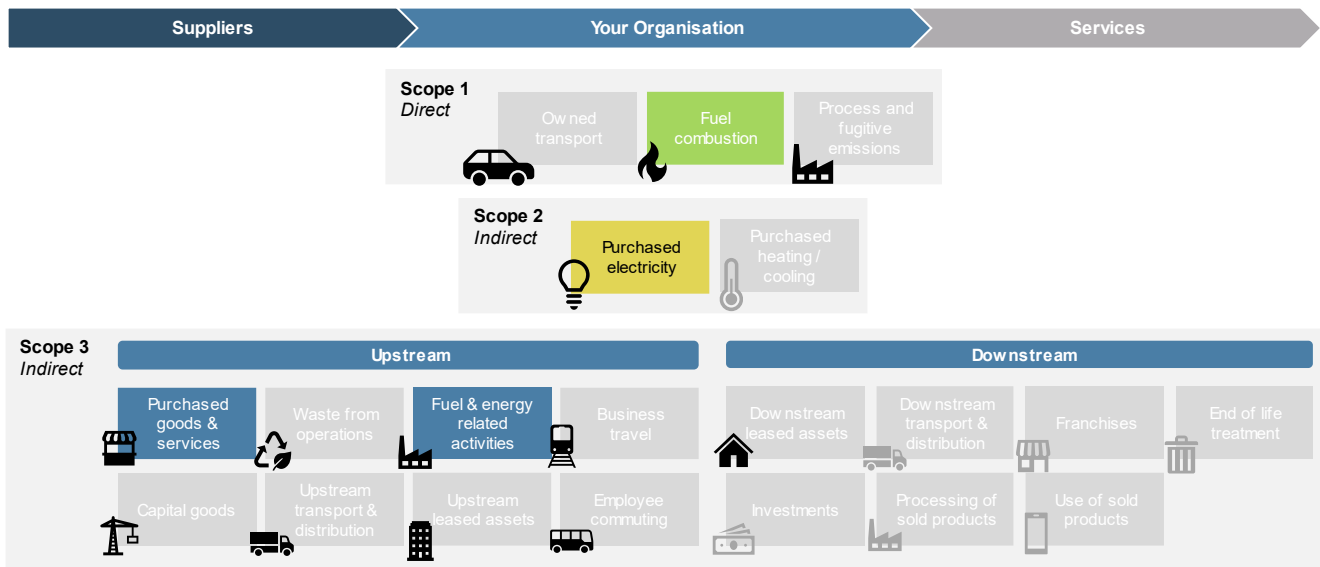


Figure 6: GHG Categories within project scope

Scope 1 and 2 data collection

In the initial scoping phase of the project, Welsh Government agreed the scope of the work would be limited to the four main contracted services to represent the primary care footprint:

- General Medical Services (GPs)
- Community pharmacy services
- Primary care dental services
- Community optometric services

Sources of data

To facilitate the calculation of the scope 1 & 2 footprint, Energy Performance Certificate (EPC) and Display Energy Certificate (DEC) data was used to match energy consumption attributes to NWSSP's lists of primary care contractors. The sources of data are described in the table below.

Table 1: List of data sources and how they were used

Name	Description	Attributes provided	Coverage
Non-domestic energy performance certificates (EPC) ⁴	Shows the energy efficiency rating (relating to running costs) of a commercial property. Updated Dec 2023	Floorspace, heating fuel, EPC rating, presence of air-con	50% of primary care sites matched to an EPC record

⁴ <https://epc.opendatacommunities.org/> - (EPC and DEC data)

Display energy certificates (DEC)	Energy efficiency rating based on the actual annual energy use of a building. Updated Dec 2023	Floorspace, heating fuel, EPC rating, thermal and electrical energy use, presence of solar PV	10% of primary care sites matched to a DEC record
NHS Wales Shared Services Partnership (NWSSP)	List of primary care contractor sites for each of the four primary care categories. Updated April 2023	Use type, NHS health board contracted to	There are 1,772 NWSSP sites in total.
Welsh Gov's (WG) assessment of GPs	Comprehensive list of GPs with an NHS contract.	Floorspace, NHS health board contracted to	There are 557 sites in total.

Data processing

The list provided by NWSSP represents most primary care contractors within the scope of this study and is the most complete source of data for community pharmacy, primary care dentists, and community optometry. In the case of GPs, a more extensive survey-based assessment has recently been carried out by WG to provide more accurate GP numbers than the NWSSP list. See Table 2 for more information.

Due to the absence of a unifying ID, records from NWSSP source were matched to EPC & DEC using the property address, and the *FuzzyLookup* Excel function. *FuzzyLookup* produces a similarity score based on an exact match field (the postcode) and an approximate match field (first line address). A similarity score between 0.7 and 1 was deemed a close enough match for this analysis.

The final address-level database has a total of 1,951 primary care practices in Wales. The table below shows the number of each primary care type by source.

Table 2: Number of primary care sites by data source. NWSSP hold a list of all primary care contractors delivering NHS services commissioned by the health board.

	NWSSP premise list	WG premise assessment
Number of GP premises	378	557
Number of dental premises	364	-
Number of optometric premises	322	-
Number of community pharmacy premises	708	-

The shortfall of GP premises suggests the NWSSP list underestimates the total number of primary care contractor sites. As part of this exercise, a further 780 primary sites were identified using a different data source – OS AddressBase. However, this source includes

commercial primary care businesses without an NHS contract as well as vacant premises – AddressBase sites are therefore excluded from this analysis. For future iterations of the primary care footprint, the Welsh Government assessment for GPs should be replicated across other areas.

It was not possible to match GPs to EPC/DEC records. Of the 1,394 remaining NWSSP sites, 138 had both an EPC and a DEC match, 690 had an EPC match only, and 27 had a DEC match only, leaving 1,096 primary care contractors (including GPs) with no EPC or DEC. EPC attributes were extrapolated to estimate the heat technology and energy performance rating (A-G) of the remaining 1,096 properties. The rates of known heating technologies and performance ratings for each primary care type were applied to the remaining properties.

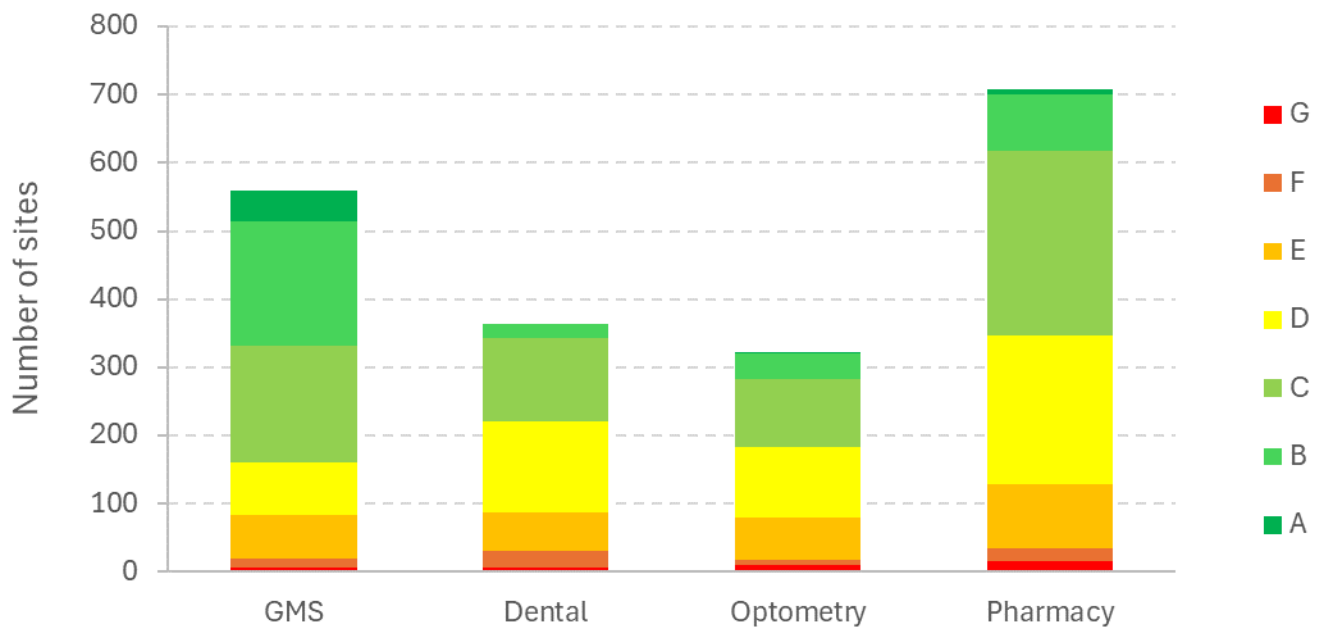


Figure 7: Number of sites at each energy rating, split by primary care sector

Floor area was also estimated where data was missing using the building aerial satellite image area. This figure can be much larger than the true floorspace, thus the following limits were applied:

- Average height of a ceiling is 2.8m
- Maximum number of floors a practice can occupy is 3
- Floorspace cannot be greater than double the average floorspace (in the EPC data) for the primary care type

- Where there is no image area, the average EPC floorspace for the primary care type is assigned

Scope 1 & 2 Footprint Calculation

Scope 1 & 2 carbon footprints were calculated for each site using the below formulas.

$$\text{Scope 1: Floorspace (m}^2\text{)} \times \text{Thermal fossil fuel use benchmark (kWh/m}^2\text{)} \times \text{Fossil fuel carbon factor (kgCO}_2\text{e/m}^2\text{)}$$

$$\text{Scope 2: Floorspace (m}^2\text{)} \times \text{Thermal and other electricity use benchmarks (kWh/m}^2\text{)} \times \text{Electricity carbon factor (kgCO}_2\text{e/m}^2\text{)}$$

Thermal and electrical energy benchmarks were obtained using DEC consumption data for primary care type proxies. One of the main differences between EPCs and DEC data is the notation of annual fuel consumption – DEC data record real data from the last three years and therefore energy benchmark proxies can be used where data was not available. The table below shows the average energy benchmarks from DEC data for Wales.

Table 3: Consolidated energy benchmarks from DEC data, split by primary care type and EPC rating

Primary care type	Energy performance band	Thermal energy use (kWh/m ²)	Other electricity use (kWh/m ²)
GP	A-C	123.1	54.8
GP	D-G	226.9	73.5
Dentist	A-C	117.3	56.3
Dentist	D-G	190.6	76.5
Optician	A-C	104.0	67.5
Optician	D-G	191.8	71.9
Pharmacy	A-C	104.3	49.6
Pharmacy	D-G	194.4	73.7

The results in the table above were sense checked against other industry benchmarks researched online. The Chartered Institution of Building Services Engineers (CIBSE) report

a thermal use range of 94-198 kWh/m² and 61-71 kWh/m² electrical use for health centres and primary health care buildings.⁵

2022 UK Government carbon factors were used for the reporting FY 22/23.⁶

Scope 3

To estimate the emissions from the majority of Scope 3 categories would require direct engagement and place additional burdens on primary care providers to a significant level and was therefore outside the scope of this project. The majority of scope 3 emission categories have, therefore, been excluded from this report. It is recommended that these additional emissions sources are incorporated into future emission calculations and reporting requirements for the primary care sector. However, it has been possible to estimate the emissions from upstream fuel and energy related activities and procured goods and services.

The emissions from upstream fuel and energy related activities have been estimated for primary care in this report. The UK Government's 2022 carbon emission factors have been applied to the energy outputs from the estimated energy use metrics outlined in the previous section. These scope 3 emissions are reported in the carbon footprint section.

Through engagement with NWSSP the procurement spend related to primary care was analysed. Primary care was, again, defined as general medical services (GPs), community pharmacy services, primary care dental services, and community optometric services. The data collection method followed the below steps:

Step 1: The data was collated over the financial year 2022/2023 for each of the 7 health boards using the NWSSP_Invoices Repots QlikView dashboard.

Step 2: The invoices dataset was refined further for primary care using the "PCS" Primary Care Service Supplier site. This allowed the creation of a 'Primary Care Services Feed Only' dataset of spend.

Step 3: The resulting dataset from step 2 was then further differentiated by standardising the suppliers with a PCS supplier site, which have been noted as

⁵ <https://www.cibse.org/knowledge-research/knowledge-resources/knowledge-toolbox/benchmarking-registration>

⁶ <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022>

primary care providers. This created what has been termed a 'Primary Care +' dataset.

Step 4: The supplier SIC codes were assigned to each supplier in the datasets, using data from Companies House, to then estimate emissions associated with each total spend per supplier, this is termed Tier 1 emissions. Where Tier 2 (supplier specific) data exists for a supplier this emission factor was used in place of the Tier 1 method described above. The total emissions, using both Tier 1 and Tier 2, from procurement for each health board could then be estimated. The health board emissions were then aggregated to produce an estimated tCO_{2e} for primary care across the 7 health boards in Wales.

Other methods of data collection were investigated, such as purchase order (PO) data or primary care filters on total procurement spend. However, both these methods were found to contain significant inaccuracies (such as some spend not having a corresponding PO, PO data spanning multiple years, or procurement spend not being assigned to primary care at point of entry into the spend software) and so were disregarded for use in this study.

For clarification, there are also certain categories of primary care spend that are not accounted for within this data to maintain alignment with the Green House Gas (GHG) Protocol or to avoid double counting. This includes, utilities costs, waste costs, spend captured under the Velindre Ledger as goods purchased and not transposed to health boards and trusts, intra-NHS spend, spend associated with [NHS trusts and public bodies](#) (DHCW, HEIW, PHW, VEL, WAST, WHSSC), goods procured by the health boards or primary care contractors for primary care services but do not utilise the primary care services feed, and finally salary pay for individuals working within primary care services.

Calculations & Reporting

The footprint presented in this report is an estimation for a sector as a whole and it was not possible to collect primary emissions data from source. This is largely due to the fact that primary care providers operate as private businesses and there is no mandate in place for them to provide data. Therefore, gap-filling and extrapolation have been applied to provide the emissions estimates.

This carbon assessment of the primary care sector is highly estimated. It is likely that the sector's carbon emissions will change in future iterations, in particular with uncertainty on the scale of spend for primary care. Health boards have a key role to play in data improvement, both for their own operational data, and, where possible, in engaging with the primary care contractors to capture and influence emissions.

Carbon Footprint of NHS Wales Primary Care

Overview

This report has investigated, at a high level, the estimated emissions for the NHS Wales primary care sector, specifically the four contracted services of General Medical Services, Primary Care Dental Services, Community Optometric Services, and Community Pharmacy. Due to the financial and time resources available for the project, the focus has been to estimate the emissions from the built estate of primary care using publicly accessible data. This data collection has then allowed for the extrapolation of data to estimate the Scope 1 and 2 emissions of the sector. Procurement is the largest source of emissions in healthcare sectors, as highlighted in the [NHS Wales Carbon Footprint \(18/19\)](#) and [NHS Wales SDP](#). Therefore, the emissions associated with procurement spend (Scope 3) have also been estimated using centrally held data from NWSSP to help provide Welsh Government with a fuller picture of primary care emissions. The sections below outline the estimated emissions for NHS Wales primary care in more detail.

Carbon Footprint

Overview of emissions

The emission associated with primary care in Wales for the reporting period FY 2022/23 is estimated to be **227,627 tCO₂e**. This figure is comprised of **12,673 tCO₂e from Scope 1** emissions (6%) from the direct combustion of fossil fuels, **Scope 2 emissions of 16,479 tCO₂e** from the purchasing of electricity (7%), and **198,474 tCO₂e from Scope 3** sources (84%) - including **191,989 tCO₂e from the procurement of goods and services**.

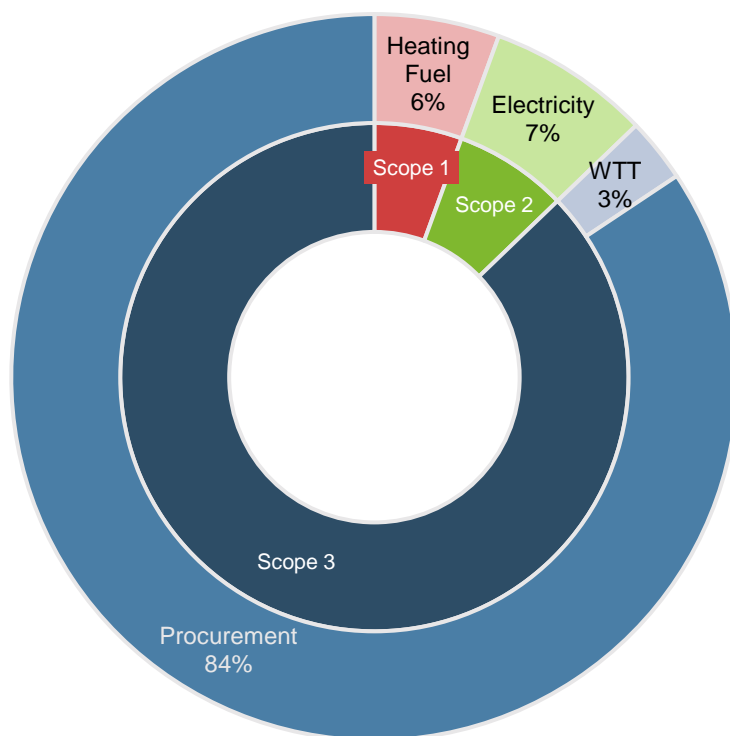


Figure 8: Overview of primary care emissions

It is recommended that Welsh Government communicate this footprint to primary care service providers to increase their understanding of emissions and awareness of NHS Wales’s net zero ambitions. Through engagement and outreach, Welsh Government can make iterative improvements to the footprint that increase accuracy and build momentum for the net zero transition in primary care services. This can be further enabled by sharing basic carbon literacy, good practice advice, support and funding opportunities.

The following sections will go into more detail by providing a breakdown of the Scope 1, 2 and 3 emissions. Each section explores the data behind each emissions category and provides context around the emissions associated with that category.

Scope 1 and 2 emissions – energy use in buildings

The total scope 1 & 2 emissions for all primary care practices (GPs, Primary Care Dental Services, Community Optometric Services, Community Pharmacy) in Wales for the reporting period FY 2022/2023 was **29,153 tCO₂e**.

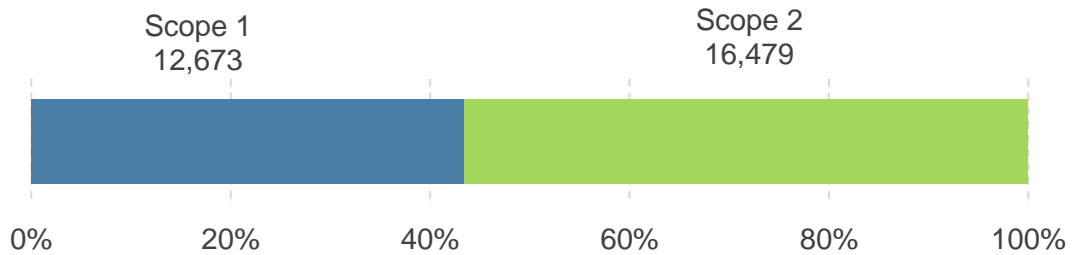


Figure 9: Primary care scope 1 & 2 emissions (tCO₂e)

Scope 2 emissions (electricity usage) account for 57% of the overall emissions from primary care buildings. The remaining 43% is from on-site combustion of fossil fuels – mainly comprised of natural gas with small quantities of biomass, LPG, oil and coal.

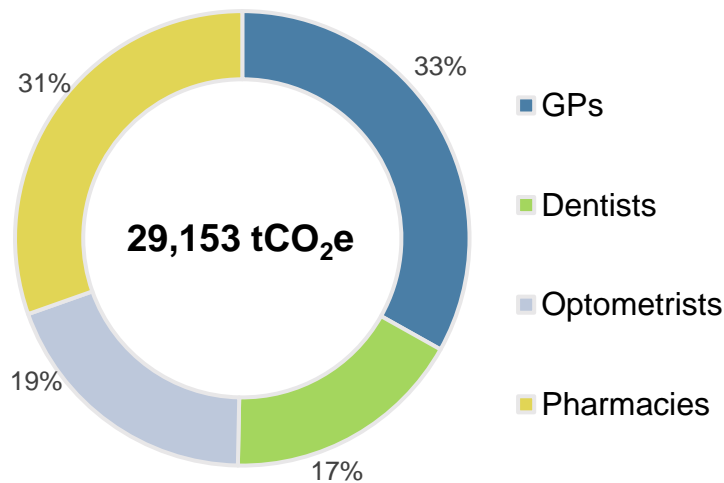


Figure 10: Scope 1 & 2 emissions for primary care in Wales

GPs and pharmacies represent the largest primary care type with a combined 1,265 sites accounting for 64% of the total primary care scope 1 & 2 emissions. Future primary care carbon reduction plans should target GPs and pharmacies as a key stakeholder group.

Table 4: Scope 1 & 2 emissions breakdown by premise type

Premise type	Number of sites	Scope 1 emissions (tCO ₂ e)	Scope 2 emissions (tCO ₂ e)
General Practitioners	557	4,613	5,046
Dentists	364	2,782	2,226
Optometrists	322	2,037	3,583
Pharmacies	708	3,242	5,624
Total	1,951	12,673	16,479

The total scope 1 emissions for primary care practices in Wales with NHS contracts for the reporting period FY 2022/2023 was **12,673 tCO₂e**. Scope 1 emissions predominantly arise from on-site combustion of fuel for heating. Consequently, scope 1 interventions are focussed on fabric retrofit measures and electrification of heat. In Wales, 54% of the 1,951 primary care sites are heated by fossil fuels (mostly gas boilers), and 47% are EPC D or below. The [NHS Wales SDP](#) provides more detailed actions on emission reductions and should be consulted by primary care contractors for further guidance.

The total scope 2 emissions for all primary care practices in Wales for the reporting period FY 2022/2023 was **16,479 tCO₂e**. While scope 2 emissions represent 57% of the overall scope 1 & 2 footprint, decarbonisation measures are limited due to the forecasted reduction in carbon intensity of the electricity grid. Scope 2 interventions are therefore focused on energy efficient appliances e.g. LED lights.

Rooftop solar PV

Solar PV is installed on primary care buildings in Wales to reduce the amount of electricity imported from the grid and has the potential to reduce the scope 2 emissions of an individual site by 2 - 33%⁷.

According to the DEC data, 14 sites have rooftop PV installed which represents 1% of all sites, although 92% of sites did not have a DEC record. The 2022/23 scope 2 footprint is based on 1% of buildings having rooftop PV (16,479 tCO₂e) however, if we extrapolate the proportion of buildings with rooftop PV from DECs, the scope 2 footprint becomes **16,396 tCO₂e**. This equates to 83 tCO₂e less carbon based on an additional 144 sites with rooftop PV.

⁷ Range of electricity use reductions from solar PV is estimated from DEC data

To accurately determine the impact of rooftop PV on the primary care sector in Wales, an assessment of the number of sites with rooftop PV should be conducted. This is mentioned in the list of recommendations on the next page.

Emissions by health board

Using the NWSSP premise lists and the WG GP premises assessment, a breakdown of estimated scope 1 & 2 emissions by health board is provided in the table below.

Table 5: Scope 1 & 2 emissions breakdown by health board

Health Board	Scope 1 emissions (tCO ₂ e)	Scope 2 emissions (tCO ₂ e)	Scope 1&2 (tCO ₂ e)
Aneurin Bevan University Health Board (AB)	2,713	3,079	5,792
Betsi Cadwaladr University Health Board (BC)	1,974	3,596	5,570
Cwm Taf Morgannwg University Health Board (CTM)	1,589	2,150	3,739
Cardiff and Vale University Health Board (CV)	2,008	2,919	4,927
Hywel Dda University Health Board (HD)	1,740	2,012	3,752
Powys Teaching Health Board (PT)	944	922	1,896
Swansea Bay University Health Board (SB)	1,705	1,771	3,476
Total	12,673	16,479	29,153

Recommendations for future data collection

For future iterations of the carbon footprint for primary care, the scope 1 & 2 footprint can be more efficiently and accurately determined by employing the following recommendations:

Ref	Topic	Recommendation	Responsibility
6	Data collection	Buildings occupied by a public service organisation (e.g. the NHS) can arrange for an accredited energy assessor to produce a DEC. Currently, 12% of primary care addresses have a DEC. Targeted survey work could be undertaken to understand compliance with DEC, and to ask for data.	Wider Stakeholders

7	Data management	Where possible, NWSSP should ascertain Unique property reference numbers (UPRNs) information for their portfolio of premises to match EPC/DEC records more accurately and efficiently. This will also facilitate identification and engagement with the largest emissions providers.	Wider Stakeholders
8	Performance metrics	With improved carbon footprint data for buildings and providers, consider how best to measure progress over time using performance metrics, and seek to engage directly with the largest emission providers.	WG / Wider Stakeholders
10	Data collection	Smart meters are free to install through the energy supplier and provide more accurate site-specific energy consumption data. This can be recorded centrally and would be an improvement on DEC data for emissions reporting.	WG / Wider Stakeholders
11	Data collection	An assessment of primary care sites with rooftop solar PV would allow the impact of on-site renewables to be recorded and monitored against targets.	WG / Wider Stakeholders

Procurement

Total NHS Wales procurement spend

The estimated total procurement spend (including primary care) for the 7 NHS Wales health boards for the reporting period FY 2022/2023 was **£4,326m**. NHS Wales reported associated scope 3 emissions from this procurement spend as **829,228 tCO₂e**.

Table 6: Total procurement spend and emissions by health board

Health Board	Spend (£)	Scope 3 emissions (tCO ₂ e)
AB	703,263,861	135,700
BC	825,801,480	168,897
CTM	787,455,717	128,285
CV	810,076,191	160,515
HD	464,267,598	89,637
PT	147,988,421	26,378
SB	587,324,481	119,815
Total	4,326,177,748	829,228

The emissions reported above are a combination of both Tier 1 and Tier 2 emission factors, with Tier 2 representing more detailed supplier-specific emission factors. Tier 2 has been chosen where available and Tier 1 (spend based) emission factors have been used where no Tier 2 data exists for that supplier. This same approach was used when looking specifically at emissions from primary care spend.

Primary care procurement spend

For the reporting period (FY22/23) the 7 health boards across Wales reported a total procurement spend on primary care services of **£1,248m**, based on the [data collection methodology](#) outlined previously. This represents **28.8%** of the total procurement spend across the health boards being related to primary care services, with each individual health board spending between 23% and 38% of their total procurement spend on primary care services, see Figure 11.

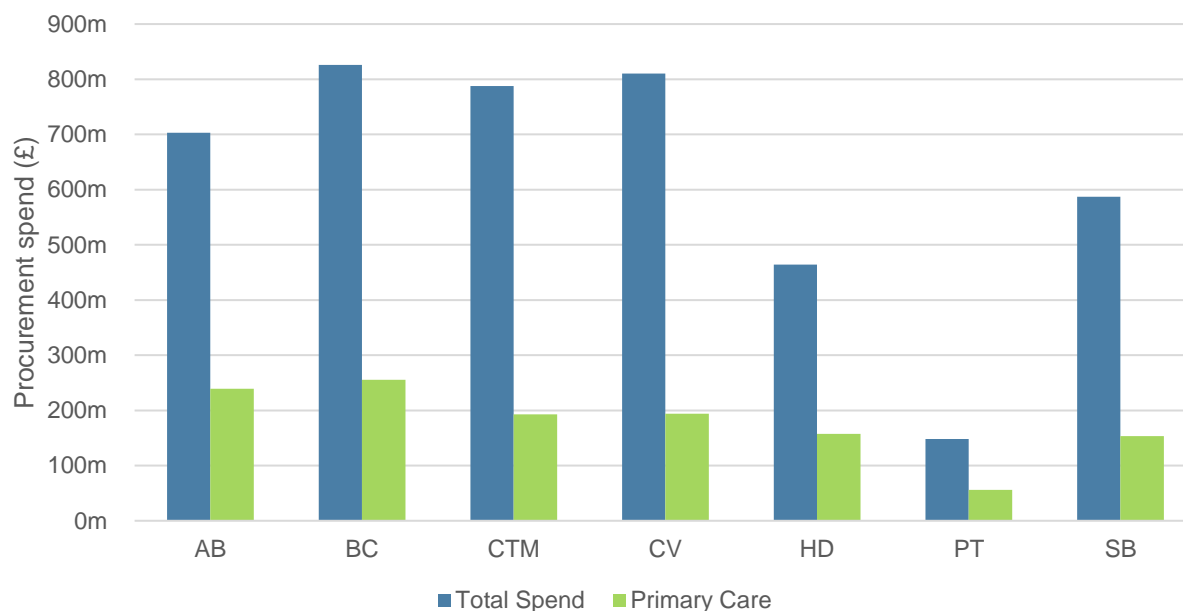


Figure 11: Total procurement spend against total primary care services spend per NHS Wales health board

Emissions associated with the procurement of goods and services are often the most significant single source of emissions for a carbon footprint that includes scope 3 sources. This was indeed found to be the case for primary care in Wales. The emissions associated with the £1,248m spend on the procurement of goods and services in primary care for the reporting period are **191,989 tCO₂e**. This represents 84.3% of the total emissions for primary care. Due to the data collection methodology, it has not been possible to break down this spend further into the 4 different primary care sectors. It is also important to note that these emissions are highly estimated and that future iterations of the footprint will need to build on this assessment to provide more accurate emissions based on more detailed data.

When the emissions are broken down to the health board level there is a strong correlation between the total procurement spend emissions and the primary care spend emissions. This suggests that health boards with a larger total procurement spend are likely to also have a larger primary care spend, with health boards spending reasonably similar proportions of total spend on primary care. The table below shows the primary care procurement spend and associated emissions for each health board.

Table 7: Primary care procurement spend and emissions by health board

Health Board	Spend (£)	Emissions (tCO ₂ e)
AB	239,173,881	36,144
BC	255,237,999	36,889
CTM	192,560,461	30,951
CV	193,826,883	32,014
HD	157,328,014	23,752
PT	56,272,570	7,774
SB	153,144,220	24,464
Total	1,247,544,029	191,989

Figure 14, below, displays the relative proportions of emissions for the overall procurement spend in primary care broken down by each health board.

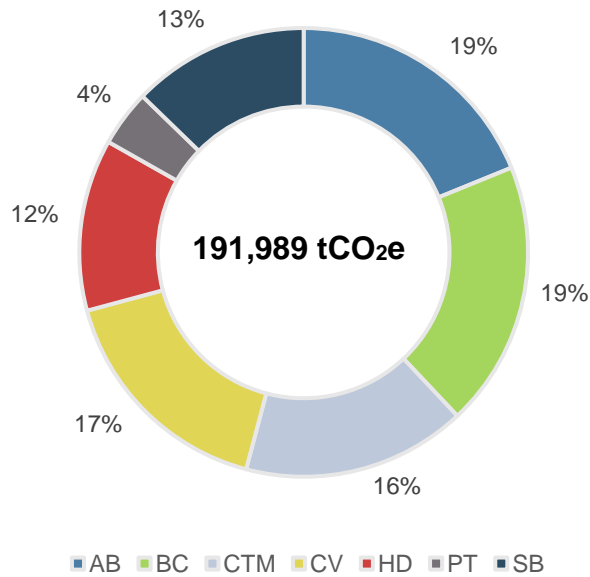


Figure 12: Primary care procurement spend emissions by health board

Historic healthcare procurement data

For the FY 2018/2019, the carbon footprint for NHS Wales was assessed and it was found that procurement spend made up 62% of the total footprint, accounting for 623,750 tCO_{2e} of the total 1,001,378 tCO_{2e}. The footprint report noted that in many cases primary care services are delivered in health board operated buildings; however much of primary care (such as GP surgeries, primary care dental practices, community optometric practices, and community pharmacies) remains independent and was considered outside the boundary of the study and so primary care related emissions (including spend and emissions) were excluded from the footprint with no further information provided.

Disparity between health boards

Following consultation with NWSSP, the different ways that health boards categorise procurement spend were investigated at a high level. There is a primary care filter that can be used by health board finance personnel to record spend, however, on inspection it was found that not all primary care spend could be accounted for using this method as different health boards were using this cost code filter to differing degrees. This resulted in a variation between individual health boards when using this method with some health boards likely to be accounting for the majority of primary care spend through this method whilst others could be significantly underreported. As a result, the alternative methodology laid out in the [earlier section](#) was chosen to calculate primary care spend for this study.

During the investigation it became clear that there is not a consistent approach used across all health boards that allows for a fast and accurate primary care spend to be determined. Whilst the scope of this study did not allow for the disparity between health boards to be investigated further, this should be an action taken forward at a central NHS Wales level, alongside NWSSP, to understand the approaches of each health board and potentially develop more detailed guidance on how to account for primary care spend.

Market based reporting

In line with the NHS Wales SDP, NWSSP is transitioning over to a market based approach for supply chain emissions. Within the primary care context, it will be important to assess the outcomes of NWSSP's current market based reporting exercise and the levels of engagement with primary care providers. The scope 3 emissions for both total NHS Wales and primary care spend are highly estimated. Therefore, it will be important to track engagement with NHS Wales suppliers as a better understanding of market based emissions is sought. This tracked engagement can then be incorporated into future primary

care emission assessments (e.g. pharmaceutical supplier company and product reported emissions attributable to NHS Wales and/or primary care).

Along with the above, it will also be important to explore opportunities to improve the accuracy of the carbon footprint via access to scope 1 and 2 emissions data. This will support supply chain engagement and help to strengthen the market based reporting methodology.

Recommendations for future data collection

Ref	Topic	Recommendation	Responsibility
12	Data management	Seek to undertake direct stakeholder engagement (primary care contractors and suppliers) for future iterations of the primary care footprint to uncover additional insights to support the precision of the footprint.	WG / NWSSP / Wider Stakeholders
5	Primary care working group	The possibility of a primary care spend working group could also be explored to facilitate the above process by helping to develop and continually monitor future carbon footprint assessments and market based reporting.	Wider Stakeholders / Primary care contractors / NWSSP / WG

For future iterations of the carbon footprint for primary care, additional insights could be gained if direct stakeholder engagement is undertaken with health board finance teams, alongside colleagues from NWSSP. NWSSP must be involved in any procurement data requests as it is responsible for the central management of procurement across NHS Wales. However, each individual health board finance team will be working directly with suppliers and managing the input of individual spend data in the finance systems used across NHS Wales. Through a more detailed understanding of primary care suppliers, and the method of assignment for primary care spending within finance software, new insights may be obtained and more accurate data collection for procurement spend achieved. This will likely require a significant timeframe and additional stakeholder management resources as there are unlikely to be available resources within health board finance teams or NWSSP to rapidly progress on this issue.

Wider Scope 3 emissions

From the data collection methodology outlined in the earlier sections, it has been possible to estimate the upstream emissions for ‘fuel and energy related activities’ through the data

collection exercise for scope 1 and 2. This comprises Well-to-Tank (WTT) and Transmission and Distribution (T&D) emissions associated with the fossil fuels and electricity consumed across the primary care estate operations. Well-to-tank (WTT) refers to upstream emissions related to fuels purchased by an organisation, i.e. associated with the extraction, production and transportation of those fuels. Transmission and Distribution (T&D) refers to emissions associated with losses occurring during the transmission and distribution of purchased electricity.

For primary care, the upstream emissions for fuel and energy related activities are estimated at **6,486 tCO₂e** for the reporting period FY 2022/23. This represents 3% of the overall emissions for primary care.

Due to the scope of this study, it has not been possible to collect primary data on wider scope 3 emission sources (such as commuting, waste and business travel) from health boards or primary health care facilities. It is, therefore, recommended that the Welsh Government endeavours to expand the scope of the primary care footprint over time so these categories of the footprint can be incorporated, and a fuller picture of all primary care emissions can be developed.

Using the 2018/19 carbon footprint for NHS Wales as a guide, many of the scope 3 categories are not expected to have a material impact on the footprint and so may not be a priority for future iterations. These include waste and water which accounted for less than 1%, combined, for the total 18/19 footprint. Whereas staff commuting and patient and visitor travel had a much more significant impact, with both categories combining to contribute almost 15% to the overall footprint. Future primary care footprints should be encouraged to incorporate as many scope 3 emission sources as possible but it would be prudent to focus efforts on transport emissions from staff commuting and patient and visitor travel rather than water and water, if prioritisation of resources are required.

Next Steps

This report has been able to provide a high-level estimate of the carbon footprint for primary care in Wales. The [methodology](#) outlined in this report has been developed to meet the requirements of the scope of work available through this research. Whilst the results provide the first estimate of primary care emissions, and as such significantly progress the knowledge around the emissions of the sector, it has been acknowledged that there are some limitations. It is the expectation that future iterations of this footprint can build on this report to provide ever increasing accuracy on the emissions associated with primary care in Wales. Whilst the [executive summary](#) has presented a summary of the recommendations following this research, this section outlines some of the key strategic next steps that can be used to advance the footprint in future iterations. These next steps and future opportunities are presented below:

Ref	Topic	Recommendation
3	Engage primary care providers	As part of progressing towards market based emission assessments, NWSSP and health board should engage with primary care providers, communicate the NHS Wales decarbonisation ambitions, and signpost providers to further decarbonisation support and opportunities.
7	Data management	A contractor registry should be compiled of primary care services across Wales (with UPRNs where possible). This will create a more accurate database of addresses that can be used to match databases and determine the emissions from the built environment. This will also assist with the integration of smart meter data/monitoring in the future.
12	Data management	Currently there is no firm, centralised approach to categorising primary care spend across health boards. Engagement with finance teams across health boards and NWSSP will be critical to standardising how primary care is categorised. This can enable a more consistent approach and facilitate data collection. However, the complexity of this challenge should not be underestimated.
9	Scope 3	Whilst the procurement of goods and services is expected to be the largest source of scope 3 emissions by a significant margin, additional scope 3 emissions should be incorporated where possible in future footprints to provide a more comprehensive breakdown of emissions. Efforts should focus on transport emissions from staff commuting and patient/visitor travel first as these are expected to have a more material impact on the footprint than other categories such as waste and water related emissions.

Appendix

Assumptions

This carbon footprint report for the primary care sector has been conducted as a high-level desktop assessment of emissions and, therefore, is highly estimated. Primary care for this study is related to NHS services commissioned by health boards and delivered by General Medical Services (GMS), Primary Care Dental Services, Community Optometric Services, and Community Pharmacy. Any primary care services that sit outside of these four main sectors (e.g. physiotherapy and sexual health) have not been included for consideration. However, it is not possible to create a hard boundary around these activities so there may be some emissions from other primary care services accounted for, but this is not possible to quantify. Moreover, some primary care sites operate both NHS and private healthcare services. The resolution of data available is not able to differentiate between these two services so all NHS contracted primary care buildings identified, regardless of the activity they deliver, have been included.

The sector's carbon emissions will likely change in future iterations, as the use of data extrapolation has been used for scope 1 and 2 emissions where primary or secondary data was not available. There is also uncertainty on the scale of spend for primary care. Direct stakeholder engagement at the health board or contractor level was outside of scope and so high-level aggregated data from NWSSP datasets have been used in this study. Health boards have a key role to play in data improvement, both for their own operational data and in engaging with primary care contractors, to capture and influence emissions.

Health Board Abbreviations

Health Board	Name
AB	Aneurin Bevan University Health Board
BC	Betsi Cadwaladr University Health Board
CTM	Cwm Taf Morgannwg University Health Board
CV	Cardiff and Vale University Health Board
HD	Hywel Dda University Health Board
PT	Powys Teaching Health Board
SB	Swansea Bay University Health Board

NHS Trusts and Public bodies (outside of scope) abbreviations

Health Board	Name
NWSSP	NHS Wales Shared Services Partnership
WG	Welsh Government
DHCW	Digital Health and Care Wales
HEIW	Health Education and Improvement Wales
PHW	Public Health Wales
VEL	Velindre University Trust
WAST	Welsh Ambulance Services NHS Trust
WHSSC	Welsh Health Specialised Services Committee

Glossary

Term	Detail
CIBSE	Chartered Institution of Building Service Engineers
CO ₂ e (Carbon dioxide equivalent)	A metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.
DEC	Display Energy Certificate. A DEC shows the energy performance of a building based on actual energy consumption as recorded over the last 12 months within the validity period of the DEC (the operational rating).
EPC	Energy Performance Certificate. A rating scheme to summarise the energy performance of a building. Buildings are rated from A (highest rating) to G (lowest rating).
Scope 1	Direct greenhouse gas (GHG) emissions, where GHG is from sources owned or directly controlled by the organisation.
Scope 2	Indirect GHG emissions from purchased energy, where this scope covers emissions from the generation of purchased electricity, heat, cooling, or steam consumed by the organisation.
Scope 3	All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.
WGES	Welsh Government Energy Service

Summary of Recommendations

Ref	Topic	Recommendation	Responsibility
1	Stakeholder engagement	Communicate the footprint, alongside basic carbon literacy resources, to primary care service providers to increase their understanding of emissions and awareness of NHS Wales's ambitions and build momentum for the net zero transition.	WG / Wider stakeholders
2	NWSSP spend data	Work with NWSSP and finance personnel across NHS Wales health boards to gain a better understanding of primary care procurement spend, and how this spend is allocated in centralised finance software.	WG / NWSSP / Wider Stakeholders
3	Supplier engagement	<p>Scope 3 procurement related emissions are highly estimated, both for NHS Wales overall and the primary care procured goods. Progress to engage NHS Wales suppliers to understand market based emissions should be tracked and incorporated into future primary care emissions assessment (e.g. pharmaceutical supplier company and product reported emissions attributable to NHS Wales and/or primary care). NWSSP is undertaking a market based reporting exercise, this should be assessed to understand the outcomes and the level of engagement from primary care contractors. Further, learnings and good practice from NHS England's supplier routemaps and assessment tools should be considered. Progressing market based reporting will also support Welsh Government aims through its <i>Welsh Procurement Policy Notes for decarbonisation through procurement</i>.</p> <p>Through engagement with suppliers, alongside the aim to collect market based emissions data, NWSSP and health boards should encourage suppliers to decarbonise by sharing NHS Wales's decarbonisation ambitions, and signpost providers to further decarbonisation support and opportunities, such as through Business Wales and the Development Bank of Wales.</p>	WG / NWSSP / Wider Stakeholders
4	Contractor engagement	<p>Explore opportunities to strengthen market-based reporting to improve the accuracy of the carbon footprint.</p> <p>Although not all sites will be able to provide high-quality data, the accuracy of the footprint will improve the more data is collected.</p>	WG / Wider Stakeholders

5	Primary care working group	Consider the role of a primary care provider working group to help develop and continually monitor future carbon footprint assessments and market based reporting.	WG / Wider Stakeholders
6	Data collection	The scale of extrapolation from the lack of DEC's was significant (~88%) – it is proposed targeted survey work be undertaken to understand compliance with DEC's, and to ask for data.	Wider Stakeholders
7	Data management	Promote the use of Unique Property Reference Numbers (UPRNs) to create a detailed asset registry for primary care sites. This information may be difficult to attain for some properties due to complex ownership models.	Wider Stakeholders
8	Performance metrics	With improved carbon footprint data for buildings and providers, consider how best to measure progress over time, and seek to engage directly with the largest emission providers.	WG / Wider Stakeholders
9	Scope 3	Widen scope 3 emissions categories, with a focus on transport and waste to capture activities such as staff commuting, patient/visitor travel, overprescribing and recycling which are likely to have a higher material impact than other categories (i.e. water).	WG / Wider Stakeholders
10	Data collection	Smart meters are free to install through the energy supplier and provide more accurate site-specific energy consumption data. This can be recorded centrally and would be an improvement on DEC data for emissions reporting.	WG / Wider Stakeholders
11	Data collection	An assessment of primary care sites with rooftop solar PV would allow the impact of on-site renewables to be recorded and monitored against targets.	WG / Wider Stakeholders
12	Data management	Currently there is no firm, centralised approach to categorising primary care spend across health boards. Engagement with finance teams across health boards and NWSSP will be critical to standardising how primary care is categorised. This can enable a more consistent approach and facilitate data collection. However, the complexity of this challenge should not be underestimated.	WG / NWSSP / Wider Stakeholders



Gwasanaeth Ynni Energy Service

The Welsh Government Energy Service (“**WGES**”) is funded by the Welsh Government with the aim of developing energy efficiency and renewable energy projects that contribute to public sector decarbonisation and national energy targets. The WGES is delivered by the Carbon Trust, Energy Saving Trust and Local Partnerships (the “**Delivery Partners**”). This report (the “**Report**”) has been produced by the Delivery Partners and, whilst the views expressed in it are given in good faith based on information available at the date of this Report:- (i) these views do not necessarily reflect the views of the Welsh Government, which accepts no liability for any statement or opinion expressed in the Report; (ii) the Report is intended to provide general guidance only, rather than financial, legal or technical advice for the purposes of any particular project or other matter, and no-one in receipt of the Report should place any reliance on it in substitution for obtaining their own advice from an appropriate third party advisor; and (iii) any person in receipt of this Report should therefore obtain their own financial, legal, technical and/or other relevant professional advice insofar as they require specific guidance on what action (if any) to take, or refrain from taking, in respect of any project, initiative, proposal, involvement with any partnership or other matter to which information contained in the Report may be relevant; and (iv) the Delivery Partners accept no liability in respect of the Report, or for any statement in the Report and/or any error or omission relating to the Report.