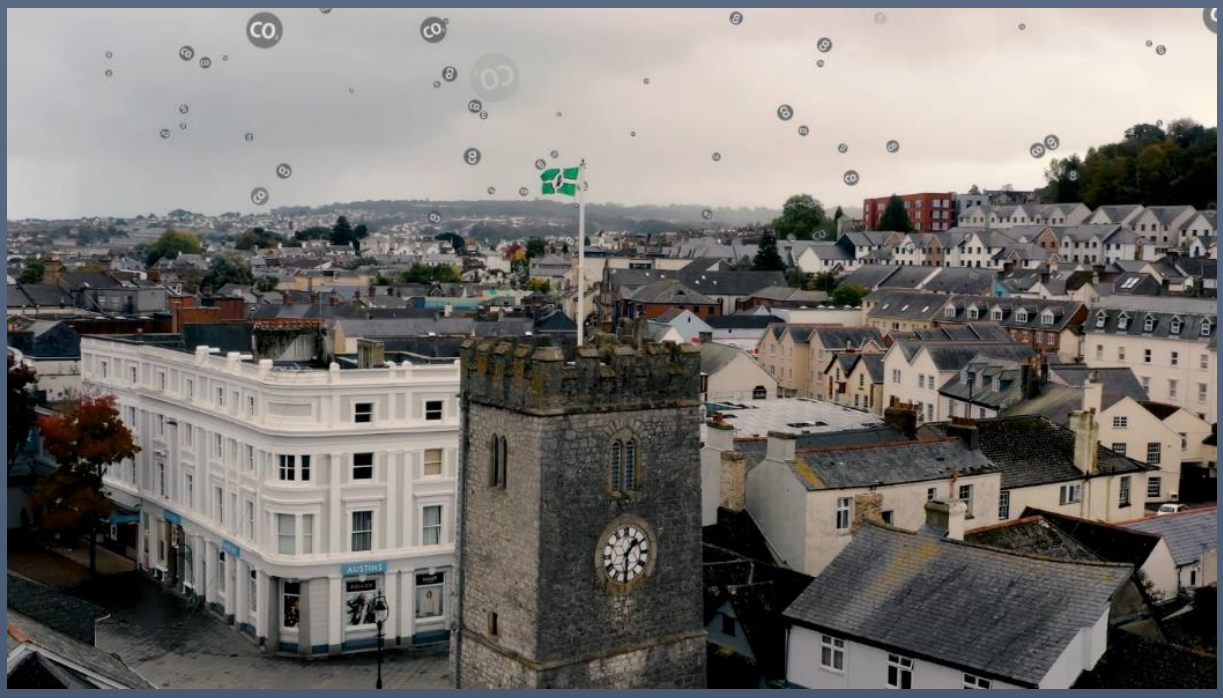


Part 1 Carbon Action Plan

July 2022

Summary

The following document contains our Part 1 Carbon Action Plan. It provides a strategy working towards becoming a net zero organisation based on our Authority's carbon footprint.

The plan contains four policies, which will set standards for phasing out fossil fuel consumption in buildings that we own and operate, set net zero and low carbon standards in new dwellings and commercial buildings that we construct, and set standards for quantifying and reducing embodied carbon in new building projects.

The 39 actions included within the plan will help to enhance data capture, increase the scope of emissions reporting, increase in-house expertise in low carbon concepts, work towards becoming a carbon literate organisation, and identify where there is further work needed to enhance our net zero strategy.

The 11 targets included within the plan will set aspirations for phasing out the supply of natural gas, increasing the supply of renewable energy, increasing energy efficiency in leased accommodation, increasing recycling rates, and increasing supply chain engagement to reduce indirect emissions.

The plan identifies a target of achieving net-zero scope 1 and 2 emissions across the buildings that we own and operate by 2030, and a target of achieving net zero supply chains by 2050 at the very latest. A date for achieving a net zero vehicle fleet will be considered as part of the depot master plan and fleet decarbonisation strategy work.

Beyond adoption of the Part 1 Carbon Action Plan, the main delivery priorities in the lead up to 2025 include:

- The implementation of a renewed energy efficiency programme focusing first on our top five sites by energy consumption in support of Action 1.
- The development of a business case to decarbonise Broadmeadow Sports Centre in support of Target 1.
- The development of a business case to increase the supply of onsite renewable energy in support of Target 2.
- Supporting the Devon Energy Collective to deliver new and additional renewable energy capacity in Devon under Target 4.
- The development of the Depot Master Plan and Fleet Decarbonisation Plan in support of actions 4 and 5.
- To engage with our top five suppliers and implement a carbon literacy training programme in support of Target 10.
- Subject to the development of business cases and officer capacity, to assess and align progress towards adhering to carbon budgets consistent with 1.5°C and well below 2.0°C of global warming.
- Identify opportunities where we can lobby the Government for additional resources.
- To develop and implement the Part 2 Carbon Action Plan, covering emissions across the wider district.

Contents

1. Introduction

On 18th April 2019, Full Council resolved to declare a Climate Emergency and pledged to "do what is within our powers, to make Teignbridge District carbon neutral by 2025". Under our ten-year Council Strategy, we have also set the objective of becoming a carbon neutral district.

As a signatory of the Devon Climate Declaration, we are committed to working with our partners "to coordinate a collaborative Devon-wide response to the Climate Emergency and ecological crisis".

Progress is well under way to develop a Devon Carbon Plan, detailing how Devon will achieve net zero emissions, and it is expected that the Devon Carbon Plan will be available for adoption by partners from the summer 2022.

Our Carbon Action Plan is intended to complement the Devon Carbon Plan and will set out Teignbridge District Council's role in planning, enabling, and assisting to deliver the net zero vision, covering both our organisational and district wide carbon footprints.

1.1. Our Two-Part Carbon Action Plan

We have chosen to split our Carbon Action Plan into two parts. This Part 1 Carbon Action Plan (referred to as the Part 1 Plan) sets out a framework on which Teignbridge District Council can work towards becoming a net-zero carbon organisation.

The Part 1 Plan will cover activities that fall within our Financial Control Boundary; this includes the things that we own and purchase, the things that we fund and finance, and the things that we dispose of and sell.

The Part 1 plan will evaluate the global and regional context of our net-zero journey, set a baseline for our carbon footprint, identify a pipeline of decarbonisation projects, identify where there is further work to improve emissions reporting, identify areas where we can enhance our decarbonisation pathway and set a realistic target date for becoming a net-zero organisation for our buildings, vehicle fleet and supply chain.

Following adoption of the Part 1 plan, work may commence on developing the Part 2 Carbon Action Plan. The Part 2 Plan will cover carbon emissions associated with the wider district of Teignbridge and not limited to transport, housing, businesses, land use, energy, and infrastructure.

Figure 1: Newton Abbot Clock Tower from our COP26 Film "Climate Change and Teignbridge"

1.2. Linking our Carbon Action Plan with the Sixth Carbon Budget

The Committee on Climate Change (CCC) identified that local authorities can influence roughly a third of carbon emissions in their local areas in the "Local Authorities and the Sixth Carbon Budget" report[1]. The report identifies six areas of influence, which are shown in the onion diagram depicted in Figure 2 below.

Figure 2: The six influences of local authorities on carbon emissions

The Part 1 Plan covers all six of these influence areas where they overlap with our Financial Control Boundary, as described below:

1. "Direct Control" influences relate to our Part 1 Plan where we can achieve net-zero emissions across our estates and vehicle fleet.

2. "Procurement and Commissioning" influences relate to our Part 1 Plan where we can work with our supply chain to decarbonise our indirect carbon footprint.

[1] Local Authorities and the Sixth Carbon Budget - Climate Change Committee (theccc.org.uk)

3. “Place Shaping” influences relate to our Part 1 Plan where we can use our strategic projects to test new and innovative ways of working and enhanced sustainability standards.

4. “Showcasing” influences relate to our Part 1 Plan where we develop experience by testing methods to decarbonise our carbon footprint, such that they can be copied and adopted by others.

5. “Partnership” influences relate to our Part 1 Plan where we can share knowledge and create synergies by working closely with our public sector partners, businesses, infrastructure providers, and climate action groups.

6. “Involving, engaging and communicating” influences our Part 1 plan where we can include our communities in shaping our projects, sharing the benefits of the net zero strategy, and communicating the progress we make towards reaching our net zero targets.

1.3. Orientation

The format of the Part 1 Plan aligns with our organisational carbon footprint. The Part 1 Plan contains Actions (highlighted in green), Targets (highlighted in blue), and Policies (highlighted in yellow). Whilst policies will be binding beyond adoption of the Part 1 Plan, all Actions and Targets will be subject to officer capacity and where necessary, the development of detailed business cases.

2. Defining Climate Change

The Met Office defines climate change as "the long-term shift in average weather patterns across the world." The latest evidence[2] produced by the Intergovernmental Panel on Climate Change (IPCC) estimates that we have so far experienced between 0.95 and 1.2°C of global warming, of which 1.1°C relates to anthropogenic greenhouse gas emissions (emissions produced by humankind) and less than 0.1°C relates to natural effects such as solar heating and geological processes.

Carbon dioxide is the primary greenhouse gas responsible for climate change alongside other greenhouse gases including methane, nitrous oxide, and fluorinated gases. These gases all share a characteristic that enables them to absorb and retain solar energy, which in turn forces the temperature of our atmosphere to increase. Elevated concentrations of these gases are driven by human activity including the combustion of fossil fuels to power industry, businesses homes and transport systems, and the release of gases from carbon stocks, such as soils, peatlands and forests.

Concentrations of carbon dioxide have increased by 40% over the 20th and 21st century and we understand that they are higher now than at any other period over the last two million years[3]. The University of Reading created the Climate Stripes shown below in Figure 3; they show a striking pattern of increasing global temperatures over approximately the past two centuries. Blue and light colours represent cooler periods, whilst red and dark colours show periods of hotter temperatures, which coincides strongly with increasing levels of atmospheric greenhouse gas emissions.

Figure 3: Climate Stripes showing average annual global temperatures over the past two centuries

2.1. Paris Agreement

The Paris Agreement was a landmark legally binding treaty made between 196 countries at the Conference of the Parties (COP) 21 event in Paris in 2015. The treaty commits governments to work towards limiting global warming to well below 2.0°C and preferably less than 1.5°C to avoid the worst, and in some cases, irreversible effects of climate change.

As part of the Paris Agreement, governments are required to develop Nationally Determined Contributions, known as NDC's, to determine how their economies will deliver the required levels of decarbonisation under the Agreement. The UK Government's Net Zero Strategy summarised in Section 3 is intended to form part of the UK's NDC to limit global warming in accordance with the Paris Agreement.

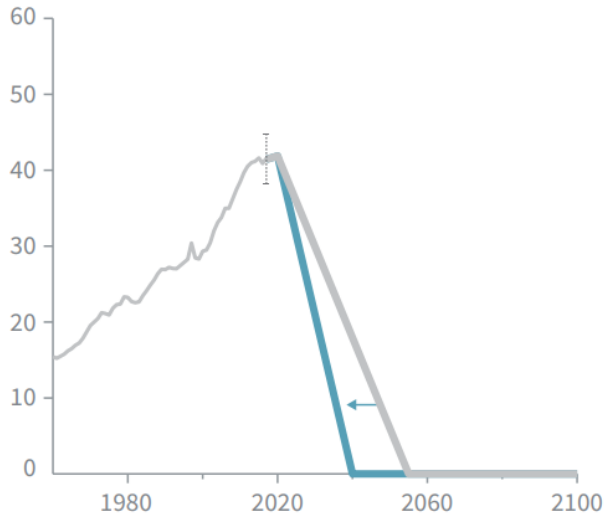
2.2. Global Carbon Budgets

The remaining global carbon budget to limit global warming to 1.5°C with a probability of 67% by the end of the century is 400 billion tonnes CO_2. Humankind currently produces about 36.4 billion tonnes CO_2 per annum, meaning that globally, we have about ten years left at current emissions rates before crossing the 1.5°C threshold.

[2] https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf
[3] What is climate change? - Met Office

More pertinently, to limit global warming to 1.5°C, rapid emissions reductions are required to limit long-term accumulations of greenhouse gases. An indicative global emissions pathway to net zero emissions consistent with 1.5°C in shown in Figure 4, and shows a rapid straight-line global emissions reduction. Such a reduction in greenhouse gas emissions will require an immediate, concerted and transformative effort amongst governments.

Figure 4: Stylised global emissions reduction pathway consistent with limiting global warming to 1.5°C global warming



2.3. Climate Change in Teignbridge

The following sections provides insights on how climate change will affect Teignbridge according to the UK Climate Projections[4] (UKCP) produced by the Met Office.

2.3.1. Extreme Heat

By the end of the 21st century, all areas of the UK are projected to be warmer, with hotter summers expected to become more common, with greater increases in maximum summer temperatures over the southern UK compared to northern areas. By 2070, under a high emission scenario (UKCP18), the likely range of increase in temperatures could amount to between 0.9 °C to 5.4 °C in summer, and 0.7 °C to 4.2 °C in winter.

Extreme heat can have a range of impacts. Brief hot spells can lead to impacts on human health through urban heat island effects and an inability to ventilate and cool our homes; extreme heat can also have an impact on infrastructure and transport affecting reliability and capacity. More prolonged heat could also result in strong demands on water resources, damage to below ground infrastructure and create favourable conditions for wildfires.

Although these are projected future trends, we can still expect variations in the weather from year to year; cold winters and wet summers just become less likely, although we will still have to be prepared for them.

[4] UK Climate Projections (UKCP) - Met Office

Figure 5: Image of scorched ground linking with extreme heat and drier summers

2.3.2. Flooding

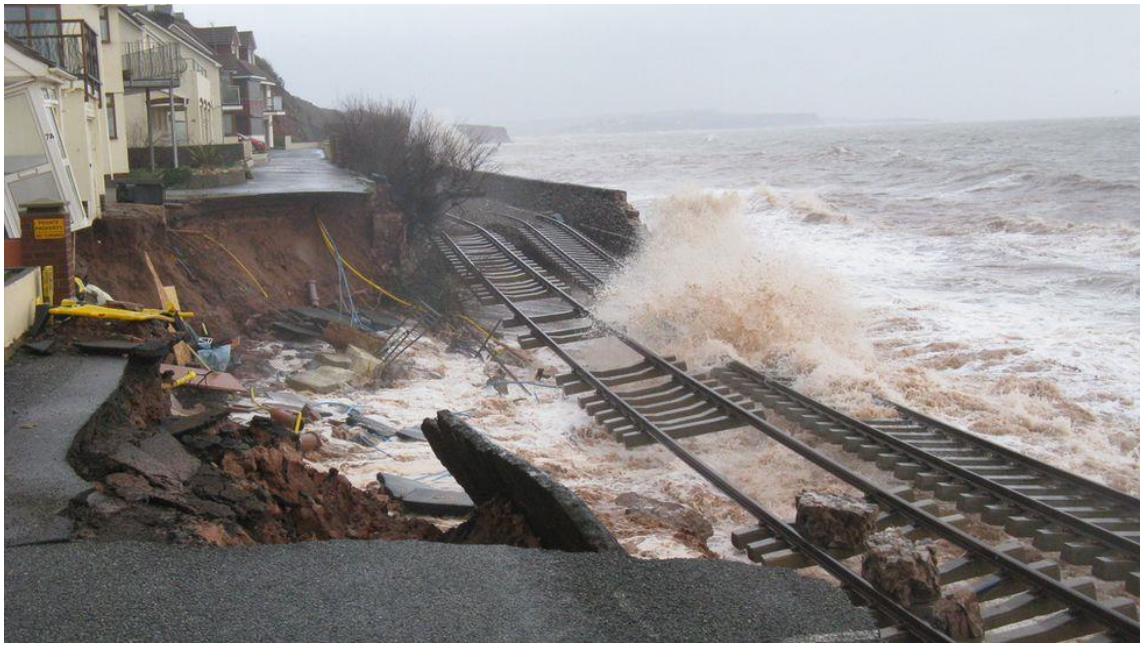
Despite overall summer drying trends in the future being up to 60% drier, there is likely to be increases in the intensity of heavy summer rainfall events. For urban areas particularly, such as Newton Abbot, this will impact on the frequency and severity of surface water flooding. Short, intense rainfall events can lead to surface flooding as surface run-off inundates small catchments and the urban landscape.

With an increase in average winter temperatures, current projections show a pattern of changes in the seasonality of extremes, with significant increases in rainfall intensity in the autumn and larger increases in winter precipitation. Particularly over southern England and coastal regions towards the end of the century, with up to a +35% increase in rainfall.

Prolonged periods of excessive rainfall could result in saturated soils, increasing the risk of fluvial and surface water flooding. Above average precipitation for long periods can ultimately lead to a raised water table, which can result in increases of groundwater flooding in certain locations.

The changing patterns of sea level rise are not uniform across the UK. Sea level rise is projected to rise less in the north and more in the south. For the southwest, sea level rise by the end of the century (when compared to 1981-2000) is likely to be approximately 0.4 to 1.2m. We should also be prepared to consider the additional extreme variability in levels associated with storm surges as a result of changes in patterns of storminess.

Figure 6: Significant damage to the rail network at Dawlish following the 2014 storms



3. UK Energy Landscape

An appreciation of the existing and future UK energy landscape can help us to plan and implement actions that will provide both near and long-term solutions to reduce our carbon footprint. The following sections provide an overview of the Government's Net-Zero Strategy which, together with the Paris Agreement and Carbon budgets set out in sections 2 and 3, will inform actions within the Part 1 Plan.

3.1. Net Zero Strategy

The Government has committed to reduce emissions to net zero by 2050 under the 2008 Climate Change Act. Ahead of COP26, the Government published its Net Zero Strategy[5], which is intended to identify how it will achieve the net zero target and a series of progressive national carbon budgets leading up to 2050.

Having received criticism from various advisory groups, it remains to be seen whether policies within the plan will be delivered at the proposed scale, according to the proposed timeline, and to what extent they will reduce emissions. Below is a sector summary of what the strategy aims to achieve over the next ten to fifteen years.

Power

- Quadrupling offshore wind capacity from 10GW to 40GW by 2030 and the full decarbonisation of electricity by 2035 subject to security of supply.
- Investment decision to be made on funding one new large nuclear power station and support for developing small modular nuclear reactor technology.
- Support for flexible and long duration energy storage systems and at least one power station fitted with Carbon Capture Use and Storage (CCUS) by the mid 2020's

[5] UK's path to net zero set out in landmark strategy - GOV.UK (www.gov.uk)

Fuel

- Small-scale electrolytic hydrogen production trials with 1GW of low carbon hydrogen production in 2025 and 5GW hydrogen production by 2035
- Increasing energy efficiency targets for oil and gas production.

Industry

- The development of Carbon Capture Use and Storage Capacity with two clusters in the mid 2020's and four clusters by 2035.
- Supporting energy efficiency and fuel switching to replace fossil fuels with electrified heat and hydrogen.

Transport

- Phasing out the sale of new petrol and diesel cars and vans from 2030 with all new cars and vans producing zero tail-pipe emissions by 2035.
- Support for infrastructure development including the installation of EV charge points and rail electrification.
- Hydrogen trials for buses, HGV, rail and shipping up to 2029.
- Accelerate a modal shift from private car use to public and active transport with a target of 50% of all journeys in towns and cities being made via walking and cycling by 2030.

Heat and Buildings

- Supporting energy efficiency and fuel switching to replace fossil fuels with electrified heat and hydrogen.
- Accelerating the roll-out of heat pumps through the mid 2020's with the phase out of new gas boilers from 2035.
- A hydrogen neighbourhood trial by 2023, a village hydrogen trial by 2025 and a decision on the role of hydrogen in buildings nationally in 2026.
- Future Homes and Buildings Standard implemented by 2025 to increase energy efficiency in new buildings and upgrading all homes to EPC C by 2030 where affordable and practical.

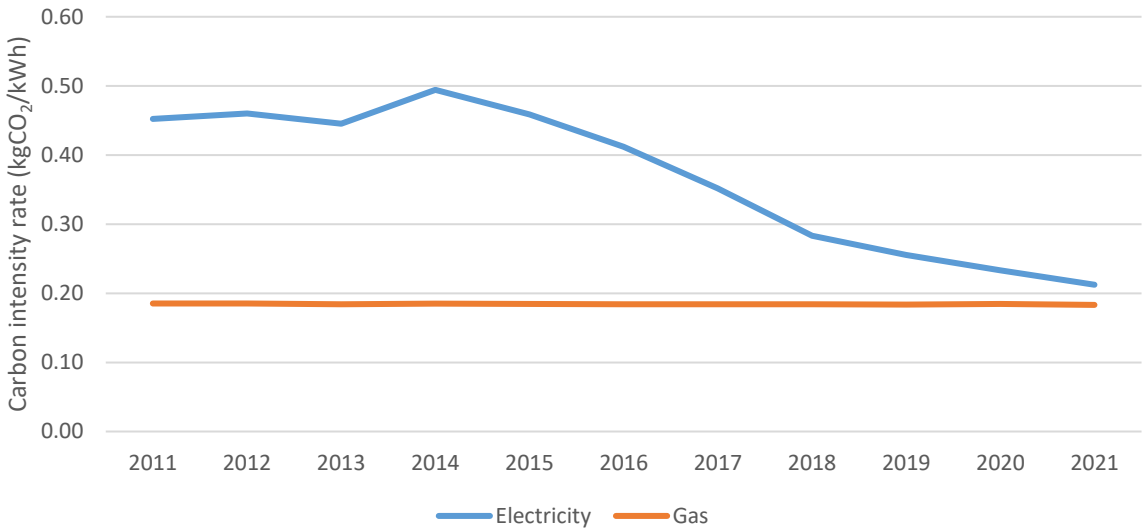
3.2. UK Energy Supply

The supply of electricity has decarbonised by 57% between 2014 and 2021 following Government policy to decommission and replace coal-fired generation with a combination of gas-fired generation and renewable energy. Following publication of the Net Zero Strategy, this trend is set to continue with commitments by Government to support offshore wind, onshore renewables, and carbon capture use and storage projects.

The gas network has seen little in the way of decarbonisation with only modest biogas generation schemes injecting relatively small quantities of bio-methane into the grid. As identified in the Net Zero Strategy, low carbon hydrogen projects will remain in their infancy until the end of the decade, with neighbourhood and village hydrogen demonstration projects helping to inform future decisions on the widespread use of low carbon hydrogen in our energy system.

Figure 7: Demolition of Eggborough coal-fired power station (source: CNN)

Figure 8: Electricity and natural gas carbon intensity rates over time



3.3. Linking the Net Zero Strategy and UK Energy Supply with our Part 1 Plan

Given progress to date to decarbonise the UK electricity supply system, we can expect our Part 1 Plan to rely upon switching fossil fuel heating systems with electrified equivalents over the near-term (five to ten years); this will include replacing gas-fired heating systems with a combination of energy efficiency measures and low carbon heating including air and ground source heat pumps and, where necessary, direct electric heating.

Due to the infancy and uncertainty of hydrogen energy supply for heating applications, our strategy cannot rely by default on waiting for the gas grid to decarbonise; this would result in the prolonged consumption of fossil fuels and exceedance of carbon budgets.

Our vehicle fleet may take a similar path, with diesel fuelled vehicles being replaced with electrified equivalents, subject to technological and market availability. Hard to treat vehicles, which may include some of our largest and heaviest vehicles, and our vehicles which travel longer distances may be decarbonised on longer timescales, as emerging technologies such as hydrogen fuelled vehicles or advanced battery technology become mainstream.

4. Carbon Footprint

Our carbon footprint provides an estimate of the total amount of greenhouse gasses produced as a consequence of the services that we deliver; it helps us to determine the global and national significance of our emissions, identify carbon hotspots, implement actions and policies to reduce emissions, and measure our progress towards becoming a net zero organisation.

Our carbon footprint is based on guidance set out in the Greenhouse Gas Protocol Corporate Standard, as depicted in Figure 9 below. We have used the Financial Control Boundary to determine the extent of our carbon footprint, which has been split out into three emissions scopes (Scope 1, 2 and 3 emissions) and covering seven greenhouse gases.

We have endeavoured to report emissions for our direct carbon footprint (emissions arising directly from our assets), our upstream carbon footprint (emissions produced to create the things we procure), and our downstream carbon footprint (emissions produced from the things we sell, lease and dispose).

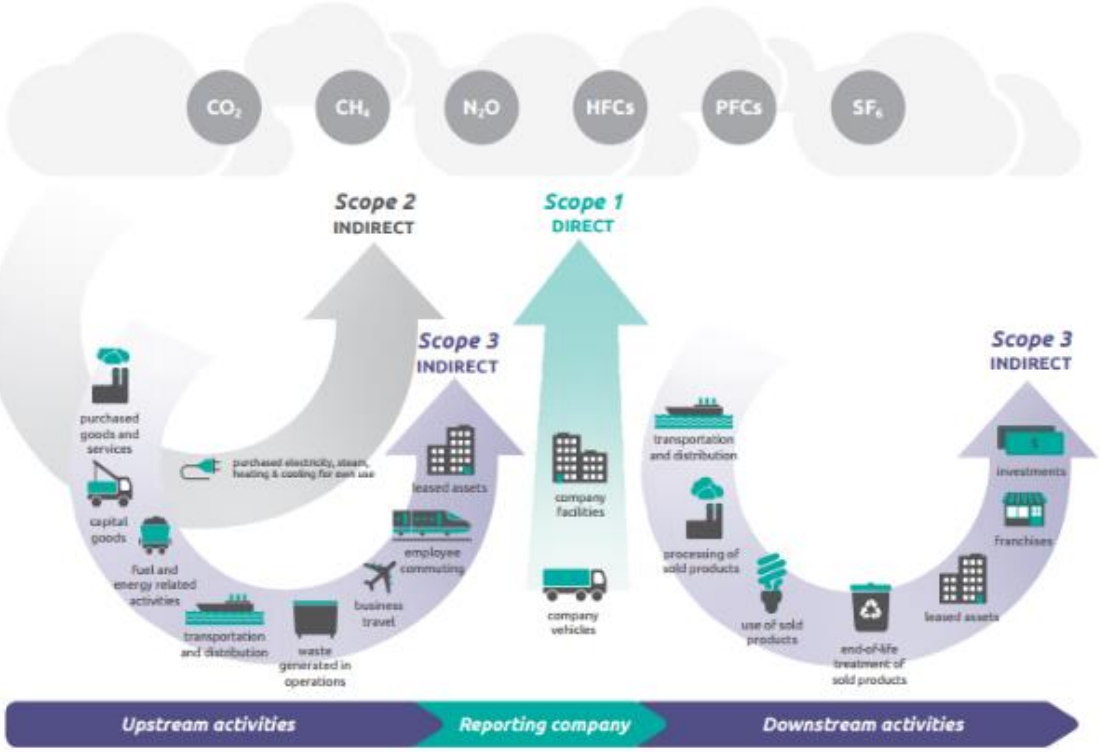


Figure 9: Green House Gas Protocol emissions scopes

4.1. Scope 1 Carbon Emissions

Scope 1 carbon emissions relate to practices that we have direct control over and where carbon emissions are released from assets that we own. They include:

- the consumption of gas and heating oil to heat the buildings that we own and operate such as leisure centres and offices;
- the diesel fuel that we consume in vehicles that we own and lease, such as refuse and recycling vehicles;
- the fugitive gases that may be released from air conditioning units and chiller units associated with the buildings we own and operate.

Our Scope 1 carbon footprint features a reasonable level of certainty with data derived from energy billing and energy meter readings.

4.2. Scope 2 Carbon Emissions

Scope 2 carbon emissions relate to practices that we have direct control over, but the emissions are produced by a third party. They include:

- The electricity that we use to power our estate, including leisure centres, offices, car parks and various public amenities.

Our Scope 2 carbon footprint features a reasonable level of certainty with data derived from energy billing and energy meter readings.

We report our scope 2 carbon footprint based on regional emissions factors in alignment with methodologies adopted by local authorities across Devon.

4.3. Scope 3 Carbon Emissions

Scope 3 emissions relate to emissions produced by third parties to produce capital assets, goods, and services, and to supply utilities. They include:

- indirect emissions associated with the transmission and distribution of diesel, gas, electricity and water;
- indirect emissions associated with temporary accommodation and private sector leasing;
- the embodied carbon of products and services we procure, such as IT services and equipment;
- the embodied carbon of infrastructure projects that we fund such as road improvements, cycleways, and flood defences;
- the embodied carbon of buildings that we construct such as commercial premises and social housing; and,
- the embodied carbon of landscape management, regeneration projects and building repairs.

Emissions associated with accommodation and private sector leasing are based on energy consumption estimates, and greenhouse gas reporting conversion factors produced by the Department for Business, Energy and Industrial Strategy (BEIS). These emissions have a low level of certainty.

Where we have begun to engage with our supply chain partners, we have been able to link our Scope 3 carbon footprint with carbon footprints produced by companies such as Strata and id Verde.

For certain construction projects, such as Market Walk, we have used Environmental Product Declarations to estimate embodied emissions.

The majority of our scope 3 supply chain carbon footprint has been estimated using Table 13[6], and ONS[7] spend based emissions factors, which are subject to high levels of uncertainty.

Water and sewage paper bills need to be processed manually; this makes the data capture process for carbon footprint capacity intensive and, as such, we were unable to report on our water and sewage carbon footprint in 2020/21.

We are the bill payer for a small number of sites owned by TDC and leased out to tenants. Where the billing is in paper format, we have been unable to account for leased assets in our scope 3 carbon footprint. Going forwards, and as we move to a fully digital billing system, it will become easier for us to report emissions against leased properties in our scope 3 carbon footprint.

[6] Table 13 Emissions Factors
[7] Consumption Emissions 1990 - 2018

Following the Greenhouse Gas Protocol Corporate Standard, we should account for downstream carbon emissions. Our significant sources of downstream emissions relate to our pension investments through the Brunel Pension Partnership, re-processing of district recycling that we collect and sell, and local authority partnerships; going forwards, we should work with our partners across the southwest to include these activities in our organisational carbon footprint.

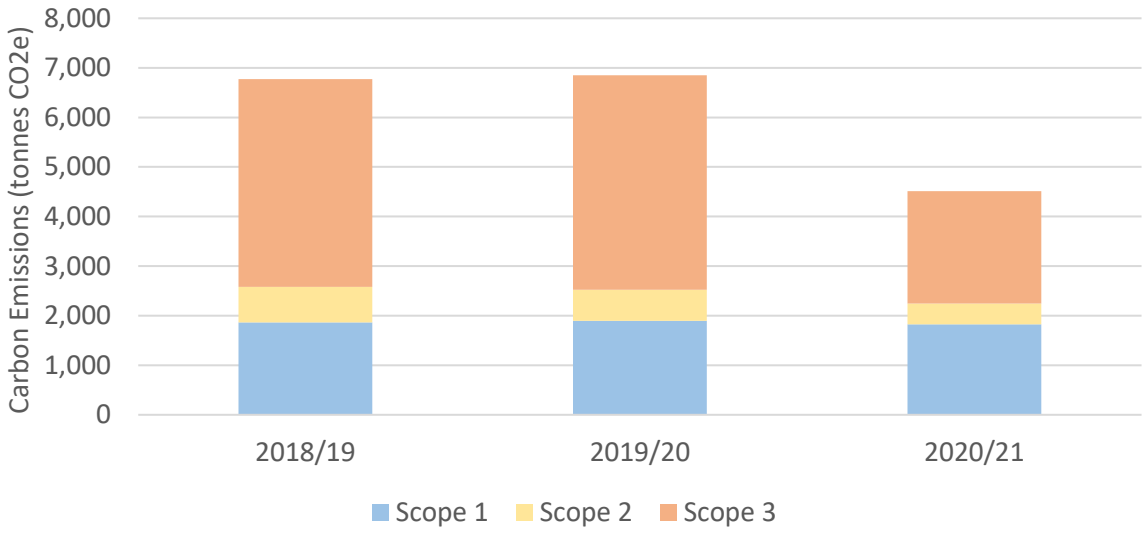
4.4. Carbon Footprint Results

Prior to the COVID-19 pandemic, our full scope 1, 2 and 3 carbon footprint amounted to about 6,800 tonnes CO_2 per annum over 2018/19 and 2019/20. Direct scope 1 and 2 emissions accounted for 27% and 11% respectively of our total carbon footprint, whilst scope 3 emissions accounted for 62% of our total carbon footprint.

Table 1: Teignbridge District Council Carbon Footprint Summary by Scope

Emissions Scope	Carbon Footprint 2018/19 (tonnes CO_2e)	Carbon Footprint 2019/20 (tonnes CO_2e)	Carbon Footprint 2020/21 (tonnes CO_2e)
Scope 1	1,862	1,898	1,826
Scope 2	719	624	418
Scope 3	4,195	4,327	2,271
Total	**6,776**	**6,849**	**4,514**

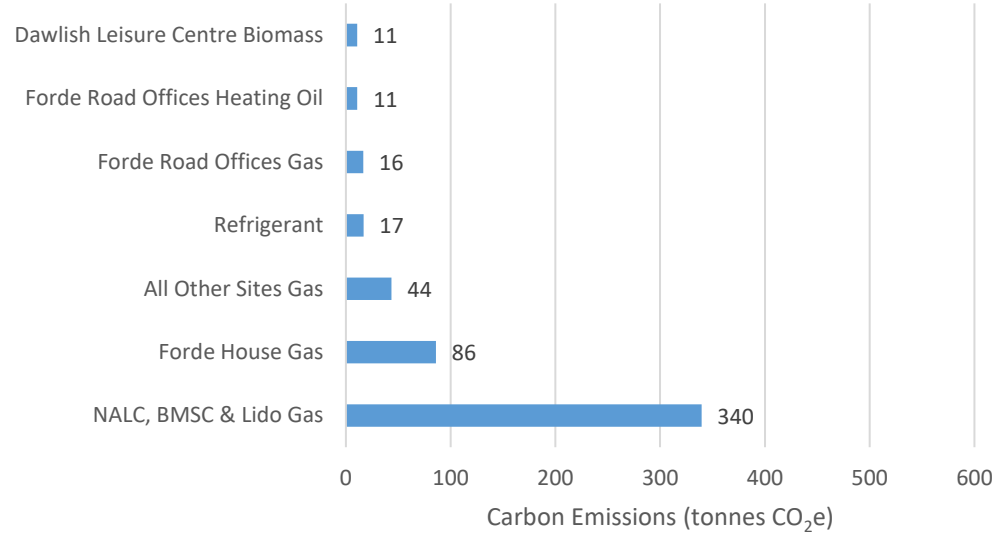
Figure 10: Teignbridge District Council Carbon Footprint Summary by Scope



4.4.1. Scope 1 Emissions Results

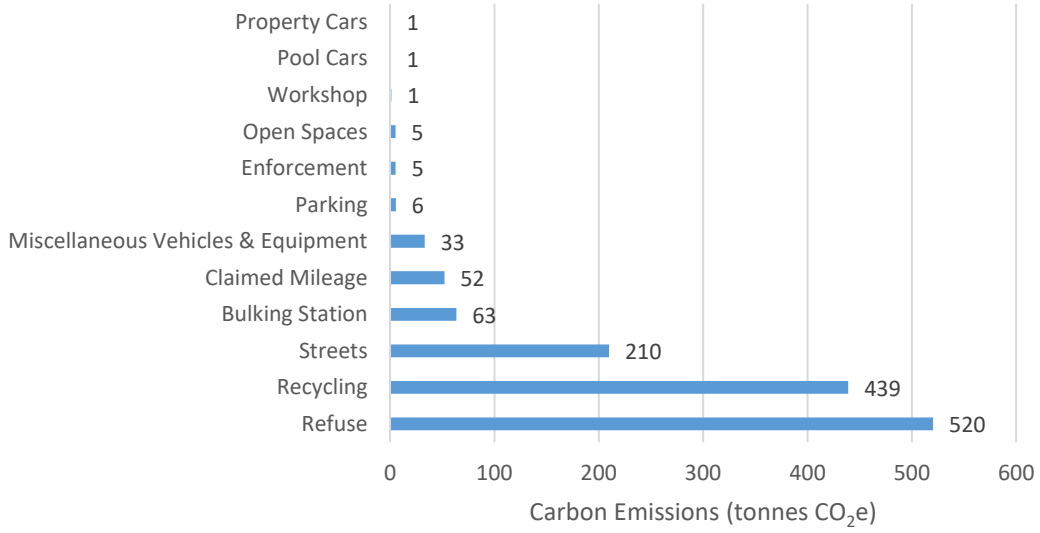
The total scope 1 carbon footprint of our estate amounts to 524 tonnes CO_2e based on our 2018/19 baseline. The majority of this scope 1 carbon footprint relates to the combustion of natural gas at Newton Abbot Leisure Centre, Broadmeadow Sports Centre and the Teignmouth Lido, with Forde House also having a significant impact on our carbon footprint, as shown in Figure 11 below.

Figure 11: Buildings scope 1 emissions 2018/19



The total scope 1 carbon footprint for transport activities amounts to 1,338 tonnes CO_2e, which includes business mileage (or claimed mileage) and vehicle fleet fuel consumption. Our vehicle fleet runs almost entirely on diesel fuel, and our waste, recycling and streets vehicles make up most of our transport emissions.

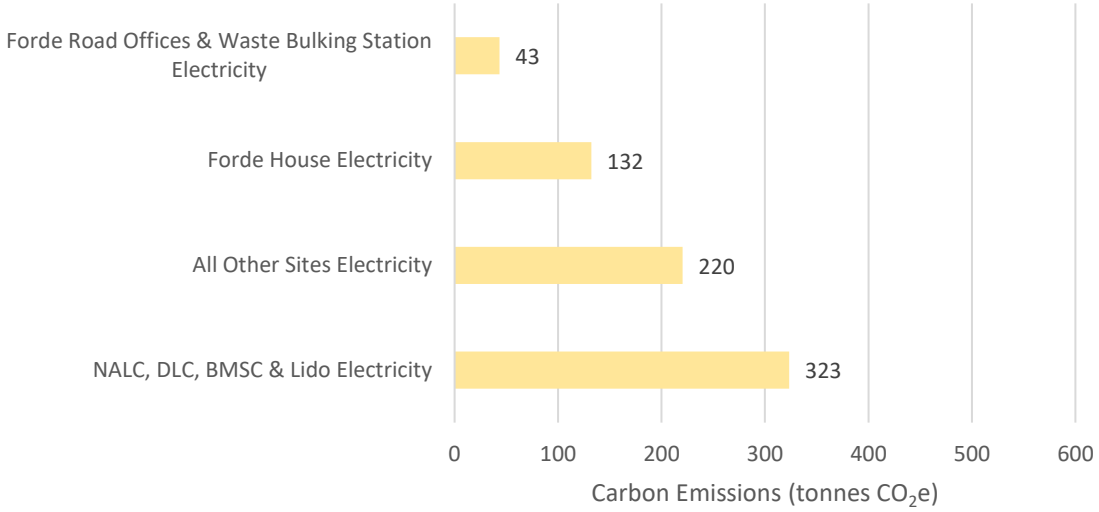
Figure 12: Transport scope 1 emissions 2018/19



4.4.2. Scope 2 Emissions Results

Our scope 2 carbon emissions are predominantly driven by electricity consumption at the leisure sites, including Dawlish Leisure Centre, newton Abbot Leisure Centre, Broadmeadow Sports Centre, and the Teignmouth lido. Again, Forde House plays a significant role in our Scope 2 carbon footprint. “All other sites electricity” includes electricity consumption from about 90 electricity meters across our estate.

Figure 13: Scope 2 electricity emissions 2018/19

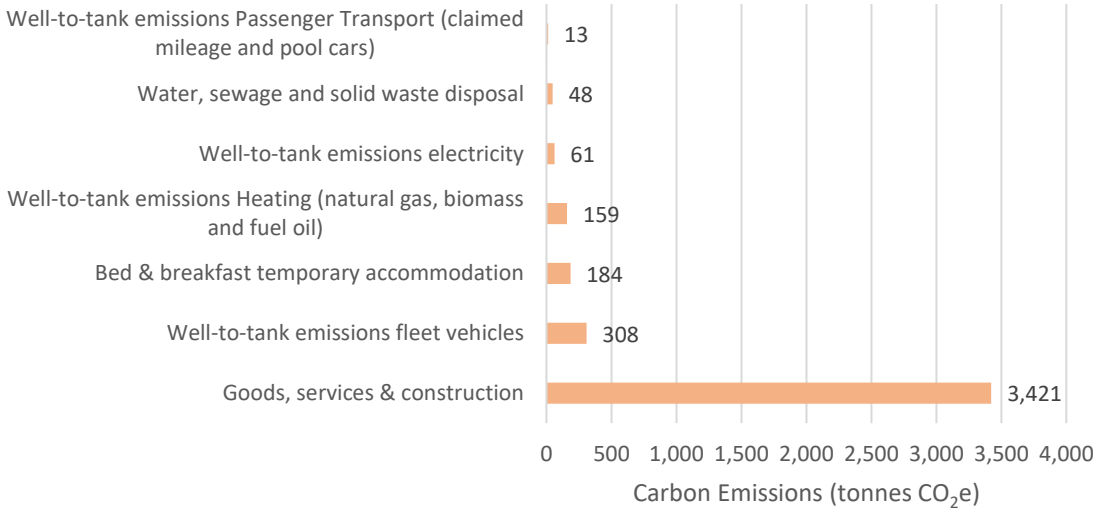


4.4.3. Scope 3 Emissions Results

The overwhelming majority of our scope 3 carbon footprint relates to our upstream supply chain for goods, services and construction materials; these emissions represent 82% of our scope 3 carbon footprint, as shown in Figure 14 below.

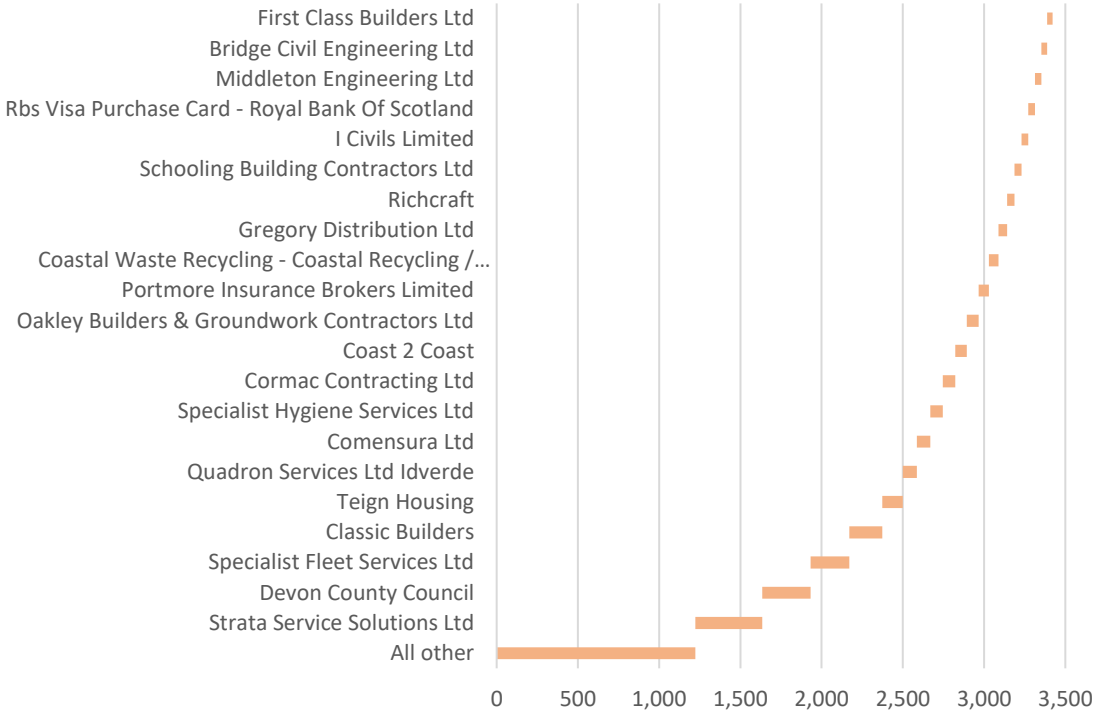
Wheel to tank (WTT) emissions associated with the supply of energy make up 13% of our scope 3 carbon footprint. Temporary housing and private sector leasing makes up 4%, and water, sewage and waste disposal makes up 1% of our scope 3 carbon footprint.

Figure 14: Scope 3 carbon emissions 2018/19



We have estimated the carbon footprint of our top 20 supplies, as shown in Figure 15 below. “All other suppliers” consists of 1,128 suppliers and individuals and constitutes about 36% of our scope 3 carbon footprint.

Figure 15: Scope 3 supply chain breakdown 2018/19



Our top five repeat supplies, which feature in our supply chain carbon footprint year-on-year include Strata, Devon County Council, Specialist Fleet Services, Teign Housing, and Specialist Hygiene Services.

Our supply chain emissions have been grouped by spend type in Table 2 below; construction and civils works is the single largest source of emissions, followed by IT services, mixed authority services (linked with contributions to other local authorities such as DCC), fleet vehicle hire, and waste and recycling.

Table 2: Analysis of supply chain emissions by spend category 2018/19

Spend Description	Emissions (tonnes CO_2)	Percentage of total supply chain emissions
Construction and civils	428	13%
IT services	411	12%
Mixed authority services	299	9%
Vehicle fleet hire	237	7%
Waste and recycling	132	4%
Social housing	127	4%
Building works	121	4%
Grounds maintenance	87	3%
Temporary staff services	81	2%
Cleansing	77	2%
Insurance	64	2%
Road haulage	53	2%
Machinery maintenance	40	1%
Various	1,265	37%

The Market Walk regeneration project was one of the largest single construction schemes that we delivered in 2018/19. The project is shown in Figure 16 below and included installing a glass canopy over Market walk, upgrades to shop frontages, upgrades to the approach to Market walk, upgrading roof insulation levels and replacing the walkway surface.

A retrospective embodied carbon emissions assessment set the carbon footprint of the scheme at 203 tonnes CO_2e.

Figure 16: Market Walk regeneration project

The assessment methodology is based on principals of the RICS whole life cycle assessment, which stems from standards set out in BS EN 15978. The emissions assessment covers:

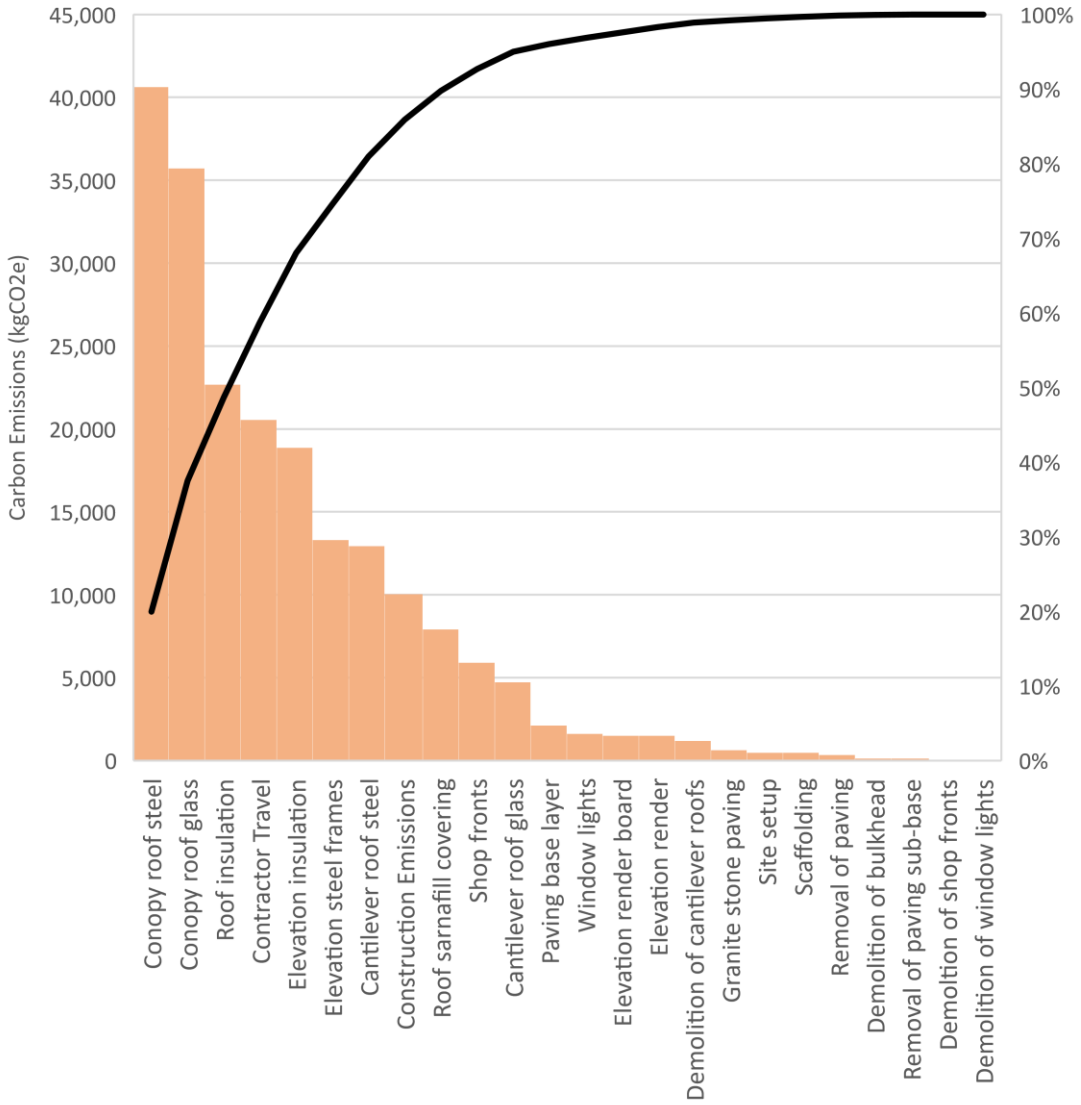
- raw material extraction;
- material transport;
- material manufacturing;
- transport of finished materials to site;
- construction;
- contractor travel;
- production and disposal of wastes.

The top three sources of emissions relate to the raw material extraction, material transport and material manufacturing of:

1. the canopy steel structure;
2. the canopy glass; and,
3. roof insulation.

These three materials alone attribute to about 50% of the project's embodied carbon footprint.

Figure 17: Estimates of embodied carbon within the Market Walk regeneration project



5. Carbon Reduction Plan Buildings

Following the assessment of our carbon budgets in Section 2, our carbon footprint in Section 3, and the UK energy landscape in Section 4, the following sections contain proposals to decarbonise our existing and future building stock.

5.1. Existing Buildings

The following sections contain a set of proposals to decarbonise our existing building stock; the proposals are based on the energy hierarchy:

1. Be lean and use less energy
2. Be clean and supply energy efficiently
3. Be green and use more renewable energy
4. Offset residual and hard to treat emissions

5.1.1. Energy Efficiency

The Energy Hierarchy emphasises the importance of energy efficiency in credible net-zero strategies, and how energy efficiency can be used to achieve rapid progress to decarbonise our estate, whilst achieving savings on our gas and electricity bill.

ACTION 1: Implement an energy efficiency programme to reduce the demand for heating and electricity consumption in our buildings and car parks:

How will we achieve it?

Set benchmarks, increase monitoring, and increase reporting:

- Set up an Energy Management System (EMS) to support continuous improvement in energy efficiency based on the plan, do, check, act method.
- Increase coverage of the Building Management System to cover significant buildings and energy loads and develop a platform to assess energy performance in real time.
- Increase the coverage of energy sub-metering and deploy energy data loggers to characterise how the majority of energy is consumed in our buildings.
- Consider updating corporate Key Performance Indicators to inform senior staff and elected members of progress towards the targets.
- Incorporate the objectives of corporate energy efficiency into an existing or new officer role within Environmental Health.

Work to eliminate unnecessary energy demands and roll out energy efficient equipment:

- Constrain equipment operation schedules as much as possible and ensure we only heat and power our buildings when we use them.
- Optimise pump and fan circulation speeds, minimise central heating supply temperatures, and upgrade electrical equipment to high efficiency equivalents.

- Increase the roll-out of variable speed drives on pool water circulation pumps and air handling units to reduce system loadings.

- Continue to replace fluorescent lighting with LED equivalents.

- Continue to upgrade IT equipment such as desktop computers, displays and server equipment with energy efficient equivalents.

Review how we use our buildings:

- Explore opportunities to consolidate and optimise the use of workspace to reduce the need for heating and lighting etc.

- Explore opportunities to adjust building utilisation and increase energy efficiency, e.g. converting poorly insulated office space into storage space.

Increase heating system efficiency, enhance building fabric standards, and increase energy recovery:

- Conduct thermal imaging review of our out top five sites listed in Section 5.2 in the next heating season to identify opportunities to enhance building fabric standards.

- Investigate options to reduce heat loss through the building fabric by enhancing insulation levels and reducing air permeability.

- Minimise the demand for active cooling through passive solar shading, enhancing ventilation strategies, and optimising internal heat gains.

- Enhance and increase heat recovery systems in air handling units, air source heat pumps and air conditioning systems.

Enhance climate change messaging in staff Communications and work towards becoming a carbon literate organisation:

- Work with our Communications team to advise staff on how actions and behaviours can help to reduce energy consumption in the workplace and at home.

- Deliver carbon literacy training to Better 2022 managers to support behaviour change and identify energy efficiency measures in business plans.

Detailed proposals will be developed to deliver Target 1 and will focus on reducing baseload energy demand in our highest electricity consuming sites.

5.1.2. Fossil Fuel Phase-down

Section 3 identified the Government's intent to continue to support investment in offshore wind and the decarbonisation of the electricity system over the next ten to fifteen years. It also highlighted the significant role that electrified technology will play in reducing our demand for energy and decarbonising our buildings. As such, to work towards complying with the Paris Agreement, we need to phase out the supply of heat from fossil fuels and transition to low-carbon electrified heat.

TARGET 1: Achieve an 88% reduction in natural gas consumption across buildings that we own and operate by 2025 by switching gas-fired boilers for electrified heating systems.

How will we do it?

- Replace gas-fired boilers at Newton Abbot Leisure Centre, Forde House, and Teignmouth Lido with air source heat pumps under PSDS Phase 1; this will achieve a 76% reduction in natural gas consumption.

- Submit an application under PSDS Phase 4 to replace the gas-fired heating system with air source heat pump at Broadmeadow Sports centre should funding become available; this will support a business case working towards an 88% reduction in natural gas consumption.

- Submit budget connection applications to Western Power Distribution and factor grid re-enforcement measures into decarbonisation business cases.

Areas for further ambition:

- Re-submit the "Small Sites" decarbonisation bid covering Albany House, Decoy Country Park and Teignbridge Business Centre, under PSDS Phase 4 or PSDS phase 5 should funding become available.

- Progress the masterplan for the Depot to replace life-expired buildings and heating equipment with modern and highly efficient facilities.

POLICY 1: Following adoption of this plan, we will operate a fossil fuel phase down policy. This means that for the top 14 buildings identified in Section 5.2, when gas-fired heating systems reach end-of-life, they will be replaced with low carbon alternatives.

We will make best endeavours to decarbonise heating in listed buildings such as Market Hall and Old Forde House, however limitations governed by heritage status may prevent us from fully phasing out fossil fuel consumption in these buildings.

Oil-fired heating systems may be switched to natural gas-fired heating systems where either the building thermal fabric is wholly unsuitable for low carbon heating systems, or the building or asset is due for redevelopment with a specific date set for decommissioning.

Our building maintenance programme will align with this policy, and a pipeline of proactive business cases will be developed in anticipation of funding opportunities.

5.1.3. Renewable Energy

Alongside a programme of energy efficiency and phasing out the supply of fossil fuels, powering our buildings with renewable energy will help to reduce our carbon footprint whilst lowering our energy bills.

TARGET 2: Generate the equivalent of 20% of our electricity needs through on-site generation relative to 2018/19 levels by 2025.

How will we do it?

- Continue to monitor existing solar PV installations to maximise generation potential and ensure actual generation levels match predicted generation levels.

- Continue to deliver 280 kW of new solar PV capacity under PSDS 1 funding, including 100 kW at Newton Abbot Leisure Centre, 75 kW at Forde House, 65 kW at Broadmeadow Sports Centre and 40 kW at the Teignmouth Lido.

- Develop up to 200 kW of further onsite renewable energy capacity to work towards generating 20% of our electricity needs on site.

Proposals for new solar PV generation will be subject to the development of a full business case, including structural capacity assessments and consent from the electricity network operator.

TARGET 3: Procure a minimum of 80% of our residual electricity demand from renewable energy via our utility supplier by 2025.

How will we do it?

- Continue to review renewable energy tariff offerings under the existing LASER energy supply contract ahead of the contract expiry in October 2024.

- Aim for a minimum share of 80% of renewable energy under the new energy supply contract from October 2024.

- Tariffs should ideally source energy from specific wind and solar PV generators and support the development of additional renewable energy capacity.

This policy is based on standards set by the Science Based Targets Initiative and will be subject to the state of the energy market and business needs closer to our energy contract renewal.

TARGET 4: Offset up to 100% of our residual electricity demand by 2030 through financing new off-site renewable energy in Devon by 2030.

How will we do it?

- Continuing to support the Devon Energy Collective to develop large-scale renewable energy schemes in Devon through entering into a synthetic power purchase agreement.

- Consider developing large-scale renewable energy projects in-house within Teignbridge district.

Whilst Target 3 seeks to increase the supply of renewable energy under our energy supply contract, participating in the Devon Energy Collective will provide a credible means to demonstrate net zero power supply emissions.

Achieving Target 4 will be subject to continued interest amongst local authorities in supporting the Devon Energy Collective, the identification of viable development sites, an assessment of risk associated with synthetic power purchase agreements, and risks in delivery timescales.

5.1.4. Residual Emissions and Offsetting

Following a programme to increase energy efficiency, phase out the use of fossil fuels and to supply our energy needs from renewable sources, there will be a residual element of our carbon footprint that is hard-to-treat by technological and behaviour change solutions; to reach net zero emissions, we will need to offset our residual carbon footprint using carbon offsetting.

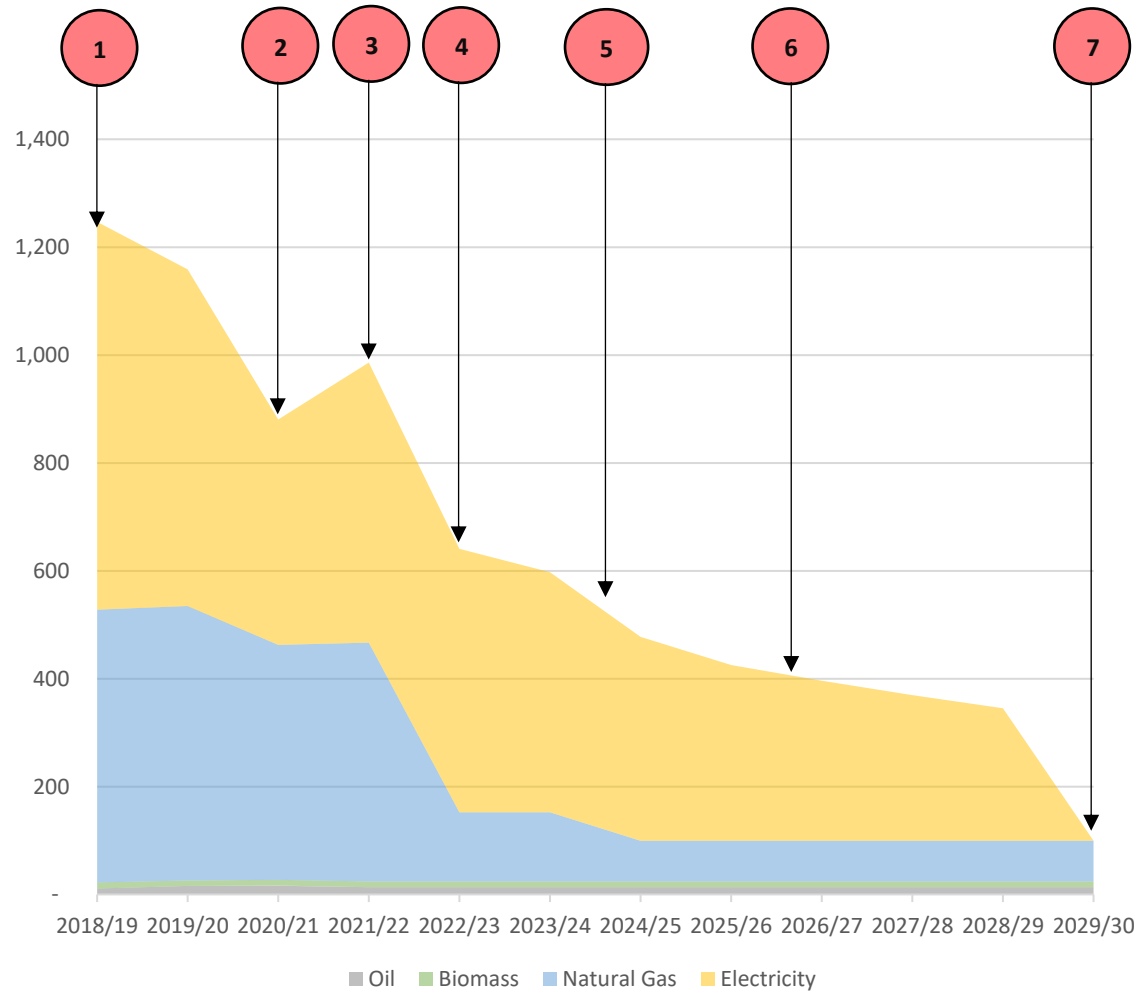
TARGET 5: Reduce the carbon footprint of the buildings and estate that we own and operate by 90% by 2030 and offset the residual carbon footprint of 10% using carbon offsetting.

Achieving Target 5 will be subject to the identification of credible carbon offsets and development of viable business cases.

5.1.5. Buildings Emissions Trajectory

An illustrative emissions projection is shown in Figure 18 covering our building's scope 1 and 2 carbon footprint; the pathway illustrates how emissions could reduce from approximately 1,243 tonnes CO_2 in 2018/19 to about 100 tonnes CO_2 in 2029/30. The exact emissions pathway will be subject to the exact completion date of decarbonisation projects and the rate at which grid supplied electricity will decarbonise.

Figure 18: Illustrative emissions trajectory for buildings included in our scope 1 and 2 carbon footprint



Below is a summary of actions driving the indicative emissions pathway:

1. The first way-marker shows our building's baseline carbon footprint of 1,243 tonnes CO_2 in 2018/19.
2. Emissions fell in 2020/21 following closure or partial closure of our buildings under lockdown restrictions.
3. Emissions rebounded in 2021/22 following the easing and lifting of lockdown restrictions.
4. A significant reduction in emissions is anticipated from 2022/23 due to current decarbonisation projects at the Leisure sites and Forde House.
5. Way-marker 5 assumes that a successful business case will be developed to switch gas-fired heating at Broadmeadow to an air source heat pump.
6. A programme of energy efficiency and renewable energy growth coupled with grid decarbonisation reduces emissions over way-marker six.
7. Residual emissions of 100 tonnes CO_2 are achieved following the market-based scope 2 emissions reporting methodology under Target 5, and these emissions are offset using carbon offset under Action 38.

5.2. The Top 14 Teignbridge Sites

Our top fourteen sites are responsible for 95% of carbon emissions included in our scope 1 and 2 carbon footprint. To create a sense of scale of emissions across the sites, emissions listed in Table 3 are shown geographically in Figure 19, with larger circles correlating with higher emissions levels. The following sections provide an overview of ongoing decarbonisation projects and an indication of future pipeline projects working towards our net zero target.

Figure 19: Geographical representation of the carbon footprint of our top 14 sites

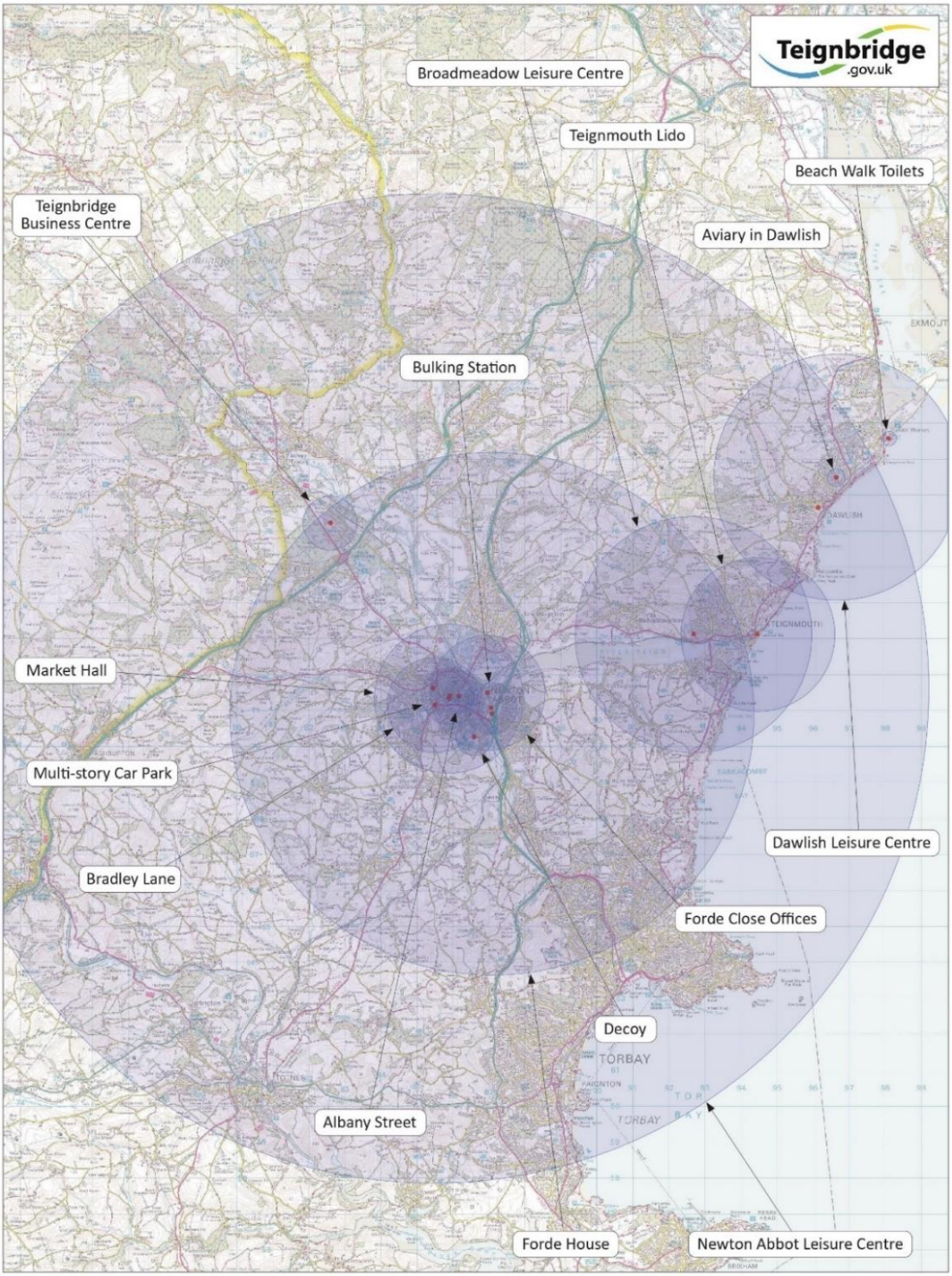


Table 3: Carbon emissions by site and fuel type

Site	Electricity (kWh)	Gas (kWh)	Electricity ($kgCO_2$)	Gas ($kgCO_2$)	Oil ($kgCO_2$)	Biomass ($kgCO_2$)	Total ($kgCO_2$)
Newton Abbot Leisure Centre	658,823	1,211,984	186,447	223,005	0	0	409,452
Forde House	366,443	466,901	103,703	85,910	0	0	189,613
Dawlish Leisure Centre	323,880	0	91,658	0	0	10,819	102,477
Broadmeadow Sports Centre	150,010	297,941	42,453	54,821	0	0	97,274
Teignmouth Lido	9,761	335,686	2,762	61,766	0	0	64,529
Market Hall	146,035	115,356	41,328	21,225	0	0	62,553
Old Forde House	100,000	28,292	28,300	5,206	0	0	61,798
Forde Road Offices	74,016	89,653	20,947	16,496	10,924	0	48,367
Bradley Lane	143,000	0	40,469	0	0	0	40,469
Multi-Storey Car Park	87,293	0	24,704	0	0	0	24,704
Teignbridge Business Centre	44,249	60,762	12,522	11,180	0	0	23,703
Bulking Station	79,209	0	22,416	0	0	0	22,416
Decoy Country Park	19,690	60,558	5,572	11,143	0	0	16,715
Albany House	15,807	55,409	4,473	10,195	0	0	14,669

5.2.1. Newton Abbot Leisure Centre

Newton Abbot Leisure Centre is our largest source of carbon emissions and is the largest of our three leisure centres. Under a previous carbon reduction programme, the building was fitted with 69kW solar PV, and variable speed drives were fitted to the poolroom air handling unit and pool water circulation pumps.

A £1.2 million package of decarbonisation works is underway at the site to deliver a carbon reduction of approximately 220 tonnes CO_2 per annum; the project will involve replacing gas-fired heating with air source heat pumps, installing solar PV and battery energy storage, enhancing energy metering, and increasing the site's power supply capacity. A full breakdown of ongoing projects is set out in

Table 5.

The site has a high baseload electricity demand with energy benchmarks suggesting there is scope to improve energy efficiency, as summarised in

Table 4. A detailed energy audit is recommended at the site to work towards achieving Target 1.

Figure 20: Aerial view of Newton Abbot Leisure Centre

Table 4: Newton Abbot Leisure Centre site summary

Gas consumption benchmark	Electricity consumption benchmark	Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
244 kWh/m^2 (CIBSE Benchmark 264 kWh/m^2) Indicates reasonable gas consumption	133 kWh/m^2 (CIBSE Benchmark 96 kWh/m^2) Indicates high electricity consumption	Moderate dry-side standards constructed to c. 2000's regulations. Poor wet-side standards constructed to c. 1970's regulations.	Wet side air handling units are nearing end-of-life with opportunities to increase energy efficiency.	Gas boilers in serviceable condition with dry side boilers nearing end-of-life	Overheating risk

Table 5: Newton Abbot Leisure Centre projects summary funded via a combination of grants and S106

Project	Status	Electricity saving (kWh)	Gas saving (kWh)	Completion date
Air source heat pump	In progress	- 254,434	1,211,984	2022

Project	Status	Electricity saving (kWh)	Gas saving (kWh)	Completion date
Upgrade pool heat exchangers	In progress	Included above	Included above	2022
100kW Solar PV	In progress	98,860	0	2022
100kWh Battery	In progress	Included above	0	2022
Building management system	In progress	31,451	0	2022
Electrical capacity upgrade	In progress	0	0	2022
Heating system sub metering	In progress	0	0	2022

Potential pipeline projects:

- In depth energy efficiency audit
- Convert remaining fluorescent lighting to LED lighting
- Wet side thermal fabric upgrades
- Refurbish wet-side air handling units to increase heat recovery and reduce electrical loads
- Replace decommissioned radiant gas heating systems with air handling units
- Install a further rooftop solar PV capacity

5.2.2. Forde House

Forde House is our second highest source of carbon emissions and is home to our main offices. Under a previous carbon reduction programme, the building was fitted with 10kW Solar PV and variable speed drives were fitted on the main heating system circulation pumps.

Prior to the decarbonisation project, the site performed poorly against best practice energy benchmarks, as indicated in

Table 6.

An extensive package of works totalling £4.4 million is under way at the site to improve the building fabric efficiency, reduce excess solar gains, replace gas-fired boilers with air source heat pumps, increase renewable energy generation, increase the coverage of energy sub-metering, and modernise the working environment. Collectively the projects listed in Table 7 will achieve a carbon reduction of about 85 tonnes CO_2 per annum.

Figure 21: Aerial view of Forde House

Table 6: Forde House site summary

Gas consumption benchmark	Electricity consumption benchmark	Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
90 kWh/m^2 (CIBSE Benchmark 79 kWh/m^2) Indicates high gas consumption	71 kWh/m^2 (CIBSE Benchmark 54 kWh/m^2) Indicates high electricity consumption	Poor with extensive fabric upgrades required to reduce heat loss and excess solar gains	Extract ventilation with no heat recovery	Gas boilers have reached end of life	Overheating risk and risk of coastal and river flooding.

Table 7: Forde House projects funded via a combination of grants, capital, maintenance budgets and borrowing

Project	Status	Electricity saving (kWh)	Gas saving (kWh)	Completion date
Single glazing Upgrade	In progress	0	25,810	2023
Barrel vault replacement	In progress	0	26,420	2023

Project	Status	Electricity saving (kWh)	Gas saving (kWh)	Completion date
Draught Proofing	In progress	0	33,430	2023
Air source heat pump	In progress	-37,050	380,240	2023
Ventilation upgrade	In progress	-20,960	0	2023
LED lighting upgrade	In progress	10,000	0	2023
75 kW rooftop Solar PV	In progress	63,405	0	2023
Power upgrade	In progress	0	0	2023
Cavity wall insulation	Under Review	Under Review	Under Review	2023
Desktop PC replacements	Complete	Up to 40,000	0	Complete

Potential pipeline projects:

- Replacement of window boxes with high performance triple glazing
- Installation of a brise soleil to reduce spatial cooling demands
- Server room cooling system upgrades and roll out of efficient IT equipment
- Council chamber single glazing upgrade
- Replace second floor bridge link to reduce heat loss and excess solar gains
- Ground and first floor internal wall and roof insulation
- Solar carport canopies to increase renewable energy capacity

5.2.3. Dawlish leisure Centre

Dawlish Leisure Centre is our second largest leisure centre and our third highest source of carbon emissions. Under a previous carbon reduction programme, gas-fired boilers were replaced with a biomass heating system, and the gas service to the building was disconnected. The building was also equipped with 50 kW of solar PV, and variable speed drives were fitted to pool water circulation and primary heating system pumps.

The site has a high baseload electricity demand and performs poorly against best practice electricity consumption benchmarks, as summarised in

Table 8.

Figure 22: Aerial view of Dawlish Leisure Centre

Table 8: Dawlish Leisure Centre site summary

Biomass consumption benchmark	Electricity consumption benchmark	Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
311 kWh/m2 (CIBSE Benchmark 264 kWh/m2) Indicates high heating demand	131 kWh/m^2 (CIBSE Benchmark 96 kWh/m^2) Indicates high electricity consumption	Moderate – constructed to c. 1990's regulations.	Air handling units with heat recovery and opportunities to increase energy efficiency	Biomass boilers in good condition	Overheating risk

Potential pipeline projects:

- In depth energy efficiency audit
- Thermal fabric upgrades
- Install variable speed drives on air handling units to reduce heating and electrical loads
- Roll out of energy sub metering
- Convert remaining fluorescent lighting to LED lighting
- Increase provision of roof top solar PV

5.2.4. Broadmeadow Sports Centre

Broadmeadow Sports Centre is our fourth highest source of carbon emissions and is our third largest leisure centre. The site performs poorly against best practice energy benchmarks, as highlighted in

Table 9, and experiences significant excess solar gains.

A circa £1 million package of decarbonisation works is underway at the site including replacing the sports hall roof, replacing all fluorescent lighting with LED lighting, solar PV and battery energy storage; collectively the projects will deliver a carbon reduction of about 7 tonnes CO_2 per annum. A list of ongoing projects is available in Table 10.

Following completion of decarbonisation projects at Newton Abbot Leisure Centre, Forde House and the Lido, Broadmeadow will be our single largest source of natural gas consumption and is a high priority site to switch to low-carbon heating.

Figure 23: Aerial view of Broadmeadow Sports Centre

Table 9: Broadmeadow Sports Centre site summary

Gas consumption benchmark	Electricity consumption benchmark	Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
179 kWh/m^2 (CIBSE Benchmark 158 kWh/m^2)	90 kWh/m^2 (CIBSE Benchmark 64 kWh/m^2)	Poor and requiring significant upgrades to reduce heat loss and	Extract ventilation systems have reached end of life	Gas boilers are in serviceable condition but have reached end of life	Overheating risk

Gas consumption benchmark	Electricity consumption benchmark	Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
Indicating high gas consumption	Indicating high electricity consumption	excess solar gain			

Table 10: Broadmeadow Sports Centre projects summary – funded through a combination of grants, S106 and CIL

Project	Status	Electricity saving (kWh)	Gas saving (kWh)	Completion date
LED Lighting	In Progress	28,204	0	2022
65 kW Solar PV	Complete	65,670	0	Complete
20 kWh Battery	Complete	Included above	0	Complete
Sports Hall Roof	Complete	Savings realised on replacement of heating system	Savings realised on replacement of heating system	Complete

Potential pipeline projects

- In depth energy audit
- Upgrade distribution boards to include energy sub metering
- Upgrade wall thermal fabric standards
- Replace single glazing with high performance solar control glazing
- Power capacity upgrade to enable connection of air source heat pump
- Replace gas fired heating systems with an air source heat pump

5.2.5. Teignmouth Lido

Teignmouth Lido is our fifth highest source of carbon emissions despite operating for only three months a year. Under a previous carbon reduction programme, the site was fitted with variable speed drives on pool water circulation pumps.

Figure 24: Aerial view of the Lido

A £0.8 million package of decarbonisation works is underway at the site including the replacement of gas boilers with air source heat pumps, installation of renewable energy, installation of energy sub metering and increased power capacity. Collectively the projects will deliver a carbon reduction of about 63 tonnes CO_2 per annum.

Table 11: Teignmouth Lido site summary

Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
Changing rooms and kiosk are unheated.	Naturally ventilated	Gas boilers have reached end of life.	Overheating risk and coastal flooding risk

Table 12: Teignmouth Lido projects summary – funded by grants and S106

Project	Status	Electricity saving (kWh)	Gas saving (kWh)	Completion date
Air Source Heat Pump	Complete	- 73,920	335,686	2022
40 kW Solar PV	In progress	36,000	0	2022
50kWh battery	In progress	Included above	0	2022
BEMS Integration	Complete	2,139	0	2022
LV and Substation Upgrade	Complete	0	0	2022

Potential pipeline projects:

- Enhanced energy sub metering
- Install pool cover to reduce evaporative heat loss and wind chill
- Replace pool water circulation pumps with the latest energy efficient equivalents
- Increase water efficiency in changing room areas

5.2.6. Market Hall

Buildings associated with Market Hall are the sixth largest source of carbon emissions. The site forms part of the Future Highstreets Fund regeneration project. At the time of writing, specifications are under development to overhaul existing mechanical and electrical systems. A summary of the building performance is provided in Table 13.

Figure 25: Aerial view of Market Hall

Table 13: Market Hall and the Alex Theatre site summary

Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
Poor fabric standards throughout with solid stone walls and high levels of air infiltration	Natural ventilation in main hall and air handling units in café area.	Heating system due to be decommissioned with building re-modelling works	Overheating risk and high surface water flooding risk

Potential pipeline projects:

- Rationalisation of existing heating and ventilation systems
- Additional heating to Market Hall

5.2.7. Old Forde House

Old Forde House is our seventh highest source of carbon emissions and is a Grade 1 listed building. The building is heated using a combination of direct electric heating panels and gas-fired boilers. Due to the heritage status of the building and building architecture, there are limitations on the application of carbon reduction projects.

Table 14: Old Forde House site summary

Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
Poor fabric standards with solid stone walls, singe glazing and high air infiltration rates	Naturally ventilated	Electric panel heaters in good condition and gas-fired boilers in serviceable condition but nearing end-of-life.	Overheating risk and risk of coastal and river flooding.

Figure 26: Aerial view of Old Forde House

Potential pipeline projects:

- Enhanced energy sub metering
- Draught proofing
- Enhanced heating system controls
- Upgrading electric panel heaters to electric storage heaters to enable off-peak consumption
- Conversion of gas-fired heating systems to electric storage heaters

5.2.8. The Depot

The Depot forms a collection of buildings including the Forde Road Offices, vehicle maintenance buildings, and storage units. Collectively, these buildings make up our eighth highest source of emissions.

The Forde Road offices are heated by an oil-fired boiler, and the vehicle maintenance buildings are heated using natural gas. The Forde Road Offices were fitted with double-glazing under a previous carbon reduction programme. The site is unsuitable for low carbon heating systems in its present state due to the poor building fabric standards highlighted in Table 15.

The site is subject to the master plan and fleet decarbonisation proposals set out in Section 6.

Table 15: Depot site summary

Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
Poor fabric standards that are unsuitable for low carbon heating systems	Naturally ventilated	Oil-fired boilers in serviceable condition and nearing end of life	Overheating risk and risk of coastal and river flooding.

Figure 27: Aerial view of the Depot

Potential pipeline projects:

- Replace oil fired heating system with gas fired heating as an interim decarbonisation measure

- Replace single-pipe heating system to an efficient flow and return system as an interim decarbonisation measure
- Remodel existing office spaces, material stores and vehicle service spaces
- Increase the electrical supply capacity to enable fleet EV charging
- Solar canopies and battery energy storage
- Rooftop solar PV

5.2.9. Nam House

Nam House is our ninth highest source of carbon emissions. The site is due to be redeveloped as part of the Bradley Lane regeneration project. No decarbonisation projects are currently planned at Nam House.

Figure 28: Aerial view of Bradley Lane

5.2.10. Newton Abbot Multi-storey Car Park

Newton Abbot Multi Storey Car Park is our tenth highest source of carbon emissions. Under a previous carbon reduction plan, the site was fitted with T8 fluorescent lighting, which has become obsolete. The site forms part of a strategy to regenerate the town centre under the Newton Abbot and Kingsteignton Garden Communities project.

Table 16: Building performance summary for the Multi-storey

Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
High thermal mass open-air concrete structure	Naturally ventilated	Electric heating in car park offices	High surface water flooding risk

Figure 29: Aerial view of the Newton Abbot Multi-storey Car Park

Potential pipeline projects:

- Upgrade electricity distribution boards to increase power supply capacity and increase energy sub metering
- Upgrade fluorescent lighting to LED lighting with daylight compensation
- Install solar car ports on the seventh and eighth deck and consider installing a solar brise soleil

5.2.11. Teignbridge Business Centre

The Teignbridge Business Centre is our eleventh highest source of carbon emissions and provides office space for small and starter businesses. The site was fitted with 30kW of solar PV before retirement of the Feed in Tariff scheme in 2019.

Figure 30: Aerial view of the Teignbridge Business Centre

Table 17: Building performance summary for Teignbridge Business centre

Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
Moderate but unsuitable for a heat pump without upgrades.	Natural ventilation	Gas boiler in serviceable condition but reaching end of life	Surface water flooding risk and risk of overheating

Potential pipeline projects:

- Replace fluorescent lighting with high efficiency LED lighting
- Replace gas fired heating system with air source heat pump and improve fabric insulation standards

5.2.12. Bulking Station

The Bulking Station is our twelfth highest source of carbon emissions. Electricity consumption at the site is predominantly associated with process loads to sort and compact recycling materials. The site is an ideal candidate for renewable energy. The primary climate risks relating to the site include a risk of coastal and river flooding.

Figure 31: Aerial view of the Bulking Station

Potential pipeline projects:

- Install roof-top solar PV
- Review options to increase process load efficiency

5.2.13. Decoy Country Park

Decoy Country Park is our thirteenth highest source of emissions. The emissions relate to a set of changing rooms, toilets, and a kiosk next to Decoy Lake. The site formed part of the “Small Sites Bid” under the first round of PSDS funding. Extensive fabric and heat emitter upgrades are required at the site before the site can be switched from fossil fuel heating to low carbon heating.

Figure 32: View of Decoy Country Park

Table 18: Building performance summary for Decoy Country Park

Gas consumption benchmark	Electricity consumption benchmark	Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
336 kWh/m^2 (CIBSE Benchmark 141 kWh/m^2) Indicating high gas consumption	76 kWh/m^2 (CIBSE Benchmark 93 kWh/m^2) Indicating reasonable electricity consumption	Poor fabric standards with single glazing and cavity walls	Naturally ventilated	Hot water boilers in good condition, central heating boilers in serviceable condition and nearing end of life	Risk of surface water flooding and overheating

Potential pipeline projects:

- Replace fiscal non-half-hourly energy meters with half-hourly meters to increase the resolution of energy metering
- Replace single glazing with double glazing
- Upgrade fabric standards, upgrade heat emitters and install an air source heat pump

5.2.14. Albany House

Albany House is our fourteenth highest source of emissions and provides temporary accommodation for residents. The site was fitted with 10kW Solar PV as part of the package of works to convert the building for accommodation purposes.

The site was included as part of the unsuccessful "Smalls Sites Bid" under the first phase of PSDS funding. Switching the fossil-fuelled boiler for an air source heat pump would have increased energy bills by about £1,000 per year, which emphasises the need to improve the building fabric and reduce heat loss.

Figure 33: Aerial view of Albany House

Table 19: Building performance summary for Albany House

Gas consumption benchmark	Electricity consumption benchmark	Fabric standards	Ventilation strategy	Heating system dilapidation status	Susceptibility to climate change
127 kWh/m^2 (CIBSE Benchmark 94 kWh/m^2) Indicating high gas consumption	36 kWh/m^2 (CIBSE Benchmark 26 kWh/m^2) Indicating high electricity consumption	Moderate but currently unsuitable for low carbon heating without fabric upgrades	Naturally ventilated.	Gas boilers in serviceable condition.	Risk of overheating and risk of surface water flooding.

Potential pipeline projects:

- Replace fiscal non-half-hourly energy meters with half-hourly meters to increase the resolution of energy metering
- Cavity wall insulation or external wall insulation.
- Replace gas fired heating system with an air source heat pump and upgrade heat emitters

5.3. New Dwellings and Commercial Buildings

Following a review of options to decarbonise our existing building stock in the previous section, sections 5.3.1 to 5.3.2 identify opportunities to reduce operational emissions in new dwellings and buildings that we construct.

5.3.1. Dwellings

Following the Future Homes Standard Consultation Response[8] in January 2021, Building Regulations for new dwellings will be tightened from June 2022 to require a 30% reduction in carbon emissions over current 2013 standards. The Government has also signalled its intent to tighten Building Regulations further from 2025 to achieve an emissions reduction of 75% to 80% relative to current 2013 standards.

Under Policy 2 – Net Zero Dwellings, new dwellings that we fund will achieve carbon emissions standards that stay ahead of the Government's timeline for the Future Homes Standard. Whilst evidence produced for the CCC indicates that net zero dwelling emissions standards will cost up to 7%[9] more, over and above 2013 building regulations, more recent evidence produced for local authorities in the Southwest indicates that net zero standards will cost between 2% and 6%[10], over and above 2021 building regulations.

POLICY 2 – Net Zero Dwellings: Projects involving the construction of new dwellings under Building Regulations Part L1A and requiring planning consent following adoption of this Part 1 Plan will need to achieve net zero regulated carbon emissions, subject to technical viability; to achieve this standard, the Dwelling Emissions Rate (DER) should be less than or equal to 0.0 $kgCO_2/m^2$/year based the latest Standard Assessment Procedure (SAP) methodology (e.g. SAP 10).

For certain configurations of flats or constrained parcels of land where it is not possible to balance regulated energy demands with on-site renewable energy generation, this policy will need to be relaxed to allow for the reasonable level of carbon reduction, subject to financial and technical viability.

Where possible, housing developments are recommended to follow operational energy guidance set out in the LETI Climate Emergency Design Guide; Table 20 provides a summary of design standards proposed for small scale housing.

[8] The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings - GOV.UK (www.gov.uk)
[9] https://www.theccc.org.uk/wp-content/uploads/2019/07/The-costs-and-benefits-of-tighter-standards-for-new-buildings-Currie-Brown-and-AECOM.pdf
[10] http://www.cotswold.gov.uk/netzerocarbontoolkit

Table 20: Design standards proposed by the London Energy Transformation Initiative

Building element or attribute	Standards
Thermal Fabric Standards	Walls: 0.13 to 0.15 W/m^{2}K Floors: 0.08 to 0.10 W/m^{2}K Roof: 0.10 to 0.12 W/m^{2}K Windows: 0.80 W/m^{2}K Doors 1.00 W/m^{2}K
Air tightness	< 1 m^3/hr.m$_2$ @ 50Pa
Renewable energy targets	Heating is fossil fuel free and onsite renewable energy matches the annual energy demand
Energy consumption targets before renewable energy	15kWh/m^2 for spatial heating
Solar gains	Solar gains are balanced to offset spatial heating demand whilst not causing overheating risk
Cooling	Utilise external shading to optimise internal heat gains and introduce cross-ventilation
Form factor	1.7 to 2.5
Sub metering	Sub meter renewable energy Sub meter electric vehicle charging Sub meter heating system demand Provide smart meter display

With increasing building fabric efficiency and air permeability standards, and a shift towards lighter construction techniques, buildings are subject to overheating risks in our warming climate. Design standards such as CIBSE TM59 can help to assess this risk and enable the identification of measures to reduce the risk of overheating through adjusting glazing orientation and specification, solar shading, and enhanced ventilation strategies.

ACTION 2: Identify a project to implement and test the design standard CIBSE TM59, to develop in-house expertise in developing climate resilient homes.

5.3.2. Commercial Buildings

Following the Future Buildings Standard Consultation Response[11] in December 2021, Building Regulations for new commercial buildings will be tightened from June 2022 to require a 27% reduction in carbon emissions over current 2013 standards. Unlike proposals set out in the Future Homes

[11] The Future Buildings Standard - GOV.UK (www.gov.uk)

Standard, the Government is yet to identify how it will tighten emissions standards further for commercial buildings from 2025.

Recognising that the viability of delivering new net zero commercial buildings is dependent on several factors including the intended building use (for example, hotels and warehouses), building form, orientation, and solar insolation, it is not possible to set one specific carbon reduction target for all commercial building types. As such, the level of carbon reduction in new commercial buildings will be reviewed on a case-by-case basis as part of the early concept design stage and work towards a target of achieving net zero operational emissions.

POLICY 3 – Low Carbon Buildings: Projects involving the construction of new buildings covered by Building Regulations Part L2A will be required to minimise regulated carbon emissions subject to technical and financial viability. This policy will influence decisions made at the RIBA Stage 1 preparation and brief stage to maximise the potential for carbon reduction whilst supporting scheme viability. The level of carbon reduction will be indicated and agreed at the planning pre-application stage, and a carbon reduction plan will be submitted as part of the formal planning submission, including a robust and costed evidence base for options considered to reduce regulated carbon emissions.

Under policy 3, new buildings will outperform standards set out in building regulations and aspire towards achieving net zero emissions.

New buildings will demonstrate a fabric first approach by constructing thermal elements to standards that meet or outperform the notional building specification as defined in the National Calculation Methodology. A fabric first approach will also ensure that solar gains are optimised to offset heating and lighting demands, whilst not increasing the risk of overheating and limiting the need for active cooling.

It is expected that all new buildings will be fossil fuel free unless a robust business case can be presented quantifying the implications of low carbon heating on scheme viability or the tenant's specification.

5.4. Leased Estate

Our leased estate is a valuable source of income, and we recognise that emissions associated with these properties could technically be included in our scope 3 carbon footprint. Due to officer capacity and the availability of accurate data, it has not been possible to report these emissions in our scope 3 carbon footprint. However, we will take a proactive approach to support tenants to increase energy efficiency and install low carbon heat and renewable energy systems.

ACTION 3: Where practical and through applying good Estate Management principles, to support our tenants to install energy efficiency measures, low carbon heating, renewable energy, and low carbon transport infrastructure such as EV charge points.

6. Carbon Reduction Plan Fleet

Section 3 identified that the carbon footprint of our fleet makes about half of our scope 1 and 2 carbon footprint. Our waste and recycling vehicles make up about 75% of our fleet carbon footprint and consist of heavy goods vehicles of up to 26 tonnes gross weight. Streets vehicles make up about 16% of the fleet carbon footprint, which largely consists of vans and caged tippers. Our smaller vehicles such as parking and environment wardens' vans make up a much smaller fraction of our fleet carbon footprint at about 0.4% each.

Figure 34: Fleet diesel consumption by service provision

Department	Diesel Consumption (Litres)	< 3.5 tonnes	>3.5 tonnes - 7.5 tonnes	>7.5 tonnes - 17 tonnes	>17 tonnes	Misc.	Totals
Bulking Station	24,709	0.0%	0.0%	4.7%	0.0%	0.2%	**4.9%**
Enforcement	2,117	0.4%	0.0%	0.0%	0.0%	0.0%	**0.4%**
Green Spaces, Grounds Maintenance & Rangers	2,082	0.4%	0.0%	0.0%	0.0%	0.1%	**0.4%**
Miscellaneous	12,953	0.0%	0.0%	0.0%	0.0%	2.6%	**2.6%**
Parking	2,175	0.4%	0.0%	0.0%	0.0%	0.0%	**0.4%**
Property	269	0.1%	0.0%	0.0%	0.0%	0.0%	**0.1%**
Recycling	170,912	3.5%	0.0%	27.3%	3.4%	0.0%	**34.2%**
Refuse	202,550	1.6%	1.3%	0.0%	37.6%	0.0%	**40.5%**
Streets	81,661	6.4%	0.7%	9.2%	0.0%	0.0%	**16.3%**
Workshop	553	0.1%	0.0%	0.0%	0.0%	0.0%	**0.1%**
Off Road	-	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**
Totals	**499,980**	**12.9%**	**2.1%**	**41.1%**	**41.0%**	**2.9%**	**100.0 %**

Whilst decarbonising our buildings will enable us to rapidly reduce our direct carbon footprint in the run-up to 2025, to stay on track in 2030 and continue to deliver an overall emissions contraction consistent with rates set by the Science Based Targets Initiative, the development of a Depot Masterplan and Fleet Decarbonisation Strategy is required to deliver further emissions reductions.

ACTION 4: Develop a depot masterplan to determine the future of our depot site on Brunel Industrial Estate by December 2022.

What will the masterplan need to consider?

- The condition and use of existing buildings, whether it is possible to green-retrofit buildings, and whether buildings may be rationalised and modernised to improve their service provision.

- How susceptible the depot site may be to the future effects of climate change, with particular consideration given to flooding susceptibility and whether it is a suitable site to make long-term energy infrastructure investments.

- Whether the site is geographically located near the centre-of-mass of waste and recycling collections, whether the site is geographically located near to the workforce centre, and whether there are opportunities to increase this balance by relocating the Depot.

- Following the rationalisation of Depot buildings, determine how storage and vehicle parking may be enhanced to accommodate future increases to the vehicle fleet and the provision of new energy infrastructure.

- Proximity of the site to existing power infrastructure with sufficient capacity to support a transition to a low-carbon vehicle fleet.

- The ability to link our fleet decarbonisation strategy with other businesses and public sector bodies, and the potential for the fleet strategy to link with our workplace EV charging strategy.

The masterplan will be developed in consultation with depot managers, estates and relevant stakeholders. The Masterplan will help to achieve consensus and gain officer buy-in on the future strategy for the site, including decarbonisation of the vehicle fleet.

ACTION 5: Develop a vehicle fleet decarbonisation pathway by December 2022 to determine how we can transition away from diesel-fuelled vehicles to low carbon alternatives.

What will the fleet decarbonisation pathway need to consider?

- An energy strategy to determine how we will power our low-carbon fleet. We don't propose to narrow the scope of technologies for consideration at this stage, though examples of potential technologies include battery electric vehicles, hydrogen vehicles and bio-powered vehicles.

- The impact of low-carbon vehicles on service delivery and their ability to perform in our mixed urban-rural district.

- The technological readiness and market availability of low-carbon vehicles, whether such vehicles have a positive business case, and whether we will need grant or subsidy financial support.

- The cost of and timing of infrastructure investments, which potentially could include making connection to the High Voltage 11kV network, creating a new electrical switch room, and installing a network of electric vehicle chargers.

- Determine where there are opportunities to downsize vehicles to help enhance carbon reduction, e.g., switching small vans for cars, etc.

- Review vehicle ownership and leasing arrangements to determine how we can achieve best value for money whilst decarbonising our vehicle fleet.

- Review how existing servicing provision (including private vehicle MOTs) may need to adapt to cater for low-carbon vehicle technology.

- Whether there are whole-lifecycle carbon, ecological and supply chain ethics that may need to be identified and addressed.

Several districts across Devon have started their transition to low carbon vehicles. Devon County Council operate a fleet of Nissan Leaf vehicles as part of their on-street parking fleet, Exeter City Council are due to take delivery of three Dennis e-Collect waste collection vehicles, and East Devon District Council has a fleet of seven cage tipper vans. Our intention should be to begin our transition to low carbon vehicles at the next fleet renewal.

7. Carbon reduction Plan – Waste, Recycling, Water and Sewage

Collectively, waste, recycling, water, and sewage make up about 1% of our scope 3 carbon footprint. Whilst reducing our waste and recycling carbon footprint will help to reduce our demand for raw materials and the energy needed to create new products, reducing our demand for water will help to limit pressures on water resources and pressures on wastewater treatment systems.

Prior to the COVID-19 pandemic, regular refuse and recycling audits were undertaken at our main employment sites to assess staff, members and public waste and recycling behaviours. Now that COVID-19-related restrictions have been lifted, it will be possible to resume this programme to develop a series of actions working towards achieving a recycling rate of 65% by 2030 at our main employment sites including Forde House, the leisure sites, Market Hall, and Teignbridge Business Centre.

TARGET 6: Aim to achieve a recycling rate of 65% by 2030 at Forde House, the Depot, our Leisure Sites, Market Hall, and Teignbridge Business Centre.

ACTION 6: Implement a waste and recycling audit at our main sites identified above. We will first focus on hot spots at Forde House and Market Hall, and create a baseline for staff, members, and public recycling behaviours. The audit will also assess existing waste and recycling facilities, guidance, and communications, and determine what measures we can implement to encourage better waste and recycling behaviours.

In-house waste and recycling volumes are recorded based on container sizes. Going forwards, there will be an opportunity to increase the resolution of reporting metrics; this will increase accuracy in emissions reporting and help to measure progress towards Target 6.

ACTION 7: Review practices to measure waste and recycling volumes and seek to increase accuracy in emissions reporting.

Following a waste and recycling audit, the development of an in-house waste and recycling strategy will help us to inform staff, Members and the public to instil a culture of good waste and recycling behaviours.

ACTION 8: Develop a waste and recycling communications to help our staff, Members and visitors to reduce their waste and recycling carbon footprint and increase recycling rates.

As highlighted in Section 4, we receive billing for water and sewage in paper format based on manual meter readings. The process to capture this data for carbon reporting purposes is capacity intensive and so it isn't always possible for us to report our carbon footprint for water and sewage. Switching from paper billing to digital billing will help us to increase accuracy in emissions reporting, assess opportunities for water efficiency, and assess long-term trends in water consumption.

ACTION 9: Transition from paper billing to digital billing for water and sewage to enhance data capture and emissions reporting.

Water billing is based on manual water meter readings and only provides a low-resolution water consumption reporting. Through installing water data loggers on some of our larger sites such as the leisure centres and Forde House, we will have increased visibility of how and when our sites consume water, which in turn will help to roll out a programme of water efficiency measures.

ACTION 10: Deploy water data loggers to characterise water consumption profiles and quantify water wastage rates and increase the provision of water-efficient water outlets including taps and showers.

8. Carbon reduction Plan Staff Travel

The following sections contain proposals to decarbonise staff commuting and business mileage, whilst supporting staff, members and the public to adopt low carbon transport modes.

8.1. Staff Commuting Carbon Footprint

A series of staff travel surveys have been conducted over the past twelve months; a travel survey for staff working from Forde House in summer 2021, and surveys covering staff working from the Leisure Sites and Forde Road Depot in spring 2022.

Survey results were combined with GIS data to infer our staff commuting carbon footprint, as shown below in Table 16. This covers our main employment sites at Forde House, the Depot, and our leisure sites including Newton Abbot Leisure Centre, Dawlish Leisure Centre, and Broadmeadow Sports Centre.

Results for Forde House will have considerable level of uncertainty given that the survey was conducted when COVID-19 pandemic-related travel restrictions were in a state of flux. We would therefore propose to re-run the travel survey in 2023 following completion of the Forde House decarbonisation project.

ACTION 11: Run a simplified staff travel survey for staff working from Forde House following completion of the Forde House decarbonisation scheme and reassess our staff commuting carbon footprint.

Figure 35: Estimated staff commuting carbon footprint

Site	Estimated Staff Commuting Carbon Footprint (tonnes CO_2)
Forde House	210
The Depot	82
Leisure Sites	116

A members travel survey ran in summer 2021 with the intention to include Members' travel in our carbon footprint. Due to a low response rate, we have been unable to infer the carbon footprint of Members' travel at this stage; we will review the survey format and re-run the exercise following completion of the Forde House decarbonisation scheme.

ACTION 12: Review the members travel survey format and re-run the survey to enhance data capture following completion of the Forde House decarbonisation scheme.

Results from the staff travel survey are shown in Table 21 to Table 23. At Forde House, a considerable amount of commuting has been avoided through new working from home arrangements, though the uptake of bus, train, walking, and cycling are very low and each account for less than 2.5% of miles travelled.

Table 21: Forde House travel survey results

Transport Mode	Uptake by total mileage
Driving alone in personal car or van (Diesel, petrol, or LPG)	42.1%
Car sharing with staff member (Diesel, petrol, or LPG)	1.3%
Driving alone in personal car or van (Electric)	2.3%
Car sharing with staff member as driver or passenger (Electric)	0.0%
Driving alone in TDC pool car, work car or work van	0.2%
Vehicle sharing with staff member in TDC pool car, work car or work van	0.0%
Walking	0.9%
Jogging or running	0.0%
Pedal bike (no electric assistance)	0.3%
Electric bike	0.0%
Scooter	0.0%
Bus/Park & Ride	1.4%
Train	2.5%
Motorcycle/moped/petrol scooter	0.0%
Taxi	0.0%
Home working - no travel required	49.0%

Most roles at the Depot and Leisure Sites cannot be conducted from home, meaning that there is a higher demand for commuting. Although private car use makes up the majority of commuter mileage (approximately 70% or more), generally there is a higher uptake of walking, cycling and car sharing when compared with staff at Forde House.

Table 22: Forde Road Depot travel survey results

Transport Mode	Uptake by total mileage
Driving alone in personal car or van (Diesel, petrol, or LPG)	69.9%
Car sharing (Diesel, petrol, or LPG)	12.8%
Driving alone in personal car or van (Electric)	0.0%
Car sharing (Electric)	0.0%
Driving alone in a TDC fleet vehicle	2.9%
Vehicle sharing in a TDC fleet vehicle	0.2%
Walking	6.6%
Jogging or running	0.0%
Pedal bike (no electric assistance)	1.4%
Electric bike	0.0%
Scooter	0.0%
Bus/Park & Ride	0.0%
Train	2.0%
Motorcycle/moped/petrol scooter	4.2%
Taxi	0.0%
Home working- no travel required	0.0%

Table 23: Leisure Sites travel survey results

Transport Mode	Uptake by total mileage
Driving alone in personal car or van (Diesel, petrol, or LPG)	72.4%
Car sharing (Diesel, petrol, or LPG)	5.9%
Driving alone in personal car or van (Electric)	1.1%
Car sharing (Electric)	0.0%
Driving alone in a TDC fleet vehicle	0.0%
Vehicle sharing in a TDC fleet vehicle	0.0%
Walking	5.1%
Jogging or running	0.4%
Pedal bike (no electric assistance)	4.4%
Electric bike	0.0%
Scooter	0.0%
Bus/Park & Ride	2.9%
Train	3.4%
Motorcycle/moped/petrol scooter	0.1%
Taxi	0.0%
Home working- no travel required	4.3%

When asked about what promotes staff at Forde House to drive to work, the five highest perceptions were:

- Driving is quicker than the alternatives (49%)
- Driving is more time flexible (46%)
- That there were no other viable alternatives to driving (45%)
- That driving is more reliable (27%)
- That driving is cheaper than the alternatives (26%)

ACTION 13: Address staff perceptions regarding the perceived benefits of driving and consider implementing a low carbon transport app to highlight the benefits of active and shared transport modes including cost, time, and carbon.

When asked what would incentivise staff at Forde House to walk more to work, the five highest responses were:

- An incentive or reward scheme (8%)
- Improved walking routes (8%)
- Provision of showers (6%)
- Provision of lockers (4%)
- Better street lighting (3%)

ACTION 14: Explore employee incentives schemes to promote the use of all low carbon transport modes.

When asked what would incentivise staff at Forde House to cycle more to work, the five highest responses were:

- Improved cycling routes (27%)

- Provision of showers (19%)
- Subsidised bike loan or purchase scheme (9%)
- Incentive or reward scheme (9%)
- Availability of pool electric bikes (9%)

ACTION 15: Continue to promote our cycling and walking infrastructure projects though our staff communications.

ACTION 16: Review our shower provision to determine whether they are suitable for staff needs, and ensure the lockers provided as part of the Forde House decarbonisation scheme are compatible with cycling to work.

ACTION 17: Continue to promote the Cycle to Work Scheme through our staff communications to enable access to good quality cycling equipment, and encourage staff to include cycle accessories including helmets, lights, visibility gear and mud guards as part of their cycle to work scheme purchase.

ACTION 18: Promote the use of e-bikes and e-scooters to help staff overcome the hilly geography of our district and consider running e-bike demo days for staff.

When asked what would incentivise staff at Forde House to use public transport more often, the five highest responses were:

- Subsidised travel fares (25%)
- Having the ability to claim work time whilst traveling on public transport (13%)
- Real time information showing departure times and delays (9%)
- Increased flexibility in work hours (6%)
- Salary sacrifice scheme for fare purchases (4%)

ACTION 19: Promote the ability for staff to claim work time whilst travelling on public transport, subject to a discussion with their line manager

ACTION 20: As part of the Devon Climate Emergency partnership, work with our partners across Devon to enhance local bus and train services to ensure that they are accessible, affordable, timely and reliable.

8.2. Low Carbon Commuting Assessment

A GIS assessment was conducted to evaluate the availability of low carbon transport options for staff commuting from home to their main place of work. A set of travel isocrones, as shown in Figure 36 to Figure 38 for Forde House, were generated for each main employment site; these show the region around each employment site that can be travelled within a maximum amount of time using a certain transport mode.

Twenty-minute isochrones were generated for walking and cycling to reflect the duration that staff may consider reasonable for active transport modes.

A 40-minute isocrone was generated for bus travel, and ten-minute isocrones for walking and cycling were generated around mainline railways stations between Plymouth and Taunton, and stations between Paignton and Digby and Sowton Park and Ride.

The results shown in

Table 24 indicate that higher levels of active and shared transport are possible over and above existing uptake levels.

Figure 36: isocrone showing regions around Forde House within a 40-minutebus journey

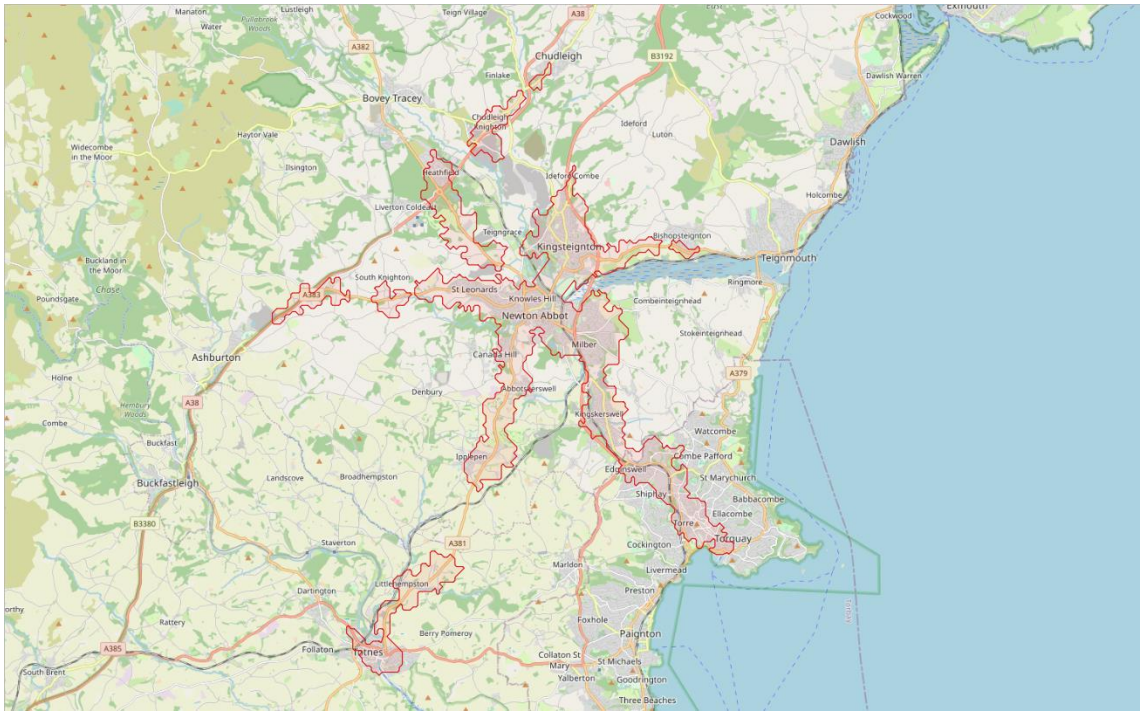


Figure 37: isocrone showing regions around Forde House within a 20-minute walk

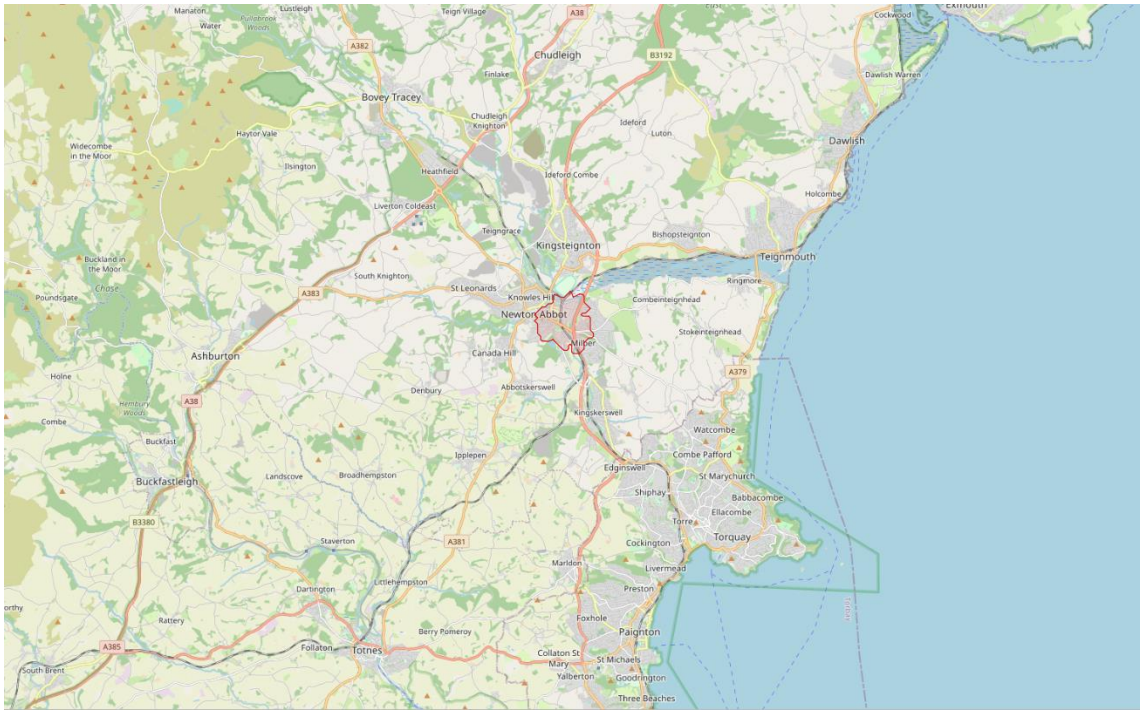


Figure 38: isocrone showing regions around Forde House within a 20-minute cycle

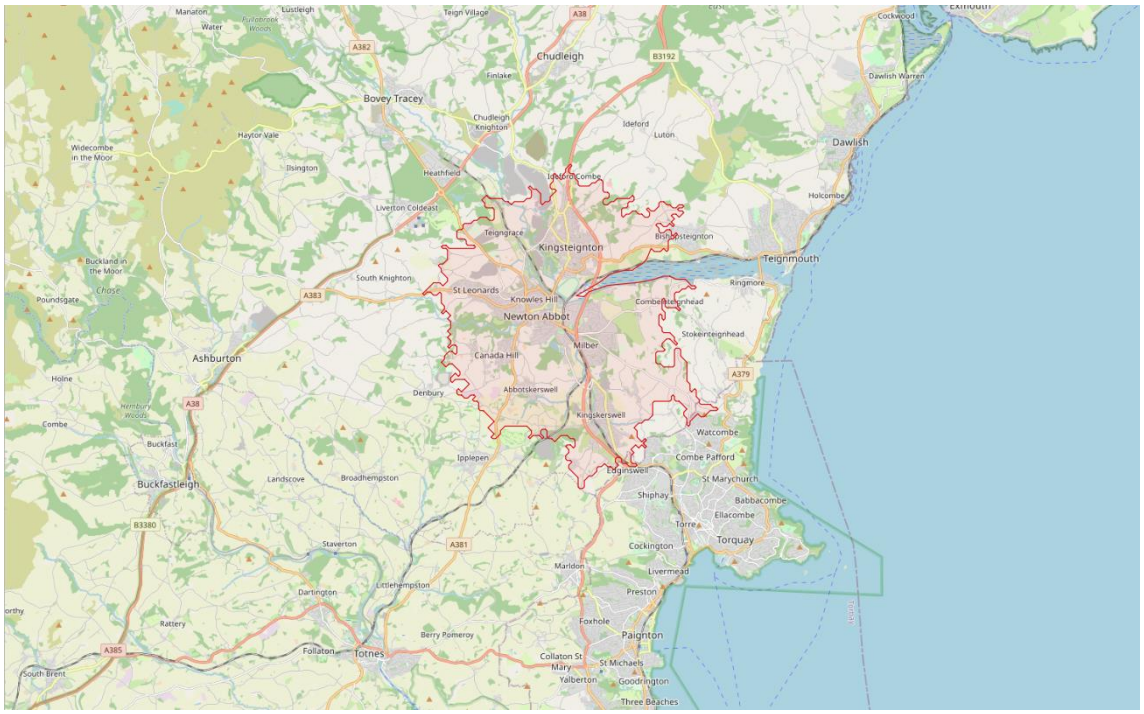


Table 24: GIS Isocrones assessment showing proportion of staff living within each isocrone

Site	Cycling 20 minutes	Walking 20 minutes	Bus 40 minutes	Train with 10-minute walk	Train with 10-minute cycle
Forde House	33%	6%	33%	9%	49%

Site	Cycling 20 minutes	Walking 20 minutes	Bus 40 minutes	Train with 10-minute walk	Train with 10-minute cycle
Forde Road depot	54%	25%	57%	6%	38%
Newton Abbot Leisure Centre	68%	24%	71%	1%	15%
Broadmeadow Sports Centre	29%	18%	53%	0%	94%
Dawlish Leisure Centre	29%	17%	50%	10%	88%

ACTION 21: Use the results of the GIS staff commuting assessment to help target staff communications to increase the uptake of low carbon transport modes, and to identify opportunities where enhancements can be made to improve public transport provision.

8.3. Electric Vehicle Charging Strategy

Electric Vehicle (EV) sales have increased exponentially in the UK over the past ten years, and this trend is set to continue with the Government committing to a ban on the sale of petrol and diesel cars from 2030 in favour of battery electric vehicles.

The staff travel survey identified that 15% and 25% of staff are very likely or likely to purchase an EV in the next five years. When asked about what would encourage staff to purchase an electric vehicle, the main responses were:

- Access to workplace EV charging (55%)
- Access to EV charging at home (51%)
- Access to salary sacrifice scheme (46%)
- Access to green car loans (45%)
- Reduced costs (47%)
- Increased battery range (47%)

We also learned that nearly a quarter of staff (23%) park on street, where it is currently challenging to gain access to charging infrastructure; these staff will likely have a higher dependence on workplace EV charging.

ACTION 22: Develop proposals for green car loans and EV salary sacrifice schemes to help staff gain access to affordable financing.

It is recognised that workplace EV charging will play an important role in enabling a transition to electric vehicles. A report by PWC[12] suggested that 60% of charging will take place at home, 30% of EV charging will take place at work, and 10% will take place enroute and at destination points.

[12] powering-ahead-ev-charging-infrastructure.pdf (pwc.co.uk)

Our EV charging strategy was published in 2019. As part of the strategy, we are actively involved in three EV charging delivery projects including the Devon Low-Carbon and Energy Transport Technology Innovator (DeLETTI), the On-street Residential Charging Scheme (ORCS) project and the Innovate Project. See the Devon County Website for an interactive map showing existing and potential charge point locations.

Our EV charging strategy will need to be updated as a matter of priority to enhance our provision for workplace EV charging at each of our employment sites.

ACTION 23: Update our EV charging strategy to create a plan to deliver workplace EV charging at our main employment sites.

The workplace EV charging strategy will need to consider:

- The expected uptake in demand for EV charging at the sites;
- The number of active and passive EV charging points provided;
- Electrical power capacity availability at the sites;
- Who will be responsible for maintaining the chargers and ensuring high levels of availability;
- Whether we will need long-dwell and short-dwell EV chargers for varying charging needs;
- The cost of charging to charge point users;
- Charge point activation (for example smart phone apps and contactless cards);
- Where the strategy may overlap with tenants including the DWP;
- Where the strategy can cater for residents and members;
- Where the EV strategy may overlap with the Fleet charging strategy.

Opportunities for shared mobility including pool cars and car clubs will help to increase access to low carbon transport, whilst relieving staff of upfront purchase costs, alleviating pressure on parking, and reducing embodied carbon.

ACTION 24: Explore opportunities for shared low carbon mobility services such as pool cars and car clubs.

8.4. Working from Home

Devon County Council commissioned the University of Exeter to investigate the benefits of working from home on reducing emissions; their work[13] suggested that working from home could yield a typical emissions saving of 9.3kgCO_2 per day per staff member, as shown in Figure 39 below. The assessment considered a range of factors including the trade-off between home and workplace heating strategies, and commuter transport modes and commuting distance.

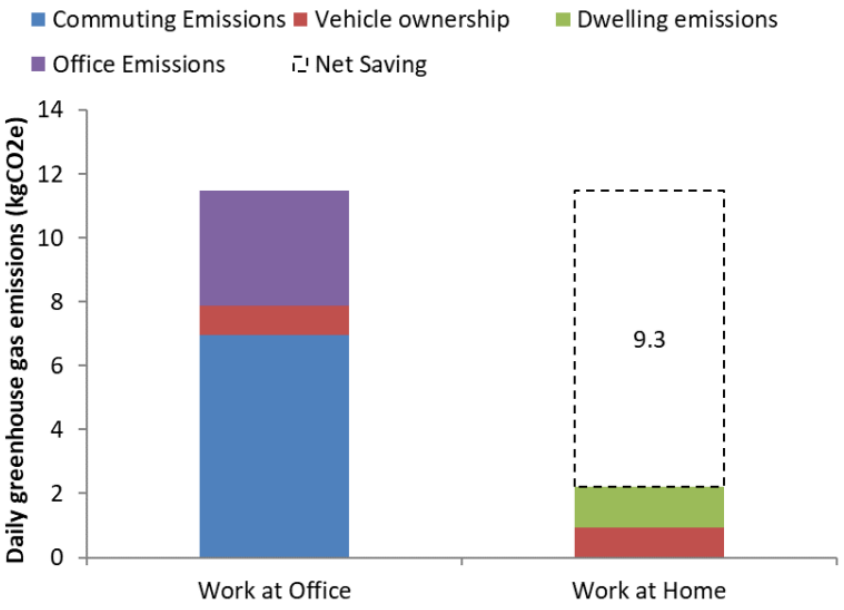
As our buildings transition from fossil fuel heating systems to low carbon heating, and as we transition from diesel and petrol private car use to active and low carbon transport modes, the benefit of working from home will likely reduce. It is therefore important that we continue to review these

[13] DCC-home-working-GHG-report-v3.pdf (devonclimateemergency.org.uk)

benefits and factor them into business decisions. It is important to recognise the benefits that a hybrid home and office working can create for staff wellbeing, productivity, and engagement.

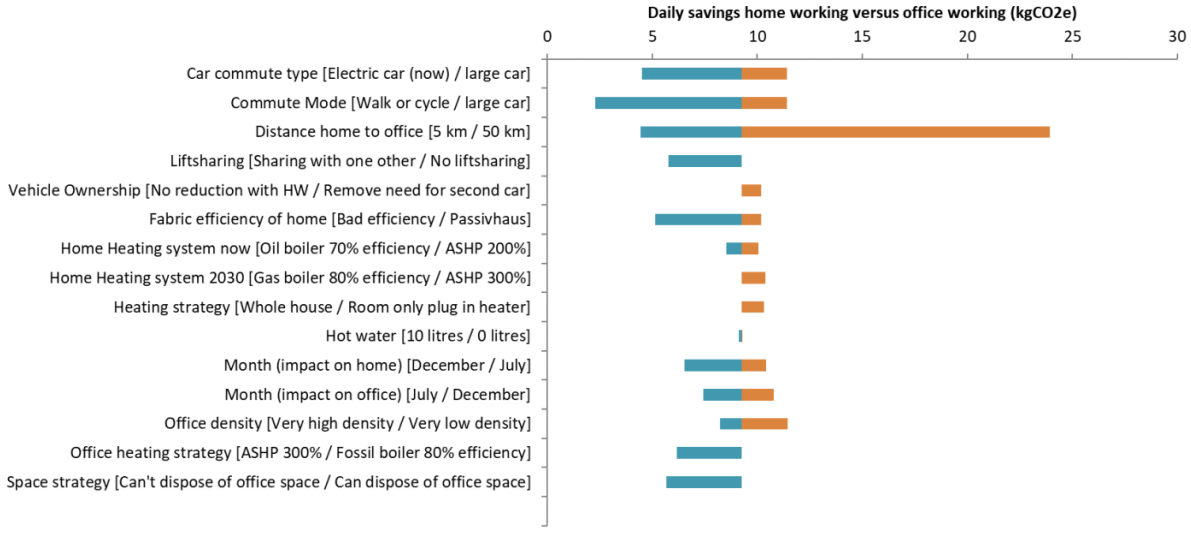
ACTION 25: Continue to monitor the benefits of working from home as part of a staff travel strategy for consideration in business decisions.

Figure 39: The balance in emissions between office working and home working



The sensitivity assessment shown in Figure 40 shows how several factors can influence the emissions benefits of working from home. Perhaps the most influential of these factors are what transport mode staff use and what distance they travel to work; those who use active transport (walking and cycling) see the least benefit from homeworking, whilst those who travel longer distances by car will see the greatest benefit.

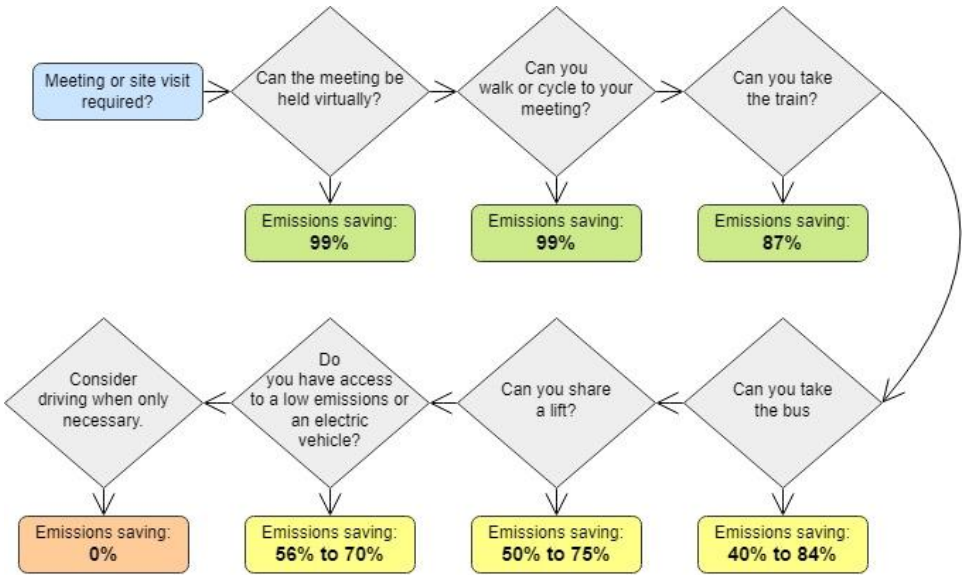
Figure 40: Sensitivity analysis of various factors effecting the benefit of working from home



8.5. Claimed Mileage

Our Part 1 plan for Business Mileage will overlap with our Part 1 Plan for Commuting, with a focus on avoiding the need to travel in the first instance, promoting active transport, enabling public transport, encouraging shared car use, and assisting transport via low emissions and battery electric vehicles, as shown in the decision tree in Figure 41 below.

Figure 41: Decision tree for reducing business transport emissions showing potential emissions savings relative to single occupancy car use



There has been a polar shift in how we work as a result of the COVID-19 pandemic, with our staff switching from conventional office working to agile working almost overnight. Just 2% of staff reported using online meetings daily in 2018 (prior to the COVID-19 pandemic), whereas 48% of staff reported using virtual meetings daily in the most recent 2021 staff travel survey. Following the lifting of lockdown restrictions, we need to continue to embrace virtual working and prevent the need for travel to meetings where possible.

ACTION 26: Better 2022 managers to continue to promote the sustained use of virtual meetings to prevent the need to travel to meetings and site surveys.

For short distance journeys (one to two miles), we should encourage walking and cycling as an alternative to personal car use.

For medium distance journeys (two to ten miles) and long-distance journeys (ten miles or more), we will need to encourage staff to travel using low carbon transport. For single trips and journeys further afield, it may be possible to travel via coach, train, and car share, and for staff to claim transport fares on expenses.

ACTION 27: Promote the use of low carbon transport travel in business travel and the ability for staff to claim transport fares against expenses.

Recognising that we work in a rural district and that staff can travel long distances to multiple sites within one day, it will not always be possible to use public transport modes. For this reason, we need to: promote car sharing, consolidate journeys, and use the most efficient route between multiple destinations; consider creating a fleet of low emissions or battery electric pool cars; and roll out workplace EV charging, as covered in actions 23 and 24.

9. Carbon Action Plan Accommodation

The following section is intended to align with our adopted Housing Strategy[14]. Our baseline 2018/19 scope 3 carbon footprint for temporary accommodation and private sector leasing amounts to 184 tonnes CO_2. Of this figure, 64% relates to temporary accommodation secured through bed and breakfasts, 12% relates to private sector leasing where we have responsibility for utility billing, and 24% relates private sector leasing where the tenants have the responsibility for utility billing.

Due to the way that we have previously recorded private sector housing energy consumption data, we have adopted a simplified approach to estimate energy consumption across our leased accommodation portfolio. Switching to a digital billing format will help us to increase accuracy in reporting carbon emissions for private sector leasing where we are responsible for utility billing; it will also help us to track the effects of energy efficiency improvements over time.

ACTION 28: Transition from paper billing to digital billing for leased sites to enhance data capture and emissions reporting.

Developing our own in-house provision for temporary accommodation at Albany House has helped to reduce our dependence on bed and breakfast providers and reduce spend on temporary accommodation. As our provision for in-house temporary accommodation increases, we will need to work to reduce the carbon footprint of these sites.

ACTION 29: Work to reduce the carbon footprint of temporary housing sites that we own, including Albany House and Luscombe House.

Evidence produced for the CCC[15] and the DLUHC[16] indicates that retrofitting existing homes to low carbon standards will typically cost upwards of £20,000 per home. Based on a portfolio of 38 properties in 2021, the deep retrofit cost would amount to about £0.8 million. Achieving net-zero emissions across our private sector housing portfolio will therefore require significant and persistent investment to achieve the ultimate net zero standard.

Energy Performance Certificates (EPC) across our private sector housing ranges between the minimum acceptable standard of an E (three properties) to B (two properties). We have already begun to map out what improvements will be required to lift properties to at least an EPC C rating; from here, we will need to work with our private sector housing providers to find ways of financing and enabling these works.

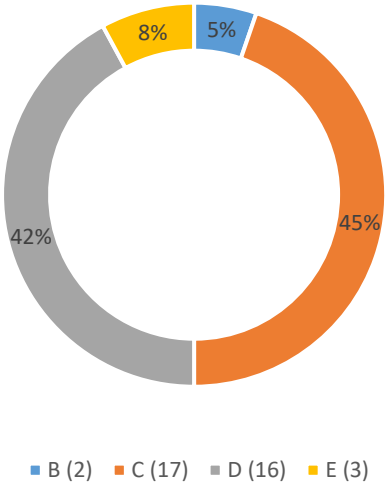
[14] Teignbridge housing strategy

[15] https://www.theccc.org.uk/wp-content/uploads/2019/02/UK-housing-Fit-for-the-future-CCC-2019.pdf

[16] https://committees.parliament.uk/publications/7690/documents/80183/default/

TARGET 7: Work with our private sector landlords to improve the energy efficiency of our leased building stock and work to bring all dwellings up to an EPC rating C by 2030.

Figure 42: Breakdown of private sector housing by EPC rating



The Energy Company Obligation (ECO) scheme and Green Homes Grant Local Authority Delivery Scheme (LADS) offer two potential ways in which we could fund energy efficiency improvements in some of our lowest EPC rated homes leased from private sector landlords. The schemes offer funding for low-income households and households at risk of fuel poverty with low EPC ratings.

ACTION 30: Explore opportunities to fund energy efficiency improvements through the LADS and ECO energy efficiency schemes.

Teignbridge has partnered with the Local Energy Advice Partnership (LEAP), a partnership that offers a free home energy advice visit, free simple energy saving measures such as LED lighting and draught proofing, advice for tenants on their energy bills, and help for tenants to find funding for further home improvements.

ACTION 31: Refer tenants to the Local Energy Advice Partnership to arrange a free energy efficiency consultation.

The Interim Devon Carbon Plan advocates the following actions to decarbonise homes:

- Expand whole house Retrofit trials in Devon, such as Energiesprong, by working with social landlords to aggregate their housing stock and collectively procure Retrofit, targeting houses most in need first.
- Offer bulk-purchasing opportunities for domestic solar PV and battery storage across Devon.
- Explore opportunities to use the Carbon Offset market to fund retrofitting in domestic and commercial buildings

ACTION 32: Work with our Devon Climate Emergency partners and social housing providers to enable and test innovative approaches to whole-house retrofit, accelerate the delivery of renewable energy, and develop a carbon offset market centred on fast-tracking low carbon retrofits.

10. Carbon reduction Plan Supply Chain

Section 3 of the Part 1 Plan identified that our scope 3 supply chain carbon footprint is subject to high levels of uncertainty given that we have adopted an "emissions-by-spend" approach. With this issue in mind, we propose to take a four-part approach to reduce our supply chain carbon footprint:

1. We will work to move away from spend-based emissions reporting towards reporting emissions by activity, such as assessing embodied carbon in construction projects.
2. We will set targets for engaging our supply chain partners and encourage them to align their strategies with the Science Based Targets Initiative or international environmental reporting standards.
3. We will endeavour to roll out a carbon literacy programme and encourage Better 2022 managers to identify resource efficiencies in their Business Plans.
4. We will continue to implement and develop our Responsible Procurement Policy[17], and promote the concept of Doughnut Economics as proposed in the Devon Carbon Plan.

ACTION 33: Move away from spend-based scope 3 emissions reporting based on ONS and Table 13 emissions factors and work towards activity-related emissions factors and evaluations.

We cannot achieve net-zero emissions through simply offsetting our supply chain carbon footprint. A concerted effort amongst our staff and supply chain partners will be required to reduce carbon within our value chain.

TARGET 8: Work towards achieving net-zero supply chain emissions by 2050 at the very latest by setting standards for measuring and reducing embodied carbon and engaging our supply chain partners.

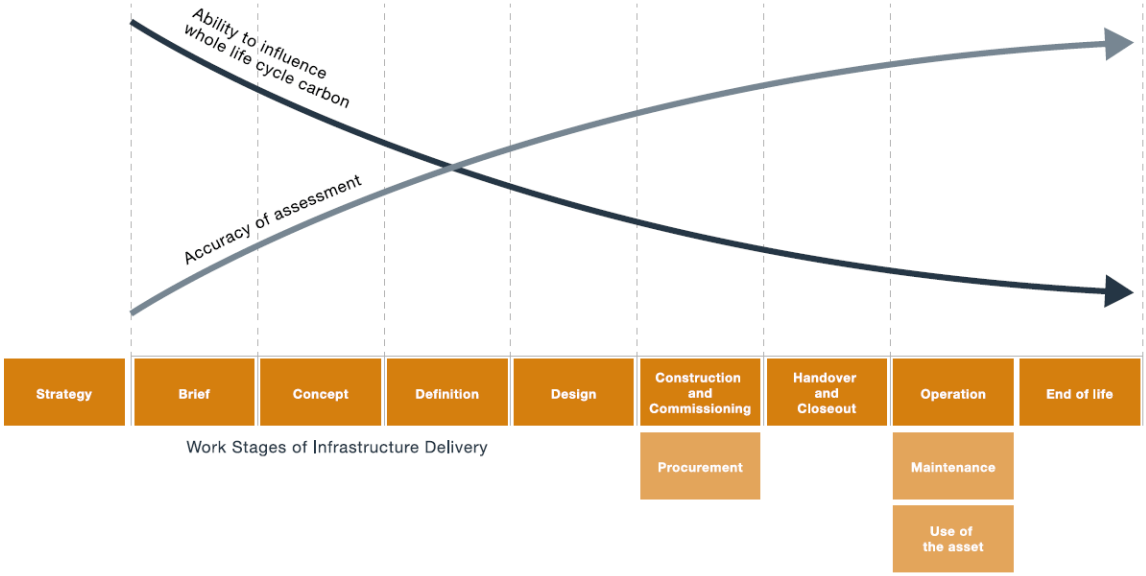
Section 3 highlighted that construction related activities make up a significant share of our carbon footprint. Roughly, 50% of a building's lifetime carbon emissions are produced before practical completion. Therefore, actions taken prior to construction can have a significant impact on a building's lifetime carbon footprint.

TARGET 9: Become a leading authority in reducing embodied carbon in construction projects, and support Teignbridge to become a testbed for innovative low carbon construction techniques.

Incorporating standards for embodied carbon in construction projects can help to encourage lean design and drive resource efficiency, and thereby help to increase value for money. Our ability to influence embodied carbon is greatest at the project brief stage. As projects progress, it becomes increasingly difficult and costly to make decisions to reduce embodied carbon; this effect is shown in Figure 43 below. Targets for embodied carbon should therefore be included within early project conceptualisation stages.

[17] Procurement - Procurement policy - Teignbridge District Council

Figure 43: Graphic demonstrating how our ability to influence embodied carbon reducing over project stages



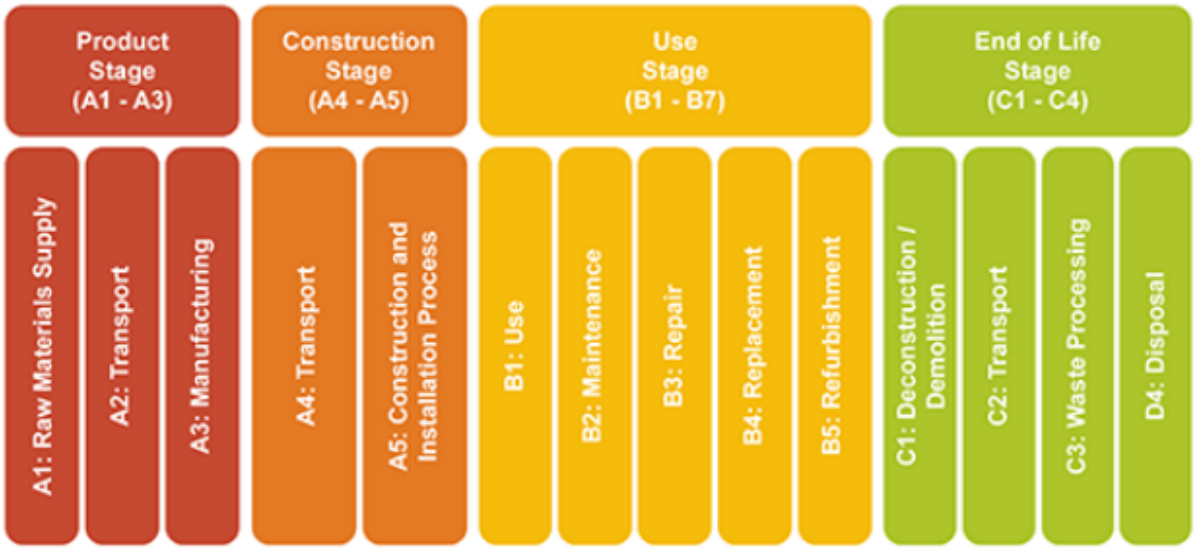
Standards for assessing and reporting embodied carbon in construction tend to split embodied carbon into lifecycle stages, as shown in Figure 44 below.

Lifecycle stages A1 to A3 include the sourcing of raw materials, material transport, and goods manufacturing. Life cycle stages A4 to A5 include transporting finished goods to the construction site and on-site construction activities.

In-use stage B1 includes emissions sequestered or released from materials over their lifetime, and stages B2 to B5 are self-explanatory and cover emissions associated with building repair and maintenance.

End-of-Life emissions C1 to C4 relate to emissions produced to demolish, transport, and dispose of construction materials.

Figure 44: Lifecycle stages for embodied carbon



Assessments of embodied carbon can be incorporated into standardised software packages that are readily used by architects and energy assessors, including BIM and IES virtual environment software. Guidance produced by the Greater London Authority[18] recommends One Click LCA and eToolLCD for buildings and infrastructure projects, and the Tally and the Sturgis Carbon Calculator for building projects.

POLICY 4 – Embodied Carbon: Projects involving the construction of new buildings and requiring planning consent with an anticipated project value of £1 million or more, will be required to produce a lifecycle carbon emissions assessment based on the RICS Whole Lifecycle Assessment Methodology (BS EN 15978). The emissions assessment should include emissions from "cradle" to "practical completion" (modules A1 to A5). This policy will assist design teams to identify carbon hotspots and opportunities to reduce embodied carbon through applying the LETI principals set out below.

Provisional embodied carbon emissions estimates will be produced at the RIBA Stage 2 Concept design stage and will be finalised ahead of gaining planning consent. An embodied carbon reduction statement will be provided as part of the planning submission and will identify what measures have been taken to reduce embodied carbon.

In their Embodied Carbon Primer Design Guide, The London Energy Transformation Initiative (LETI) identified the following principals for reducing embodied carbon in construction:

Build less:

- Is a new building necessary to meet the brief, has retrofit been considered?
- Can existing materials on or near the site be used?
- Has the brief been interrogated against client need and does it represent the most efficient solution?
- Can uses be shared or spaces be multi-functional?
- Carry out a material efficiency review - are all materials proposed necessary?
- Seek to simplify the design - simple designs usually means less embodied carbon

Build light:

- Reduce the weight of the dead loads where possible
- What loadings are really required to meet the brief?
- Can long spans be restricted?

Build wise:

- Ensure longevity of material and systems specifications.
- Review material efficiency options like designing to standard building sizes or for a repeating module.
- Structural members should be designed for 100% utilisation rate where possible.
- Analysing a site is an important activity at the start of a project and this can be extended to the identification of ways of reducing embodied carbon. Possible opportunities include:
    - There may be existing structures or buildings that can be reused or become a source of recycled materials.
    - There may be locally sourced material options, reducing transport to site while allowing architectural expression of the context.

[18] LPG document template (green) (london.gov.uk)

- Designing a project around a site topography, reusing excavated soil, and reducing the amount removed from site

Build low carbon:

- Reduce the use of high embodied carbon materials including concrete and steel.
- Identify 'Big ticket Items' and focus on the big wins first including structure and envelope.
- Consider natural and renewable materials.
- Explore Design for Manufacture and Assembly (DfMA) solutions if this reduces embodied carbon.

Build for the future:

- Ensure future uses and end of life are considered and adaptability is designed in.
- Consider soft spots in the structure.
- Consider regular structural grid and future-proofed risers and central plant space.
- Mechanically fix systems rather than adhesive fix so they can be demounted and reused or recycled, supporting a circular economy.
- Explore methods of creating longevity for materials without additional coatings, as they can reduce the recyclability of the material.

Build collaboratively:

- Solutions must involve the whole design team and the client.
- Use 'rules of thumb' data to drive decision making in meetings, especially in the early stages of design.

ACTION 34 – Identify and deliver a pilot construction project to test the viability of meeting embodied carbon benchmarks. This action will help us to develop in-house expertise in low carbon construction techniques, reduce our scope 3 carbon footprint, and prepare for future changes to national building regulations. The proposed target benchmarks are:

- Offices: 600 kgCO2/m^2
- Dwellings: 500 $kgCO_2/m^2$
- Educational Buildings: 500 $kgCO_2/m^2$
- Retail and Industrial Units: 550 $kgCO_2/m^2$

Part of our construction related activities involve intermediate projects of less than £1 million in value. To reduce embodied carbon in our intermediate sized construction projects, we will need to develop a simplified embodied carbon calculator, which may be used by medium sized contractors to assist in accurately calculating embodied carbon for footprint reporting purposes, and to identify and reduce project carbon hotspots. A balance will need to be struck such that emissions reporting and criteria do not create a barrier to entry for small and local businesses.

ACTION 35: Develop a simplified embodied carbon calculator tool to help quantify embodied carbon in projects with a value of between £100,000 and £999,999 covering medium scale construction and refurbishment projects.

Targets 10 and 11 are intended to help us engage with our supply chain partners covering the first 50% of our local authority spend; through working with our top five and ten suppliers, we can collaborate to identify carbon hotpots, increase the accuracy of emissions reporting, opportunities for product and carbon efficiency, and encourage supply chain partners to develop and adopt net zero strategies.

TARGET 10: Engage with our top five repeat suppliers by 2023 and encourage them to develop a corporate net-zero strategy and reduce emissions in their value chain.

TARGET 11: Engage with our top ten repeat suppliers by 2024 and encourage them to develop a corporate net-zero strategy and reduce emissions in their value chain.

With knowledge of their repeat suppliers and demand for equipment and resources, and as part of a carbon literacy programme, Better 2022 Managers will be encouraged to identify areas where they can reduce our scope 3 supply chain carbon footprint.

ACTION 36: Better 2022 managers to identify where there may be efficiencies to reduce spend on goods and services in their business plans.

We already collaborate with our partners across the southwest peninsula in workshops facilitated by the University of Exeter and the Devon Climate Emergency, and we will continue to do so to share knowledge and a common ground for best practice.

ACTION 37: Continue to engage with our partner local authorities, academic institutions, and the Local Government Association to develop and share best practice in scope 3 emissions reporting.

11. Carbon Action Plan Offsetting

Alongside a process of phasing down the consumption of fossil fuels, increasing energy efficiency, reducing embodied carbon in construction projects, and working with our supply chain partners to reduce our indirect carbon footprint, carbon offsetting will help us to reach our net zero goals.

Carbon offsetting provides an opportunity to include our communities in our Part 1 Plan net zero journey. A good carbon offsetting strategy will provide multiple benefits, which may include but are not limited to:

- accelerating decarbonisation in homes and businesses across the district;
- alleviating fuel poverty;
- creating biodiversity net gain;
- providing ecosystem services;
- increasing resilience to the future effects of climate change.

To date, officer capacity has largely focussed on projects to reduce our direct scope 1 and 2 carbon footprint, in line with best practice guidance. However, we recognise that there is an increasing need to develop and implement a carbon offsetting strategy if we are to achieve our net zero goal.

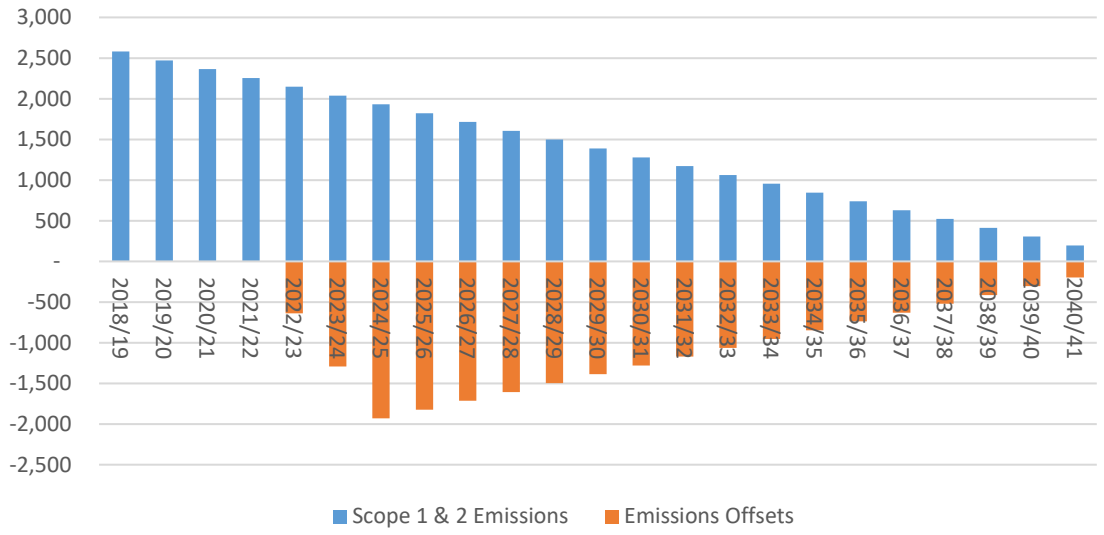
ACTION 38: Develop a carbon offsetting strategy aligning with the emissions reduction pathway for our buildings and vehicle fleet.

Figure 45 shows an illustrative decarbonisation pathway to net zero emissions based on the minimum decarbonisation rate of 4.2% recommended by the SBTI corporate standard. Carbon offsets ramp up from 2022/23 until they match our scope 1 and 2 carbon footprint in 2024/25, and carbon offsets continue to match our scope 1 & 2 carbon footprint until we reduce our residual carbon footprint to 10% of baseline 2018/19 emissions in 2040/41. Based on a carbon offset cost of £50/ tonne CO_2, the total cost of offsetting over this period is £1.4 million with compound inflation of 5%.

The above scenario demonstrates the high cost of achieving carbon neutral status early in our net zero journey and that we should first prioritise investment in the carbon reduction projects set out in sections 5 to 10.

Evidence produced as part of the Devon Carbon Plan identified that if Devon wanted to achieve carbon neutral status by 2030 as a stepping-stone to true net zero emissions, there would not be enough land in Devon to offset emissions using tree planting alone and that significant land use change would be required to achieve this target. Furthermore, there is currently a limited market for robust carbon offsetting schemes that fulfil the seven characteristics consistent of good quality carbon offsets.

Figure 45: Illustrative decarbonisation pathway showing carbon neutral emissions in 2024/25 and net zero status in 2040/41



Good quality carbon offsets demonstrate the following characteristics:

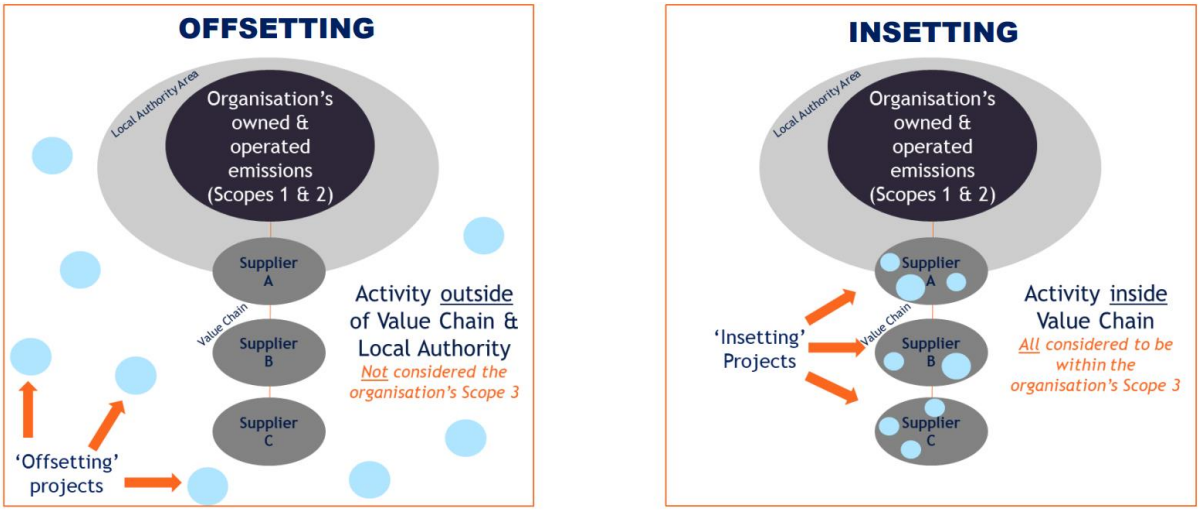
- **Additionality** - Where it can be demonstrated that a measure would not have happened due to natural and environmental effects, government policy or typical market forces, a carbon offset may be considered additional.
- **Avoiding leakage** – A justification of leakage avoidance will demonstrate that by investing in a carbon offset, there are no or minimal unintended or indirect consequential emissions arising from that activity.
- **Permanence** – Projects demonstrating permanence will need to justify that offsetting measures lock in emissions permanently, and that sequestered or prevented emissions are not easily undone.
- **Avoids double-counting** – There is a risk that single or multiple companies could claim the same carbon offset, either due to incorrect reporting methodologies, or due to an inadequate system of creating and retiring emissions offset certificates.
- **Avoiding over-estimation** – Credible emissions offsets can demonstrate that assessments of carbon sequestration or avoidance have not been over-inflated.
- **Transparent** – The adoption of recognised carbon offset codes and the availability of reporting methodologies will help to ensure that emissions offsets are transparent.
- **Independently verifiable** – Carbon offsetting should involve similar functions to financial auditing, which will help to create consensus between parties that emissions offsets generated are real and credible.

Our Tree Strategy identified that the Council "currently has a resilient tree population, especially in light of the impacts of ash dieback disease" and that our tree stock sequesters about 102 tonnes CO_2 per annum. As part of the Tree Strategy, we planted 1,500 trees in 2020 and 2021, and work is underway to plant a further 1,500 trees in 2022; this will help to maintain a diverse and resilient tree population whilst working to achieve a 25% canopy coverage over time and ensure no net loss of coverage.

Going forwards, we should aim to develop an in-house portfolio of carbon offsetting measures through schemes like the Tree Strategy. Through developing a portfolio of multiple offsetting schemes, we will reduce the risk of underperformance against any one offsetting mechanism.

Our offsetting strategy may also support a portfolio of carbon offsetting projects directly within our supply chain, a mechanism known as “carbon insetting”, to reduce our indirect carbon footprint whilst providing mutual benefits for our residents and suppliers. A comparison between carbon offsetting and the process of carbon insetting is shown in Figure 46.

Figure 46: Diagram showing the concepts of carbon insetting as an alternative to carbon offsetting, where offsetting typically includes measures to sequester or avoid emissions outside of the authority boundary and outside of our supply chain, and where insetting includes measures to sequester or avoid emissions within our supply chain and within our authority boundary. (Image credit Anthesis)



12. Our Carbon Budget

The Part 1 Plan draws on elements of the Science Based Targets Initiative (SBTI) Corporate Manual[19]. The SBTI recommends a minimum absolute carbon contraction of 4.2% per annum for Scope 1 and Scope 2 emissions.

Furthermore, relative to our baseline 2018/19 carbon footprint, the SBTI recommends a combined scope 1 and 2 emissions reduction of:

- 29.4% and 17.5% by 2025 to align with carbon budgets consistent with 1.5°C and 2.0°C global warming; this will equate to total cumulative emissions of 17,610 tonnes CO_2 and 18,839 tonnes CO_2 respective of 1.5°C and 2.0°C of global warming.
- 50.4% and 30.0% by 2030 to align with carbon budgets consistent with 1.5°C and 2.0°C global warming; this will equate to total cumulative emissions of 25,094 tonnes CO_2 and 28,516 tonnes CO_2 respective of 1.5°C and 2.0°C of global warming.

It will be the intention of this plan to deliver carbon reductions consistent with 1.5°C and not more than 2.0°C of global warming. Where possible and subject to business cases and staff capacity, the Part 1 Plan will be front-loaded with actions to reduce year-on-year emissions accumulations.

ACTION 39: Review progress towards carbon budgets and aim to limit cumulative emissions to levels consist with 1.5°C of global warming and well below 2.0°C of global warming.

It should be noted that the plan diverges from the Science Based Targets Initiative Corporate Manual in our treatment of biomass combustion emissions; our methodology assumes that carbon dioxide emissions released from the combustion of biomass are attributed to the source of biomass, and that they will be recaptured through the growth of new biomass. We have reported non-CO_2 emissions including nitrogen dioxide in our scope 1 carbon footprint relating to the combustion of biomass.

[19] SBTi-Corporate-Manual.pdf (sciencebasedtargets.org)

13. Governance and Performance Monitoring

The success of this plan will be significantly dependant on how the actions of the plan are embedded within the organisation. The Council has an existing Corporate Projects Board and performance management framework that will be used to manage the projects and actions within the plan.

The Climate Change Officer will lead the project team which will include representatives from the key service areas involved in the delivery of the plan.

Reporting to Councillors and members of the public will be via several channels:

- Biannual Executive Member updates to Overview and Scrutiny 1.
- Quarterly reporting to Overview and Scrutiny 1 via the Action on Climate Programme of works under the Council strategy.
- Annual publication of the Carbon Footprint on the Council's website.

The we will undertake an annual review of the progress of the programme of work, and identify new technologies, opportunities, and funding streams to deliver future projects.

As part of the annual Capital Programme Review, we will identify funding opportunities for a pipeline of projects and consider using funding streams not limited to grants, capital, borrowing, Section 106 , Community Infrastructure Levy and green bonds.