University of Exeter | Centre for Energy and the Environment

Exeter City Council's Carbon Footprint 2021/22

CENTRE FOR ENERGY AND THE ENVIRONMENT

Internal Document 1030

July 2023

University of Exeter | Centre for Energy and the Environment

Author(s):	D Lash
Report number:	Internal Document 1030
Publication date:	28th July 2023
Revision number:	1.0

CENTRE FOR ENERGY AND THE ENVIRONMENT
University of Exeter
Hope Hall
Prince of Wales Road
Exeter, EX4 4PL
+44(0)1392 724143/4/5
www.exeter.ac.uk/cee

Cover image: Solar Farm at Water Lane

Management Summary

The Centre for Energy and the Environment at the University of Exeter was commissioned by Exeter City Council to produce their organisational GHG inventory for the 2021/22 period. This report summarises the main aspects of the footprint both for the overall scope and approach, and for data collection and analysis.

Contents

1 Introduction

The Centre for Energy and the Environment at the University of Exeter was commissioned by Exeter City Council to produce their organisational GHG inventory for the 2021/22 period. This follows the productions of previous footprints covering the 2018/19 and 2020/21 periods. This report summarises the main aspects of the footprint both for the overall scope and approach, and for data collection and analysis within each category, and reports the results using two categorisation schemes.

2 Inventory Scope and Method

2.1 General

The footprint is based on BS EN ISO 14064-1 [1] (referred to from here as ISO 14064) and the accompanying ISO/TR 14069 [2], and the Greenhouse Gas Protocol (referred to from here as the GHG Protocol) [3] and the accompanying documents [4] and [5] which provide more detail on quantifying emissions from supply chains.

A "carbon footprint" is taken here to be the net emissions of GHGs by the organisation over a year (i.e., an annual GHG inventory). The net emissions are established by calculating emissions from all sources (processes that release GHGs into the atmosphere), sinks (processes that remove GHGs from the atmosphere) and reservoirs (components other than the atmosphere that have the capacity to accumulate GHGs). The inventory includes all GHGs expressed in tonnes of carbon dioxide equivalent (tCO_2e), though these have not been disaggregated into emissions for each gas.

The footprint has been produced based on a "Financial Control" organisational boundary.

Emissions have been calculated for Scopes 1 (direct emissions), 2 (energy indirect), and 3 (other indirect) and the sub-categories within each of these as defined in ISO 14064 of which there are 23 in total. The relationship of direct and indirect emissions is shown in Figure 1. A further category (24) has also been included to include any offsets. The inclusion of each of these categories is shown in Table 1. The previous footprints have been produced within 10 categories as outlined in previous advice by the Government for its National Indicator 185. The approach taken this year and onwards aims to align ECC's approach with the most comprehensive and utilised standards.

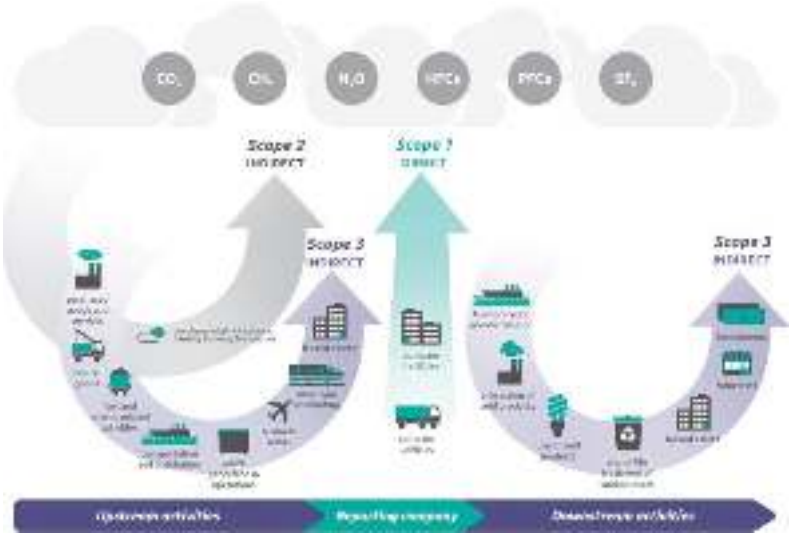


Figure 1: The relationship of direct and indirect emissions [Source: GHG Protocol]

Table 1: Inventory categories and their recommended inclusion or not within the footprint

Scope	Upstream/ Downstream	No.	Category ISO 14064-1	Include/ Exclude
Scope 1: Direct GHG emissions and removals				
1	Direct	1	Direct emissions from stationary combustion	Include
		2	Direct emissions from mobile combustion	Include
		3	Direct process related emissions	Exclude
		4	Direct fugitive emissions	Include
		5	Direct emissions and removals from Land Use, Land Use Change and Forestry (LULUCF)	Exclude
Scope 2: Energy GHG indirect emissions				
2	Upstream	6	Indirect emissions from imported electricity consumed	Include
		7	Indirect emissions from consumed energy imported through a physical network	Exclude
Scope 3: Other indirect GHG emissions				
3	Upstream	8	Energy-related activities not included in direct emissions and energy indirect emissions	Include
		9	Purchased goods and services[1]	Include
		10	Capital equipment	Include[2]
		11	Waste generated from organisational activities	Include
		12	Upstream transport and distribution	Exclude
		13	Business travel	Include
		14	Upstream leased assets	Exclude
		15	Investments	Exclude[3]
	Downstream	16	Client and visitor transport	Exclude
		17	Downstream transport and distribution	Exclude
		18	Use stage of the product	Exclude
		19	End of life of the product	Exclude
		20	Downstream franchises	Exclude
		21	Downstream leased assets	Exclude
		22	Employee commuting	Include
	Varies	23	Other indirect emissions not included in the other 22 categories	Exclude

In addition, an alternative categorisation scheme was defined to better align with the activities of the organisation. These were as follows:

1. Buildings (excluding housing): Corporate Estate, Leisure Centres, Other Non-Domestic, Waste from Buildings, Homeworking Energy, Construction and Maintenance.
2. Social Housing: Operational Emissions, Construction and Maintenance.
3. Transport: Own Vehicles, Grey Fleet, Business Travel, Commuting.
4. Procurement: Goods, Services.
5. Offsets: Exported Renewable Energy, Land Use Change, Purchased Offsets.

[1] This category is called "Purchased products" in ISO 14064 but the equivalent GHG Protocol category "Purchased goods and services" is deemed more appropriate.
[2] This is included by combined consideration with category 9 'Purchased goods and services'
[3] Though spend on pensions from procurement data has been included within category 9 'Purchased goods and services'

The emissions calculated for each of the ISO 14064 categories across to this alternative scheme.

The carbon footprint covers a period of one financial year (i.e., 6th April 2021 to 5th April 2022 where daily data is available, or April 2021 to March 2022 where data is monthly). It is referred to as the 2021/2022 year.

Emissions were calculated by multiplying activity data by an emission factor. The gathering and analysis of activity data has been undertaken following a hierarchy approach with the aim being to capture the best available data. Emission factors come from a range of sources, however the most extensively used are the UK GHG Conversion Factors for Company Reporting [6] (referred to from here as the "Government EFs"). Full rationale is described in the methodology report, and confirmation of the specific data used for each category in the sections for Scopes 1, 2 and 3 below.

2.2 Scope 1: Direct Emissions

2.2.1 Direct emissions from stationary combustion

Description
Direct emissions arising from the combustion of fuels (for example, natural gas or oil) on-site in plant (for example boilers or generators) within the organisational boundaries of the reporting organisation. Here this includes all energy consumed in boilers from non-domestic buildings, and social housing.

Data Hierarchy and Calculation Approach
Energy consumption data was available for each relevant non-domestic building in the form of kWh consumed for gas for the period. This was the same format as in previous footprint years. For social housing, an analysis was undertaken using EPC data of the housing stock to estimate energy consumption for each dwelling. Energy consumption was converted to GHG using the Government EFs.

Alternative Categorisation and Mapping
For the alternative categories, emissions from this category were allocated to:

- Buildings (exc. housing) > Corporate Estate
- Buildings (exc. housing) > Leisure Centres
- Social Housing > Operational Emissions

2.2.2 Direct emissions from mobile combustion

Direct emissions arising from fuel burnt in transport equipment within the organisational boundaries of the reporting organisation. Here this covers emissions from all vehicles owned by ECC. Emissions from other transport are accounted for within various other Scope 3 categories.

Data Hierarchy and Calculation Approach
The amount of fuel consumed by vehicle was provided. This included the amount of fuel (litres of kWh), type (diesel, petrol) as well as vehicle type and department. This was converted to GHG emissions using the Government EFs. The amount of electricity used was also available, though was not separately calculated to avoid double counting from building emissions.

Alternative Categorisation and Mapping
For the alternative categories, emissions from this category were allocated to:

- Transport > Own Vehicles

2.2.3 Direct process related emissions

This category has been taken to be out of scope as it is not relevant.

2.2.4 Direct fugitive emissions

Description

These are direct uncontrolled emissions of GHG, with any process that directly utilises GHG being a potential source of emissions. Here this includes cooling plant in buildings.

Data Hierarchy and Calculation Approach

Data was not available for this accounting period, so instead the data from the 2020/21 footprint was used. This included the weight and type of refrigerant from a number of systems (26 at Riverside, 2 at Exeter Arena, 12 at Civic Centre, 5 at RAMM and 10 at Corn Exchange), from which a leakage rate of 3% was assumed. In addition, leakage was assumed from 10 domestic heat pumps from the social housing stock.

Alternative Categorisation and Mapping

For the alternative categories, emissions from this category were allocated to:

- Buildings (exc. housing) > Corporate Estate
- Buildings (exc. housing) > Leisure Centres
- Social Housing > Operational Emissions

2.2.5 Direct emissions and removals from Land Use, Land Use Change and Forestry (LULUCF)

This category has been taken to be out of scope as it is not relevant to the activities of the organisation.

2.3 Scope 2: Energy Indirect Emissions

2.3.1 Indirect emissions from imported electricity consumed

Description

These are indirect emissions associated with the import of electricity. It excludes upstream emissions associated with the production of fuels feeding power stations, embodied emission associated with the production of generation plant, and the transmission and distribution network (these are captured within Scope 3). In practice, this will be electricity consumption from buildings, and increasingly vehicles.

Data Hierarchy and Calculation Approach

The same data as used in the direct emissions from stationary combustion category was used to account for electricity imported in buildings. Where electricity was generated at sites, any self-consumed energy would reduce the imported electricity. Any exported electricity was accounted for as an offset. In all cased, the Government EFs were used to convert energy data into GHG emissions.

Alternative Categorisation and Mapping

For the alternative categories, emissions from this category were allocated to:

- Buildings (exc. housing) > Corporate Estate
- Buildings (exc. housing) > Leisure Centres
- Social Housing > Operational Emissions

2.3.2 Indirect emissions from consumed energy imported through a physical network

This category has been taken to be out of scope as it is not relevant to the activities of the organisation.

2.4 Scope 3: Other Indirect Emissions

2.4.1 Energy-related activities not included in direct emissions and energy indirect emissions

Description
These are indirect emissions associated upstream activities associated with fuel and electricity consumption by the reporting organisation. Examples include the extraction, production, transport, and distribution of fuel and energy. In practice, this will be an additional well to tank (WTT) uplift on all fuel use from stationary and mobile construction (Sections 2.2.1 and 2.2.2), imported electricity and energy consumed from a physical network Sections 2.3.1 and ?), upstream transport and distribution (Section 2.4.5), business travel (Section 2.4.6), client and visitor travel (Section 2.4.9) upstream leased assets (Section 2.4.7), downstream transport, product use, and leased assets (Sections 2.4.10, 2.4.11, and 2.4.14), and employee commuting (Section 0).

Data Hierarchy and Calculation Approach
The data collection was the same as from the above source categories, as described elsewhere in this report. When calculating the emissions, the original emission factor was replaced with the emission factor for WTT as stated in the Government EFs. For electricity, the upstream emissions include WTT emissions associated with combustion at the generation plant (e.g., remote power stations), the transmission and distribution (T&D) network, and then WTT emissions on the T&D network.

Alternative Categorisation and Mapping
For the alternative categories, emissions from this category were added to the main emissions from each of the associated categories and allocated in the same way as that category.

2.4.2 Purchased products and services

Description
These are emissions associated with the consumption of goods and services by the reporting organisation that are not otherwise included elsewhere in the inventory. For example, capital equipment, business travel, or electricity consumption are all examples of goods and services that are consumed, but they are already accounted for within specific sub-categories in the inventory that have been created within the standards to improve transparency and consistency. The scope of these emissions are “cradle to gate” i.e., all emissions that occur up to the point of sale by a producer e.g., raw material extraction, transport to a manufacturing facility, processing etc., but not including onward transport to the customer (the reporting organisation here), which is covered in Section 2.4.5 “upstream transport and distribution”. This category will rely heavily on engagement with both procurement departments, and supply chain partners.

Data Hierarchy and Calculation Approach
The ultimate goal to aim for would be to have specific quantified emissions for each good or service purchased by the organisation. In practice, this will not at this moment be achievable, and there will need to be a balance found between having sufficient granularity and accuracy of outputs against the time and effort required to calculate emissions from supply chains. Reporting may be by supplier and/or sector.

The GHG Protocol supply chain guidance documents discuss four calculation methods, of which only first and last are likely to be practicable. The following hierarchy should be followed for data collection (best to worst):

1. Supplier-specific method: This involves obtaining product level data directly from the supplier, and three methods ranked best to worst are described here:
    a. The emissions from the product will have been calculated by the supplier ideally following the BS EN ISO 14067 standard [7] of Environmental Product Declarations (EPDs) [8]. The product emission factors used should be "cradle to gate" and not full lifecycle. These standards would provide the assurance that a fair and recognised approach has been adopted.
    b. If a supplier has undertaken product calculations but has not followed these standards then it may still be possible to use their data though this should be done with caution and in discussion with the supplier to understand the calculations.
    c. If this is not available, then the supplier may have produced their own emissions intensity value (e.g., $kgCO_2e$/£ spent) based on their own specific data, which could then be used with the value of the contract to estimate emissions.
2. Hybrid method: This approach effectively relies on gathering all the relevant data from a supplier (for example Scope 1 and 2 emissions, plus data such as mass of upstream materials) to enable the reporting organisation to then calculate the emissions. This option is discounted here as likely to be too resource-intensive to be applicable in most/all cases for the forces.
3. Average-data method: This method involves gathering quantified activity data (other than cost) such as mass of product, number of., hours spent etc. which can then be used with secondary data e.g., published databases, government statistics, literature studies, and industry associations. The GHG Protocol provides examples of databases [9], some of which are commercial. Adopting this method would rely on both capturing activity data using quantities other than contract value, and collectively deciding on the appropriate database for each product and applying it. As the former is not routinely undertaken and certainly not holistically across all categories of procurement, this option is discounted at this moment.
4. Spend-based method: This method involves assigning a sector (e.g., using the Standard Industry Classification [SIC] codes) to each item of spend, and then multiplying the value with a sector-specific emission factor. It may be more time-efficient to aggregate spend items by supplier and then rank suppliers by total spend. It is likely that a pareto principle will apply meaning that manual allocation of sector can be applied to the highest spend suppliers and then for the "tail" an average can be applied based on the top suppliers. This is the approach outlined in the ERG and Annex E, though the emission factors there are very out-dated. The most recent and applicable emission factors to be used are from the UK's carbon footprint dataset [10] in the "SIC multipliers" sheet. Whilst this method is effective at being able to relatively quickly calculate emissions arising from anywhere in the economy, it is important to recognise it is not likely to be accurate and cannot distinguish emissions between spend within a category or between suppliers, and is only really useful as an initial rough "snapshot" rather than as a tool that can identify specific opportunities or track changes over time (as the only two factors in the calculation are amount spent and the emission factor).

At present, it is likely that option 4 will be used for calculating emission from all purchased products and services, though if improved data as described in option 1 becomes available over time, then this can be used for those goods and services and the remainder continued with the spend-based method.

In all cases, it is important to avoid the potential for double counting by excluding calculation of emissions that are already accounted for elsewhere. For example, in the case of adopting a spend-based analysis, the amount spent on suppliers of energy and business travel should not be included here as they will be included elsewhere in the inventory. It is also important that any spend on non-relevant categories are excluded. For example, money spend directly on wages via an agency would not

be contributing to emissions (and their activities within the organisation e.g., occupancy of buildings or vehicles will be captured elsewhere), though the fees spent on employment agencies for their services should be included.

For ECC spend data was available covering 31,494 transactions with 8,432 unique suppliers. The total spend was £91.3 million (ex. Vat). Each transaction also included spend categories at different resolutions, with the most detailed of these containing 394 categories. The following process was undertaken:

- A combination of manual and automatic assignment using supplier name and detailed category was undertaken to allocate a sector based on the ERG Annex E sectors to each line of spend. The ERG was used as it had in previous years and much work had already been undertaken manually assigning suppliers to ERG categories.
- Rules were established to (where relevant) exclude transactions by:
    - Supplier, for example Allstars fuel card (counted elsewhere), HMRC payments (not relevant), and Strata (covered elsewhere).
    - Detailed Spend Category, for example Covid and other grant distribution, business rates etc.
    - Emissions category, for example electricity and gas supply (counted elsewhere).
- A mapping exercise was undertaken to match sectors from the UK Carbon Footprint to the ERG sectors, so that the emission factors from the newer UK Carbon Footprint could be used instead of the ERG emission factors.
- Emission factors from each UK Carbon Footprint sector was assigned to each item of spend and adjusted for inflation from the most recent year of publication of the emission factors (2019).
- Emissions were calculated for each transaction by multiplying spend by emission factor.
- Emissions were aggregated by supplier and detailed sector, and coarsely as goods, construction/maintenance (separately for homes and non-residential buildings), and services.
- From the above, a directory was produced that mapped each supplier to a spend category and assigned an emissions category for each combination. This directory could be used on subsequent footprint years, including adding new suppliers where relevant.

Alternative Categorisation and Mapping
For the alternative categories, emissions from this category were allocated to:

- Procurement > Goods
- Procurement > Goods
- Buildings (exc. housing) > Construction and Maintenance
- Social Housing > Construction and Maintenance

2.4.3 Capital equipment

This category has not been separated out from spend data from the previous category (purchased products and services). It is therefore included in the footprint, but not reported as a separate category.

2.4.4 Waste generated from organisational activities

Description
Waste can impact on organisational GHG emissions in several ways, including:

- The use of recycled materials in the products the organisation purchases. These are already accounted for in Sections 2.4.2 and 2.4.3).

- The transport and subsequent processing of waste generated by the organisation. This is what is covered within this section. Technically, the transport of waste from the organisation to the waste treatment facility would constitute "downstream transport and distribution", however as the Government EFs combine the transport and waste processing impact, they are assumed to be included within this section.
- The onward disposal of waste from products sold by the organisation. This is not applicable here.

For waste generated by the organisation that is recycled, this has two potential GHG reducing benefits, firstly the reuse of material can lower embodied emissions from purchased products (this is accounted for in the purchase of those products), and secondly by avoiding sending that waste to be processed (e.g., preventing material from entering landfill sites). The second of these can be optionally reported as "avoided emissions", however as the supporting data is likely to be hard to obtain and the overall impact minimal, it is recommended that this is not reported.

Data Hierarchy and Calculation Approach

The aim should be to obtain data at building resolution (i.e., waste produced at each site), however this information was not available here. Benchmark data waste generation data [11] as shown in Table 2 was used with FTE employee numbers to establish total amounts of each waste stream. It was assumed all paper products were recycled, and the remained processed at an energy from waste plant. The derived annual mass of waste (tonnes) was then multiplied by the corresponding emission factor from the Government EFs. It should be noted that these factors include an allowance for typical transport distances to a waste processing site and for the processing itself. As the benefit of recycling and energy recovery from waste are accounted for in the supply of recycled material and energy, for most EFs that values are low as they only include the transport component. The notable exception to this is any organic waste (and the generic "commercial and industrial waste" category) sent to landfill, though this was not relevant here.

Table 2: Breakdown of office waste per FTE to use if site specific data is not available (Source: Cundalls)

Waste Stream	Split	Mass (kg)
White paper	20%	40
Cardboard	14%	28
Newspaper and Magazines	13%	26
Other Paper	13%	26
Food	21%	42
Building (services and other)	4%	8
Plastic cups	1%	2
Cans	3%	6
Glass	3%	6
Office Equipment	2%	4
Other Plastic	6%	12
TOTAL	100%	200

Alternative Categorisation and Mapping

For the alternative categories, emissions from this category were allocated to:

- Buildings (exc. housing) > Waste from Buildings

2.4.5 Upstream transport and distribution

This category has been taken to be out of scope as it is not practicable to monitor or calculate in a meaningful way.

2.4.6 Business travel

Description

This section includes emissions from business travel in vehicles owned or operated by third parties and also includes emissions associated with hotel stays on business trips. Emissions associated with travel in vehicles owned or leased by the organisation, or from commuting, are covered in other sections.

Data Hierarchy and Calculation Approach

Mileage data was available for a number of generic vehicle sizes (small, medium, large) and fuel types (petrol, diesel). Emissions were calculated by multiplying the mileage by the emission factor of each vehicle type.

Alternative Categorisation and Mapping

For the alternative categories, emissions from this category were allocated to:

- Transport > Grey Fleet

2.4.7 Upstream leased assets

This category has been taken to be out of scope as it is not relevant to the activities of the organisation.

2.4.8 Investments

This category has been taken to be out of scope as the category in the GHG Protocol is more aimed at financial institutions and is in general not relevant to the activity of the organisation. The inclusion of pensions within the protocol is optional and has not been included here now.

2.4.9 Client and visitor transport

This category has been taken to be out of scope as it is likely to be very small and not practicable to monitor or calculate in a meaningful way.

2.4.10 Downstream transport and distribution

This category has been taken to be out of scope as it is not relevant to the activities of the organisation.

2.4.11 Use stage of the product

This category has been taken to be out of scope as it is not relevant to the activities of the organisation.

2.4.12 End of life of the product

This category has been taken to be out of scope as it is not relevant to the activities of the organisation.

2.4.13 Downstream franchises

This category has been taken to be out of scope as it is not relevant to the activities of the organisation.

2.4.14 Downstream leased assets

This category has been taken to be out of scope as it is not relevant to the activities of the organisation.

2.4.15 Employee commuting

Description

This includes transport of employees between their homes and workplaces. This can cover a range of modes but in practice will be mainly driving (either single driver or car sharing) as well as potentially public transport modes and walking/cycling. Also included in this section "home working" i.e., emission arising from energy used to heat homes and operate work equipment whilst staff are home working.

Data Hierarchy and Calculation Approach

Undertaking a detailed staff survey would be the most accurate and useful data for establishing commuting emissions. This was not available for this year, and so the following process was undertaken:

- The total and FTE number of staff was established.
- An estimate was made for number of staff whose role requires them to be onsite every day. This was multiplied by the ratio of total FTE to total staff numbers to convert this to an estimated FTE of staff who always commute. It was assumed (ECC estimate) that the remaining staff commuted 1 day in 5.
- The total number of commuting days was taken to be 224, and the total hours in a day to be 8.
- The number of, and split of journeys by car for each of Exeter, the Greater Exeter area, and the Wider Region was taken from Exeter Transport Strategy 2020[4]. This was used to calculate a weighted average of car drivers to workplaces in Exeter (58% of trips).
- The ratio of car to bus to train commutes from a previous year's survey of ECC staff was used to estimate the percentage of commutes by bus and train. The remainder of all trips were assumed to be walking/cycling, resulting in a modal split of 58% car, 11% bus, 14% train, 17% walk/cycle.
- The average one-way distance of each commuting mode was taken from a previous year's survey of ECC staff based on home postcode (12.6 miles car, 13.3 miles bus, 15.7 miles train).
- Annual emissions from each mode were calculated by multiplying FTE staff by total annual days by proportion of working days commuted by daily distance by the relevant modal emission factor from the Government's EFs. WTT emissions were calculated in the same way.
- Work at home emissions were calculated by establishing the total amount of days not commuted, converting this to working-hours and multiplying by the appropriate emissions factor.

Alternative Categorisation and Mapping

For the alternative categories, emissions from this category were allocated to:

- Transport > Commuting
- Buildings (ex. Housing) > Homeworking energy

2.4.16 Other indirect emissions not included elsewhere

This category has been taken to be out of scope as it is not relevant to the activities of the organisation.

[4] https://democracy.devon.gov.uk/documents/s33455/Exeter%20Transport%20Strategy%202020-2030.pdf

2.5 Offsets

Description
This section covers any offset emissions, which could include generated and exported renewable energy, or purchased carbon credits.

Data Hierarchy and Calculation Approach
The only relevant offset in this category was exported renewable electricity. Metered export data was available for a number of sites, and this was multiplied by the emission factor for electricity generation. No offsets for WTT was assumed.

Alternative Categorisation and Mapping
For the alternative categories, emissions from this category were allocated to:

- Offsets > Exported Renewable Energy
- Offsets > Land Use Change

3 Inventory Results

The results for the 2021/22 inventory and previous years (there was no footprint from 2019/20) are shown by main and sub category for ISO 14064-1 categories and the alternative categorisation schemes in Figure 2 to Figure 5 and in Table 3.

Emissions for the 2021/22 period were 36,631 tCO_2e. This represents a reduction of 2,293 tCO_2e (6%) on the previous year. Emissions had been rising year on year prior to this. Headline observations from the alternative categories are as follows:

- Non-Domestic Buildings (18% of footprint): Overall, emissions from non-domestic buildings dropped in 21/22 mainly driven by the spend on St. Sidwells point (which is converted to construction emissions) coming to an end. This is the first time construction emissions have been reported alongside operational emissions within the building categories (this categorisation has been retrospectively applied to previous footprint years). Operational emissions from the corporate estate increased, likely due to a bounceback from Covid, whilst leisure centres were still at a lower level, perhaps still due to the impacts of Covid, and the closure of Pyramids.
- Social Housing (60% of footprint): Emissions in this category stayed broadly similar to previous years, as the underlying housing stock has remained similar. The slight increase was mainly driven by an increased spend on maintenance of the dwelling stock.
- Transport (3% of footprint): Emissions increased by around 10% in this category, however it remains a comparatively small part of the overall footprint. The main source of emissions are from refuse collection vehicles.
- Procurement (20% of footprint): Emissions from this category decreased by 15%, driven by a reduction in spend.
- Offsets (offsets 1% of footprint): The amount of carbon offset by PV panels fell over the year as whilst generation remained similar, as the wider national electricity grid decarbonises, PV has the potential to offset less fossil based generation.

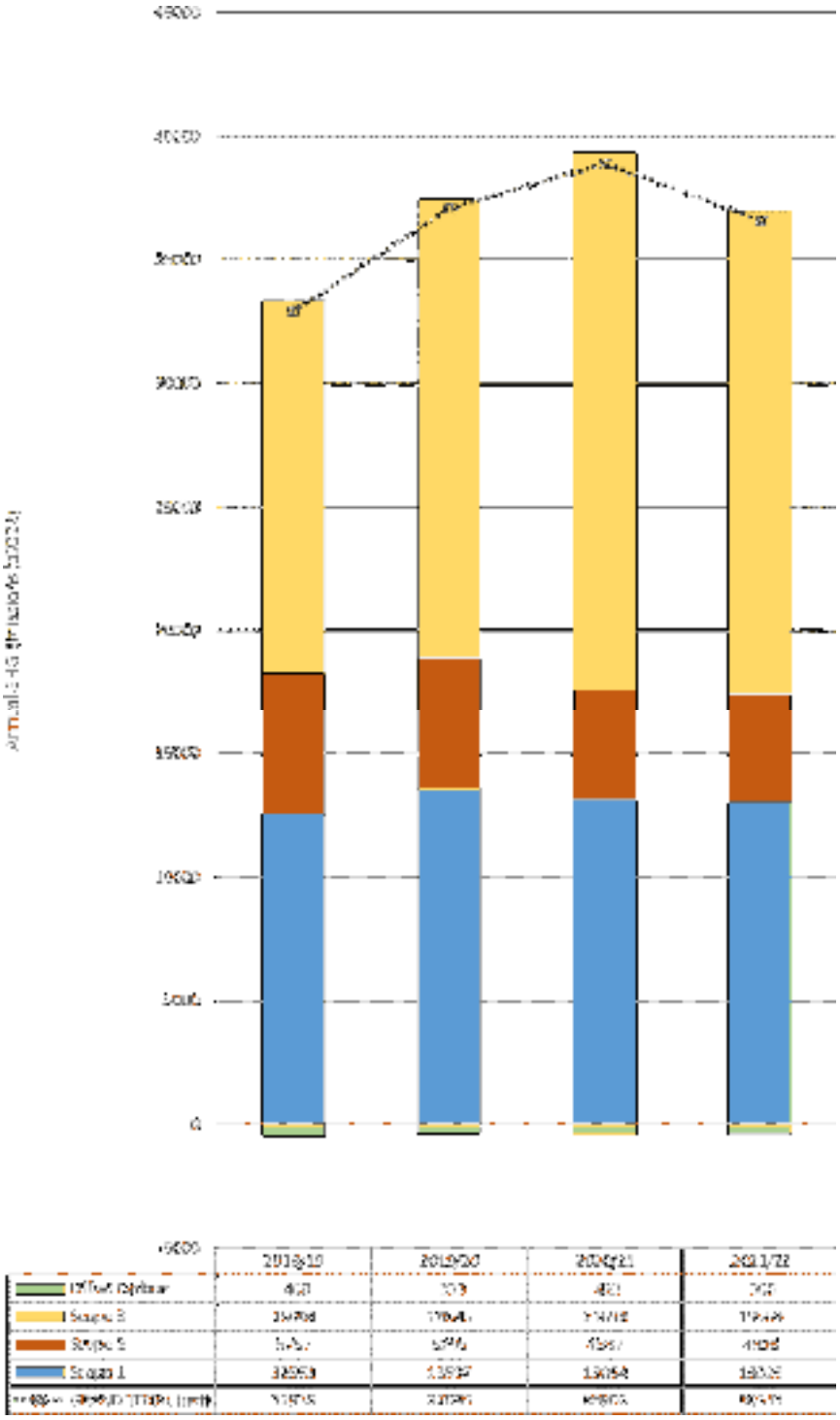
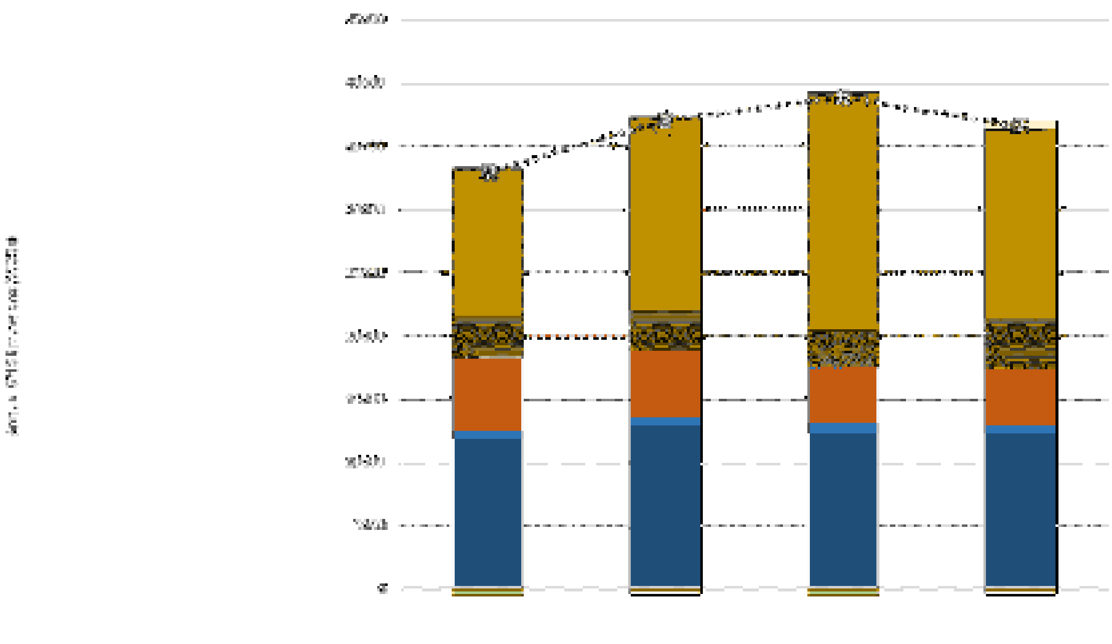


Figure 2: GHG emissions by ISO 14064-1 main category



	2018/19	2019/20	2020/21	2021/22
Offset Carbon	-408	-128	-423	-342
Other indirect emissions not included in the other 22 categories	0	0	0	0
Employee commuting	129	126	19	521
Downstream leased assets	0	0	0	0
Downstream franchises	0	0	0	0
End of life of the product	0	0	0	0
Use stage of the product	0	0	0	0
Downstream transport and distribution	0	0	0	0
Client and visitor transport	0	0	0	0
Investments	0	0	0	0
Upstream leased assets	0	0	0	0
Business travel	17	16	15	8
Upstream transport and distributionUpstream transport and distribution tion	0	0	0	0
Waste generated from organizational activities	3	3	3	3
Capital equipment	0	0	0	0
Purchased products	11,082	[illegible]	[illegible]	[illegible]
Energy-related activities not included in direct emissions and energy indirect emissions	3265	3124	3061	3965
Indirect emissions from consumed energy imported through a physical network	0	0	0	0
Indirect emissions from imported electricity consumed	5757	[illegible]	4597	4296
Direct emissions and removals from Land Use, Land Use Change and Forestry (LULUCF)	0	0	0	0
Direct fugitive emissions	15	16	13	16
Direct process related emissions	0	0	0	0
Direct emissions from mobile combustion	470	575	589	554
Direct emissions from stationary combustion	[illegible]	12,294	12,816	12,511
GRAND TOTAL (net)	[illegible]	[illegible]	[illegible]	[illegible]

Figure 3: GHG emissions by ISO 14064-1 sub-category

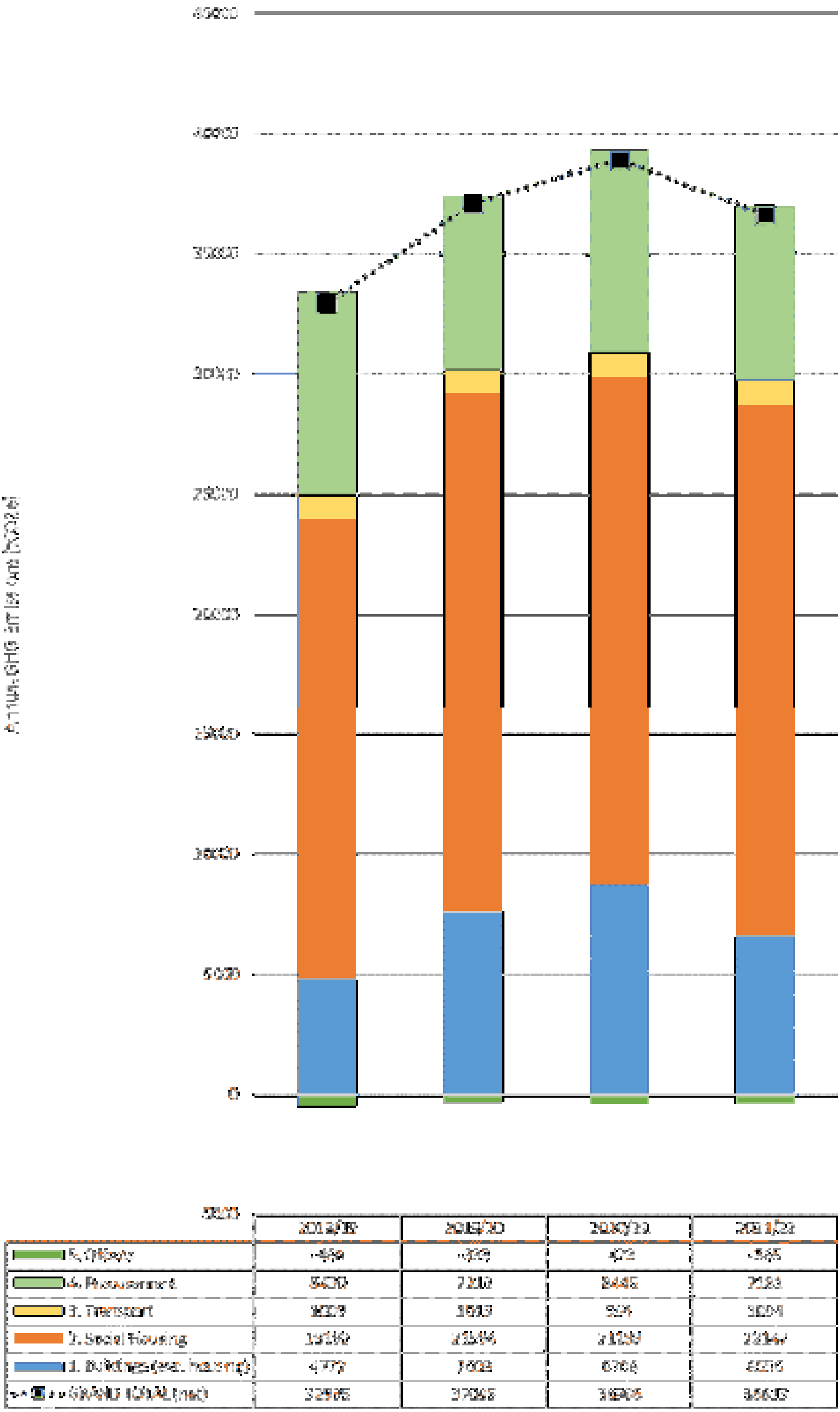
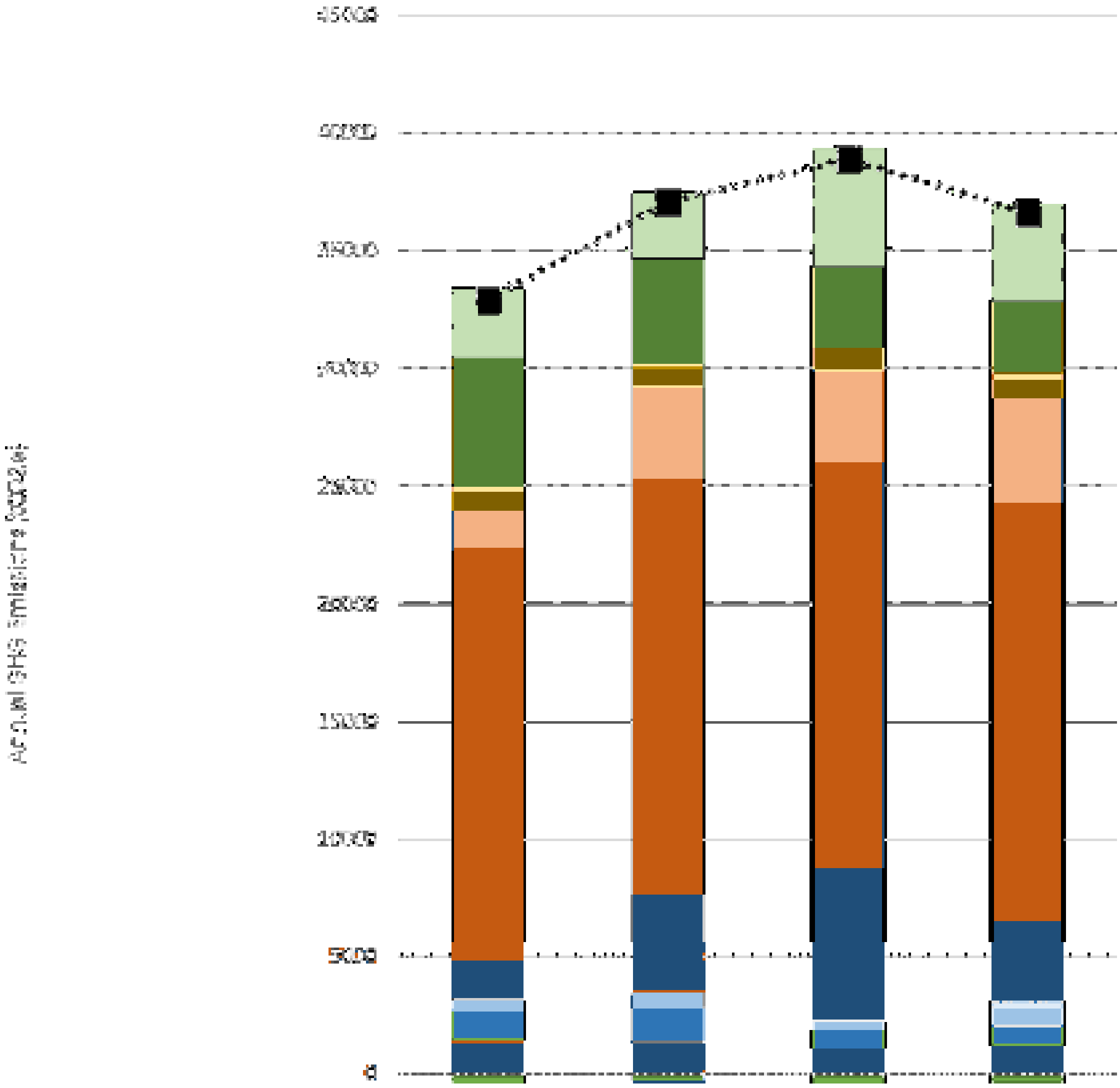


Figure 4: GHG emissions by alternative main category



	2018/19	2019/20	2020/21	2021/22
5.1 Exported Renewable Energy	[illegible]	[illegible]	[illegible]	[illegible]
4.2 Supplies	[illegible]	[illegible]	[illegible]	[illegible]
4.1 Goods	[illegible]	[illegible]	[illegible]	[illegible]
6.4 Commuting	[illegible]	[illegible]	[illegible]	[illegible]
6.3 Business Travel	[illegible]	[illegible]	[illegible]	[illegible]
6.2 Grey Fleet	[illegible]	[illegible]	[illegible]	[illegible]
3.1 Own Vehicles	[illegible]	[illegible]	[illegible]	[illegible]
2.2 Construction and Maintenance	[illegible]	[illegible]	[illegible]	[illegible]
2.1 Operational emissions	[illegible]	[illegible]	[illegible]	[illegible]
1.6 Construction and Maintenance	[illegible]	[illegible]	[illegible]	[illegible]
1.5 Homeworking Energy	0	0	[illegible]	[illegible]
1.4 Waste from Buildings	[illegible]	[illegible]	[illegible]	[illegible]
1.3 Other Non-Domestic	[illegible]	[illegible]	[illegible]	[illegible]
1.2 Leisure Centres	[illegible]	[illegible]	[illegible]	[illegible]
1.1 Corporate Estate	[illegible]	[illegible]	[illegible]	[illegible]
GRAND TOTAL (est)	[illegible]	[illegible]	[illegible]	[illegible]

Figure 5: GHG emissions by alternative sub-category

Table 3: Detailed GHG emissions by alternative category

Category	2018/19	2019/20	2020/21	2021/22
1. Buildings (exc. housing)	4772	7609	8706	6556
1.1 Corporate Estate	1404	1362	1032	1167
RAMM	591	583	449	593
Guildhall	28	31	24	32
Carpenter Close Community Centre	2	2	1	0
Exwick Cemetery	0	0	0	0
Corn Exchange	86	52	59	64
Longbrook st Community Rooms	0	0	0	0
Southlands	1	0	0	1
Grandisson Court	2	2	1	0
Weavers Court	1	0	0	0
Faraday House Common Room	0	0	0	0
Bodley Close Community Centre	3	4	2	1
Livestock Centre	8	9	3	1
Nelson Close	0	0	0	0
Abbeville Close Community Centre	0	0	0	0
MRF	94	94	66	75
Carpenters Workshop Exton Rd	10	10	7	6
Customs House	8	10	8	9
ARK Museum Store	0	0	0	0
Toronto House	0	14	20	0
Civic Centre	283	318	223	237
St Nicholas Priory	75	0	0	0
St Georges Market - Corn Exchange	40	41	15	26
CCTV Control Centre	34	30	0	5
Oakwood House	29	32	25	29
Other Buildings	104	41	33	19
Glencoe, Alphington Street,		5	8	0
25 Queens Road		7	34	0
Night Shelter, Magdalen Street		3	7	0
Matford Livestock Centre		70	41	61
Exton Road Depot - Oakwood House	4	4	3	5
1.2 Leisure Centres	1243	1421	793	848
Exeter Arena	58	66	36	38
ISCA Centre	122	124	89	45
Nothbrook Pool	167	253	68	81
Pyramids	464	440	280	257
Riverside	326	448	224	348
Wonford	68	53	47	44
Northbrook Pool	36	34	42	35
Northbrook Golf	1	0	0	
Clifton Hill Sports Centre		2	0	0
Leisure others		0	6	
1.3 Other Non-Domestic	509	660	426	750
Car Parks	221	219	140	200

Facilities Management	49	54	24	38
Public conveniences	16	16	8	10
Public Realm	24	105	87	70
Sheltered Accommodation	118	100	53	123
Tenant Services	80	124	75	269
UMS Energy	0	43	40	40
1.4 Waste from Buildings	3	3	3	3
Paper	2	2	2	2
Residual Waste	1	1	1	1
1.5 Homeworking Energy				305
Work at Home energy use				305
1.6 Construction and Maintenance	1613	4162	6453	3483
Procured Construction: Non-residential	1613	4162	6453	3483
2. Social Housing	19192	21594	21183	22147
2.1 Operational emissions	17553	17692	17282	17749
Council Owned Homes	17553	17692	17282	17749
2.2 Construction and Maintenance	1639	3902	3902	4398
Procured Construction: Homes	1639	3902	3902	4398
3. Transport	1009	1013	994	1094
3.1 Own Vehicles	827	835	955	812
Car Parking Services	12	4	4	4
Cleansing & Fleet Manager Refuse Trucks	558	563	556	642
Cleansing & Fleet Manager Other	55	153	152	54
Corporate Customer Services	5	0	0	2
Housing	13	1	2	0
Leisure and Museum Manager	5	1	1	0
Patrollers	7	0	0	0
Pool Car	1	0	0	0
Pool Van Engineering	4	0	0	0
Principal EHO	3	0	1	0
Public & Green Spaces	159	110	236	107
Waterways	4	2	2	2
3.2 Grey Fleet	21	20	16	11
Grey Fleet	21	20	16	11
3.4 Commuting	160	157	24	271
Commute by car	133	130	17	251
Commute by bus	18	18	6	8
Commute by train	10	9	1	12
4. Procurement	8430	7213	8445	7181
4.1 Goods	5544	4433	3466	3044
Procured Goods	5544	4433	3466	3044
4.2 Services	2887	2779	4980	4137
Procured Services	2887	2779	4980	4137
5. Offsets	-468	-333	-423	-365
5.1 Exported Renewable Energy	-468	-333	-423	-365
Council Owned Homes	-105	-74	-83	-76
RAMM	-4	-1	-2	-3
MRF	0	0	0	0

Oakwood House	-3	-2	-3	-2
Civic Centre	0	0	0	0
Ark	0	0	0	0
Belle Isle	-1	0	0	0
MA Car Park	-40	-32	-35	-30
JL Car Park	-28	-23	-26	-21
Wat Tyler	-3	-2	-3	-3
Climb Centre	-5	-3	-4	-4
Livestock Centre	-280	-194	-268	-227
5.2 Land Use Change			0	0
Valley Parks Tree Planting			0	0
Grand Total	32935	37095	38906	36613

References

[1] British Standards Institute, BS EN ISO 14064-1: Greenhouse Gases - Part 1: Specification with guidance at the organisational level for quantification and reporting of greenhouse gas emissions and removals, 2019.

[2] ISO-International Organization for Standardization, ISO/TR 14069:2013. Greenhouse gases-Quantification and reporting of greenhouse gas emissions for organizations. Guidance for the application of ISO 14064-1., 2013. (2013).

[3] World Business Council for Sustainable Development (WBCSD), World Resources Institute (WRI), A Corporate Accounting and Reporting Standard, Greenh. Gas Protoc. (2004) 1–116. https://doi.org/10.1196/annals.1439.003.

[4] World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard, 2011.

[5] World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), Technical Guidance for Calculating Scope 3 Emissions: Supplement to the Corporate Value Chain (Scope 3) Accounting & Reporting Standard, 2013.

[6] HM Government, GHG Conversion Factors for Company Reporting, (2022).

[7] BS EN ISO 14067 : 2018 BSI Standards Publication Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quanti f ication, (2018).

[8] EN ISO 14025, Environmental labels and declarations - Type III environmental declarations - Principles and procedures, Eur. Stand. 2006 (2006) 25.

[9] GHG Protocol: Life Cycle Databases, (n.d.). https://ghgprotocol.org/life-cycle-databases.

[10] UK Government, UK and England's carbon footprint to 2019, (n.d.). https://www.gov.uk/government/statistics/uks-carbon-footprint.

[11] Cundall, Information Paper 6: CO2e emissions due to office waste, 2013.