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Subject: Great Yarmouth Borough Council's Carbon Footprint

Report to: Environment Committee – Wednesday 16th March 2022

Report by Kate Blakemore, Strategic Director

SUMMARY

At Environment Committee (10 September 2019), Members received a report in response to a Council motion on the need to understand the Council's organisational carbon footprint by way of commissioning a specialist external assessment which has now been undertaken by the Carbon Trust. The work includes the mapping and measurement of the Council's carbon footprint as an organisation and has led to the development of a Carbon Reduction Plan being presented for Members' comments at this Committee.

This report therefore presents the outcome of this work and an initial 5-year Carbon Reduction Action Plan aimed at reducing the Council's organisational carbon footprint.

RECOMMENDATIONS

Members are asked to:

- (a) Accept and approve the Carbon Footprint Report completed by the Carbon Trust.**
- (b) Approve the adoption of the Council's organisational Carbon Reduction Action Plan 2022-2027.**
- (c) Request officers bring six monitoring reports to Environment Committee to enable members to review and track progress of the work set out within the Action Plan.**

1. BACKGROUND

- 1.2 At Environment Committee (10 September 2019), Members received a report in response to a Council motion on lowering the Council's organisational carbon footprint and agreed to commission specialist external support to map and measure the Council's organisational carbon footprint and thereby develop a Carbon Reduction Action Plan.
- 1.2 An organisation's carbon footprint is essentially the amount of greenhouse gases that are expressed as Carbon Dioxide equivalent released into the atmosphere because of the organisation's activities. The Carbon Trust was commissioned to undertake this work on

behalf of Great Yarmouth Borough Council in order to provide a baseline position on which the Council would be able to take action to reduce its greenhouse gas emissions and therefore its reliance on carbon going forward.

- 1.3 Interestingly, the borough of Great Yarmouth Borough is a geographic area currently produces the lowest amount of CO₂ emissions when compared to the other local council areas in Norfolk of which there has been a mainly positive downward trend since 2005. It should, however, be noted that direct comparisons with other geographic council areas is difficult given each area has different compositions of business, industries, transportation networks and populations.

2. INTRODUCTION

- 2.1 This report presents the outcome of the work commissioned by the Council with the Carbon Trust in relation to measuring the Borough Council's organisational carbon footprint and provides members with a 5-year Carbon Reduction Action Plan aimed at reducing the Council's reliance on carbon and impact going forwards.

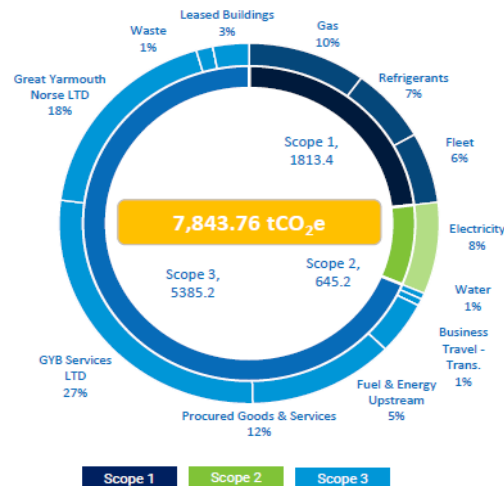
3. THE COUNCIL'S CARBON FOOTPRINT

- 3.1 The Carbon Trust's carbon footprint calculation for the Borough Council as an organisation using 2019/20 data, has been calculated to be **7,843.76 tCO₂e**. The Trust has advised that this footprint is not dissimilar to similar organisations in terms of size and scope. The Carbon Footprint Report for the Borough Council produced by the Carbon Trust has been provided at Appendix 1.

- 3.2 In determining the calculation, the Council's carbon measurement includes:

- **Scope 1 emissions:** these are greenhouse gas emissions from sources owned or controlled by the local authority. For example, emissions from boilers and vehicles. Councils have direct control over these emissions.
- **Scope 2 emissions:** such as purchased electricity consumed by the local authority. Councils can impact their Scope 2 emissions by choosing to purchase low carbon electricity.
- **Scope 3 emissions:** are indirect emissions such as emissions created as part of making the paper then used by the Council.

- 3.3 The diagram below shows how these scoped emissions relate in terms of the Council's overall carbon footprint.



Above: Summary of GYBC's measured footprint

3.4 Looking at this diagram, it is clear that Scope 3 emissions account for the highest percentage of emissions, with the Council's joint venture company Great Yarmouth Borough Services Limited (GYBS) accounting for a high proportion of greenhouse gas emissions. Members can be reassured that a separate piece of work is already underway to develop proposals to reduce greenhouse gas emissions created by the Borough's collection vehicles e.g., those used for waste & recycling household collections and grounds maintenance together with other frontline operational services that rely on fleet vehicles. A new sustainable Fleet Strategy will identify ways in which Great Yarmouth Borough Council and its partners can decarbonise fleet vehicles; this will be tabled at Environment Committee in early 2022/23.

3.5 This is the first time the Council has mapped its Carbon Footprint, and as such the data required for this work was limited in places. As such there are areas that have not been included at this stage. These are:

- Data relating to the impact of employees commuting to work (This will be resolved by way of sustainable modes of transport employee survey going forward).
- Data relating to the Council's financial investments e.g. pension funds or sovereign bonds. This assessment requires further technical and bespoke analysis, so fell outside of the scope of this work but can be considered in due course.
- Data in relation to the joint venture companies GYN Limited and GYBS Limited was calculated using spend data due to the lack of available primary data. Work is in progress to refine this element of the calculation in future years.
- Data relating to the use of communal heat pumps within the Council's housing stock was included e.g. 1-15 Werry Way, Great Yarmouth. Data from individual council house properties was not included given the Council does not have access to data which would show how its tenant use their own central heating systems within the wider housing stock.

3.6 Identifying these areas will enable work to take place to ensure that the Council can collect more qualitative data and in a format that can be used to calculate the carbon footprint of the organisation going forwards.

4. CARBON FOOTPRINT RECOMMENDATIONS

- 4.1 In calculating the Council's carbon footprint the Carbon Trust has identified several recommendations. As discussed in section 3, the first recommendation relates to improving the quality of the data available to the Council ensuring that relevant data is captured in a more useable format. Many councils are now moving to make these improvements and establish internal processes which means they can calculate the organisation's footprint as required, negating the need for consultancy support.
- 4.2 The Carbon Trust recommends a Carbon Reduction Strategy to set out routes for decarbonisation going forwards. Officers have therefore developed a Carbon Reduction Action Plan 2022-2027 (Appendix 2), to address this recommendation. The Plan identifies the ways in which the Council's carbon footprint can be reduced.
- 4.3 The Trust also recommends the setting of a carbon reduction target. Again, councils have started to set Net Zero targets with the term 'Net Zero' referring to the balance between the amount of greenhouse gases produced and the amount removed from the atmosphere. An organisation achieves Net Zero by balancing its emission of carbon dioxide with removal or elimination of greenhouse gas emissions. Members will be aware that in addition to the specific piece of carbon footprint work, the Environment Committee is being asked to consider and agree a new over-arching Sustainability Strategy which includes a proposed Net Zero target of 2035.
- 4.4 The final recommendation is to ensure that the Council is adequately resourced with technical staff to help deliver the Carbon Reduction Action Plan and to monitor progress in terms of the organisation's carbon footprint. Again, this recommendation has been picked-up as part of the proposed Sustainability Strategy.

5. CARBON REDUCTION ACTION PLAN

- 5.1 In response to the carbon baseline setting by the Carbon Trust, officers have developed a 5-year Carbon Reduction Action Plan for members' consideration (Appendix 2). The Plan, and its progress against the actions it sets out will be reported to Environment Committee annually. This first Action Plan focusses on seven topical areas that can contribute to the reduction of the Council's greenhouse gas emissions. In order of impact, these topic areas are:

- | | |
|-------------------------------|-------------------------|
| • GYBS Ltd | Scope 3 (27%) |
| • GYN Ltd | Scope 3 (18%) |
| • Procured Goods and Services | Scope 3 (17%) |
| • Gas & Electricity | Scope 1 & Scope 2 (18%) |
| • Refrigerants | Scope 1 (7%) |
| • Internal Fleet | Scope 1 (6%) |
| • Leased Buildings | Scope 1 (3%) |
| • Commuting | Scope 1 (1%) |

- Waste and Water

Scope 1 (2%)

- 5.2 Careful consideration, as part of this baseline work, has also been given to the setting of an organisational Net Zero target date. Members will note that a Net Zero target of 2035 has been proposed within the over-arching Sustainability Strategy. By way of context, it is estimated that a 25% reduction in the Council's organisational carbon footprint can be made in the first two years of the Action Plan subject to investment being made.

6. FINANCIAL IMPLICATIONS

- 6.1 Whilst this report does not outline a request for additional funding at this time, Members are asked to note the recommendation made by the Carbon Trust to have an adequately trained staff resource to deliver and monitor the Carbon Reduction Action Plan. The request for a technical specialist staff role forms part of the Environment Committee's Sustainability Strategy which is also under consideration.
- 6.2 Members are also asked to note that should they wish to accelerate some of the actions set-out, in the Carbon Reduction Action Plan e.g. footway lighting improvements, and changes to the fleet, future financial allocations will be required. These will be tabled at the relevant time and once detailed costings and deliverables are known.

7. LEGAL IMPLICATIONS

- 7.1 In June 2019, the Government legislated a 2050 Net Zero target, following a recommendation from the Committee on Climate Change by amending the Climate Change Act 2008.
- 7.2 Whilst local authorities find themselves in an ambiguous position to their role in tackling climate change and where they fit into a coherent national picture as they do not have a specific duty to deliver Net Zero nor to report emissions reductions, they clearly have a leading role under this agenda, and in many cases are already delivering emission reductions, or taking actions which affect how Net Zero might be achieved by other public bodies and businesses.
- 7.3 It is also likely that as central government refocuses on this agenda post pandemic, there will be future legislative matters which will need to be considered. Members will of course, be appraised of any future legislative changes in relation to this agenda.

Area for consideration	Comment
Monitoring Officer Consultation:	As part of ELT review.
Section 151 Officer Consultation:	As part of ELT review.
Existing Council Policies:	Corporate Plan, Annual Action Plan, Economic Growth Strategy, Open

	Spaces Strategy, Sustainability Strategy.
Financial Implications:	Yes as set out in Section 6
Legal Implications (including human rights):	No, though context summarised in Section 7
Risk Implications:	As identified in report
Equality Issues/EQIA:	N/a
Crime & Disorder:	N/a
Every Child Matters:	N/a

Great Yarmouth Borough Council

2019/20 organisational carbon footprint report

Final version: December 2021

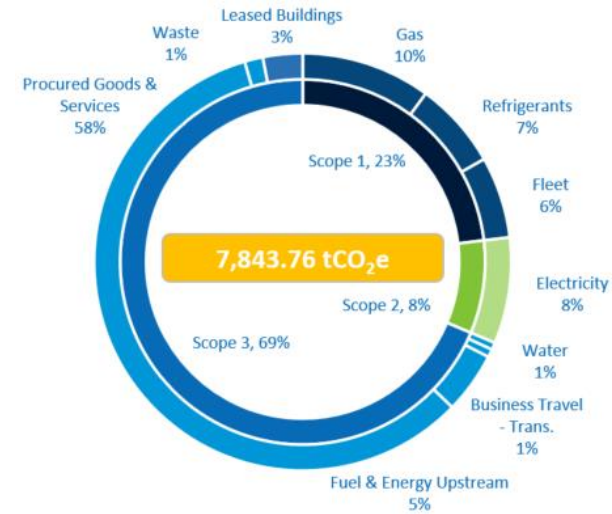
Executive summary

Great Yarmouth Borough Council (GYBC) operates local government services in the east of England, serving a population of approx. 100,000 people. The Council does not currently undertake formal carbon accounting, nor have an up to date climate action strategy to reduce carbon emissions. This report represents the initial stage of climate action and measures a baseline footprint for the Council across its value chain.

GYBC's footprint for the FY19/20 (the 'baseline') was calculated to be 7,843.76 tCO₂e. The boundary of this assessment includes all scope 1 and 2 emissions and selected scope 3 emissions. Scope 3 emissions account for approx. 69% of the overall footprint, with purchased goods and services accounting for ~58% alone.

GYBC's scope 1 and 2 emissions result from energy consumption in buildings and fleet vehicles. To reduce them, GYBC will have to implement a strong estate-wide strategy with effective and co-ordinated policy positions that cover a range of building archetypes and use-types. The impact of any future capital build projects on GYBC's carbon footprint will need to be carefully considered. For fleet, it is anticipated that suitable Battery Electric Vehicle (BEV) replacements will be competitive across the vast majority of GYBC's fleet within years, and rollout of supporting infrastructure is expected to become GYBC's largest constraint to the transitioning of its fleet.

A holistic and varied approach to decarbonisation is required for GYBC to reduce emission sources across its value chain, and a complementary strategy following this report will explore reductions in further detail.



Summary of recommendations

- 1. Data quality and collection.** GYBC should review current systems to ensure that data can be regularly collected in a format that allows for a footprint to be calculated and decarbonisation opportunities to be identified.
- 2. Carbon Reduction Strategy.** A comprehensive and granular implementation strategy should be developed. The strategy should set out potential routes to decarbonisation, before a more detailed identification and prioritisation exercise of specific decarbonisation projects is conducted.
- 3. Ratify carbon reduction target.** GYBC should ratify and clearly communicate a decarbonisation pathway.
- 4. Resource.** The Council should ensure that adequate trained resource is available to turn strategy into implementation.

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Context

GYBC's climate ambitions

In 2019, the UK Government and the devolved administrations committed to the Net Zero target as recommended by the Climate Change Committee. Reaching net-zero greenhouse gas (GHG) emissions requires extensive changes across the economy, including in the public sector. Major infrastructure decisions need to be made in the near future and quickly implemented.

Great Yarmouth Borough Council (GYBC) has established a working group to investigate and drive activities to start reducing emissions through its own operations. GYBC appreciates the need for the Council to take urgent action within its own operations to both act where it has most control and to set an example as a major public sector institution in the Borough. A key aim of this working group is in not just establishing the most expeditious route to decarbonisation, but in developing a greater understanding of where the limited resources the Council has to meet this challenge are focussed. Essential to developing this understanding will be extensive stakeholder engagement to ascertain potential motivators and barriers to action both within the Council and across the broader community.

As a vital first step in decarbonising its operations, this report sets out GYBC's operational carbon footprint; documenting the calculation methodology applied to develop a GHG baseline for the Council's own operations, presenting a breakdown of the footprint by emissions source, providing commentary on the data quality, identifying priority areas for action, and setting out recommendations for next steps and information on how the outputs can feed into the development of a strategy for GYBC's operational decarbonisation.

Footprinting jargon buster

Carbon footprinting

A carbon footprint measures the total greenhouse gas emissions caused directly and indirectly by a person, organisation, service or product, and is calculated by multiplying activity data with an associated emissions factor. The accuracy of a carbon footprint is largely dependent on the quality of activity data available. Primary data related to the specific activity being footprinted (e.g. electricity meter readings) is preferred, but benchmarks and/or proxies can provide an estimation where primary activity data is not available. Emission factors define the carbon intensity of an activity, and the most common emission factors are updated and published annually by the UK Government.

Reporting framework and emission scopes

The greenhouse gas (GHG) protocol is an established and internationally recognised methodology for carbon reporting. In the protocol, emissions are categorised into three scopes:

- Scope 1 – Direct GHG emissions (i.e. occur at the point-of-use) from sources that are owned or controlled by the reporting organisation. For example, this would include emissions from the operation of a petrol vehicle owned/controlled by the reporting company, as emissions are directly released from the vehicle exhaust.
- Scope 2 – Indirect GHG emissions (i.e. do not occur at the point-of-use) from energy consumed by the reporting organisation's owned/controlled assets. This includes electricity consumption, where the emissions associated with the consumption do not occur at the point-of-use but have been produced in the initial generation of the consumed electricity (e.g. from the burning of natural gas at a power station).
- Scope 3 – All other indirect emissions that occur in the reporting company's value chain. For example, the production of paper used in the Council's printers. The transportation of that paper from the manufacturer to the Council would also be included, as would the processing and disposal of the waste paper after use.

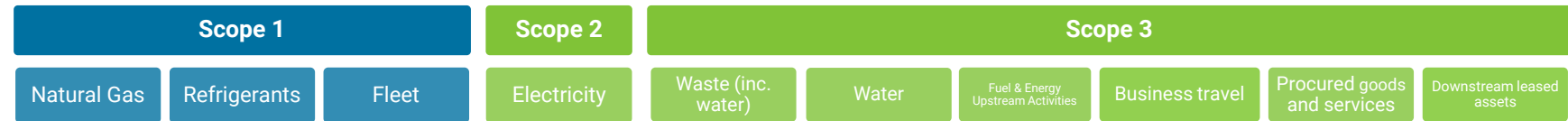
Carbon dioxide equivalent

Greenhouse gases contribute to global warming by 'trapping' in heat that would otherwise escape to space. Carbon dioxide is the most widely-produced GHG but there are many others. Some GHGs are more potent than others and (for a given amount) trap more heat in the Earth's atmosphere. The potency of GHGs is defined by their global warming potential. Carbon footprints are measured in tonnes or kg carbon dioxide equivalent (CO₂e), combining the impact of different greenhouse gases into one figure equivalent to if it were all CO₂, based on their global warming potential. The Council's footprint therefore includes the impact of all greenhouse gases, not just carbon dioxide.

Footprinting scope



GYBC FY 19/20 footprint scope



The boundary of this assessment was agreed in consultation with GYBC and is detailed above. This boundary includes all applicable scope 1 and 2 emissions sources and selected scope 3 emissions sources (staff commuting and investments are both applicable but have been excluded). While the boundary was selected mainly based on data availability, other factors such as the ability to achieve reductions through direct action should be considered when looking towards target setting and monitoring emissions reduction.

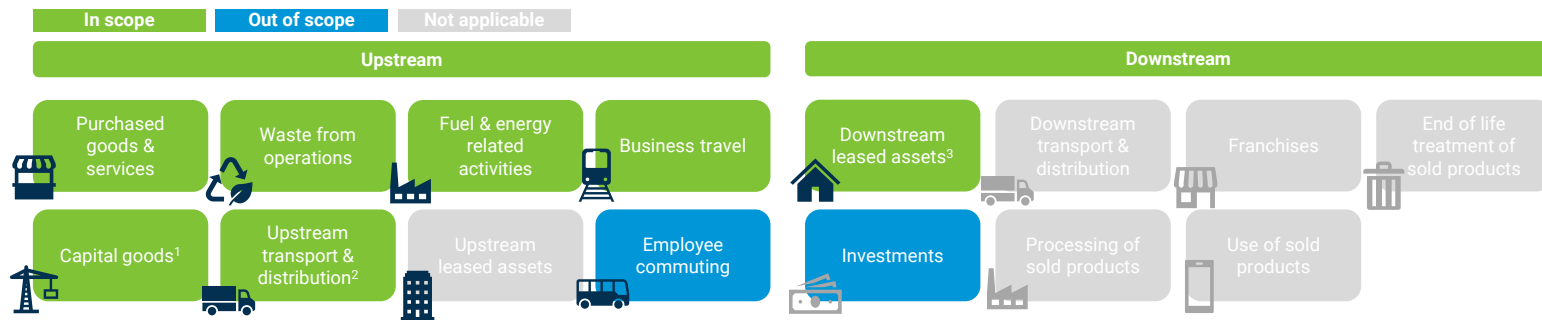
Direct and indirect emissions are defined according to operational control, such that:

- Direct GHG emissions are emissions from sources that are operationally controlled by the Council
- Indirect GHG emissions are emissions that are a consequence of the activities of the Council, but occur at sources controlled by another entity (for example, a power plant that generates the electricity consumed by the Council, or a waste-water treatment site that processes the Council's waste water).

As scope 3 emissions are emitted by a third-party's operations they are generally more difficult to monitor, control and reduce. As a result, public (and private) sector carbon action has typically focused on Scope 1 and 2 emissions. The inclusion of the selected scope 3 emissions reflects GYBC's ambition to effect change beyond their own immediate control.

Footprinting scope: scope 3 emissions

The GHG protocol separates scope 3 into fifteen different emission sources. Many of the emission sources (predominantly those downstream) are not applicable to the Council's operations and therefore excluded from the baseline. Of the fifteen, seven have been included in the Council's measured footprint:



Above: scope 3 emission categories included in this study

Two scope 3 emissions sources were deemed to be applicable to GYBC but have not been included in the baseline footprint; Employee commuting and Investments.

Though discussions with GYBC it was determined that insufficient data is currently available to be able to calculate emissions associated with employee commuting. GYBC should look to collect data on staff commuting via staff surveys and include this emissions source in future iterations.

The scope 3 investment category includes emissions associated with the reporting organisation's equity investments as well as any other investment portfolios held by the Council (e.g., pension funds, corporate bonds, sovereign bonds). Measuring this category in its' entirety requires a bespoke approach that was outside of the scope of this study.

¹ Capital goods have been included within purchased goods and services as no breakdown of capital/non-capital goods was provided.

² Specific data related to upstream transportation and distribution was not available and it has therefore been included in the input-output factors used to estimate purchased goods and services emissions.

³ Majority included in scope 1 and 2 emissions under the operational control approach.

GYBC's carbon footprint

Footprint overview

GYBC's measured footprint for the financial year 2019/20 was calculated to be **7,843.76 tCO₂e**. Scope 3 emissions are estimated to account for approx. 68% of the footprint.

One scope 3 emission category makes up 58% of the footprint:

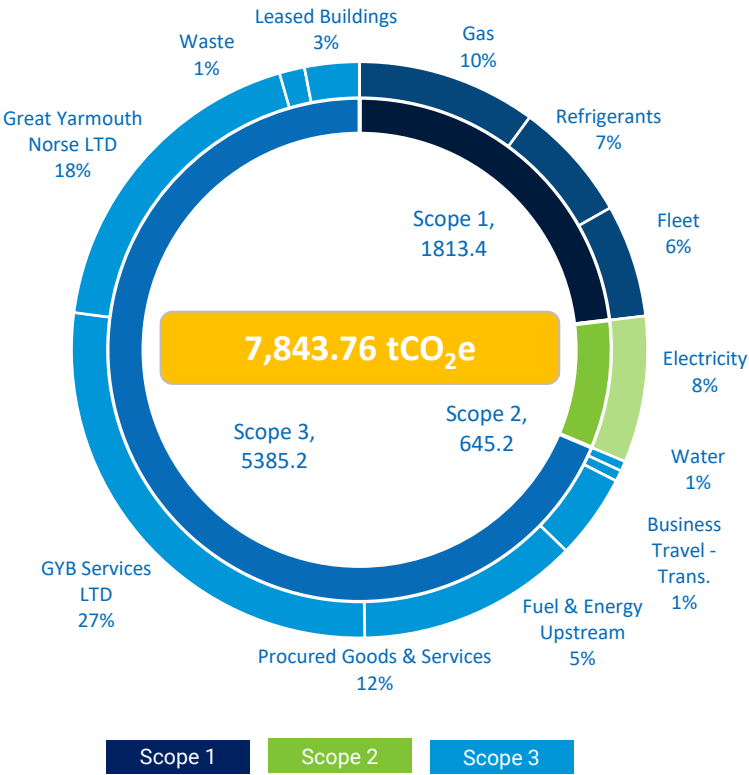
1. Procured goods and services from third parties (4,567.62 tCO₂e)

Due to lack of primary activity data emissions for procured goods and services (including GYN and GYBS) have been estimated based on spend data (see box 1). Further details of the calculation methodology for each emission source can be found on the subsequent pages. GYBC should acknowledge the increased uncertainty that is associated with the use of proxies and work with its supply chain to improve data quality as a priority for this category.

Box 1 – EEIO values

Environmentally Extended Input-Output (EEIO) values were used to estimate the total upstream emissions associated with procured goods and services – GYBC's largest emission source accounting for approx. 58% of the measured carbon footprint.

Input-output models make a link between the environmental impacts of production techniques and the subsequent consumption of products and services. In doing so, they provide a kgCO₂e per £ spent figure that is derived from national trends of production techniques and quantity of end products delivered. The Carbon Trust has a list of over 400 factors that have been mapped to GYBC's spending to provide the calculated figure.



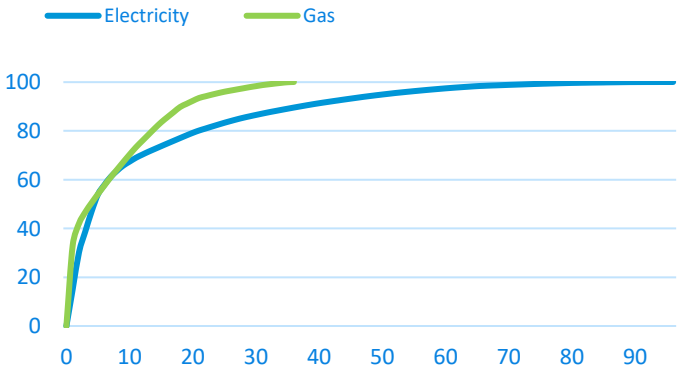
Above: Summary of GYBC's measured footprint

GYBC's carbon footprint: buildings

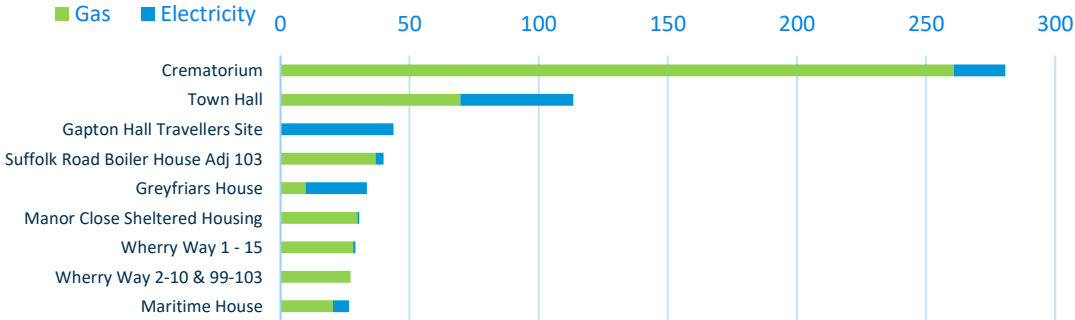
Electricity and natural gas consumption in buildings operated by the Council accounted for 1,075 tCO₂e of emissions in the baseline year, or ~14% of total emissions. This increases to 1,538 tCO₂e (~20%) when upstream emissions from extraction, production and transportation are included. Sites within the Council's scope 1 and 2 emissions inventory include the town hall, crematorium, offices etc., where the Council has the authority to implement operating policies.

Analysis of the footprint has identified several 'hotspot' sites where consumption is high, predominantly across the Crematorium and Town Hall. Absolute consumption at these sites is expected to be high due to the size of the sites, operating hours, and inherent intensity of operation. Though expected, their magnitude warrants special consideration and further investigation (e.g., energy audits, site-specific plans). The data provided demonstrates a significant proportion of consumption is concentrated in a small number of sites. For example, 50% of cumulative natural gas and electricity consumption is achieved by the top 6 highest consuming buildings¹. The dispersion of the footprint over a small number of sites stresses the need for GYBC to implement a detailed strategy for these specific sites,. Additionally, a strong estate-wide strategy with effective and co-ordinated policy positions, that cover a range of building archetypes and use-types, is required for the remaining sites identified in this footprint. This will also need to consider any future capital build projects as these will need to be aligned with the Council's decarbonisation ambitions.

% of emissions vs. number of entries



Top 10 Buildings, Emissions [tCO₂e]



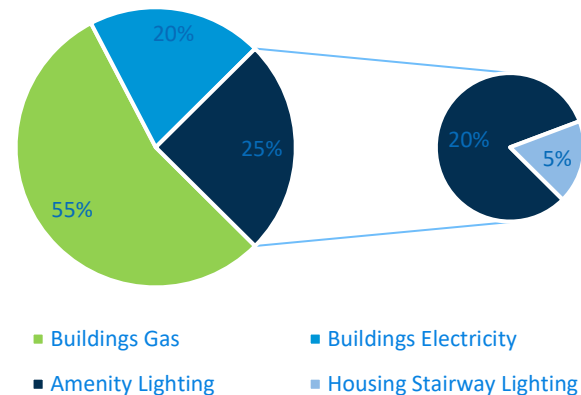
¹This refers to consumption at individual meter and not individual sites, although sub-metering only appears to be present at the largest sites and for electrical consumption. The prevalence of sub-metering for electricity relative to natural gas also contributes to the discrepancy between natural gas and electricity entries.

GYBC's carbon footprint: Lighting

A significant proportion of the Council's Scope 2 emissions, for electricity, correspond to the energy consumption for communal lighting. Amenity lighting, specifically footway lighting, and housing stairwell lighting account for 55.2% of the Council's total electricity consumption (356.04 tCO₂e). The data provided represented 12 instances of amenity lighting and 131 instances of housing stairway lighting, resulting in 291.38 and 64.66 tCO₂e, respectively. Footway lighting was the largest single source, resulting in emissions of 276.8 tCO₂e (43% of total emissions from electricity). The significant impact that communal lighting has on the overall electricity consumption of GYBC necessitates a targeted strategy for the energy consumption of lighting tasks across the Council's portfolio.

When the total energy consumption of all buildings and lighting is considered, the electricity consumption for communal lighting accounts for 25% of the total emissions. The significant proportion of emissions that stem from lighting activities warrants further consideration and a specific strategy aimed at reducing the emissions from this sector. The use of LEDs over conventional lighting can have a significant effect in reducing electricity consumption. It is therefore, recommended that an audit of all lighting currently in use across the council's operational portfolio is conducted with replacement of older lamp types for newer energy efficient LED carried out where necessary. Additionally, the use of lighting controls, such as movement or daylight sensors, should be considered where appropriate and where none exist currently.

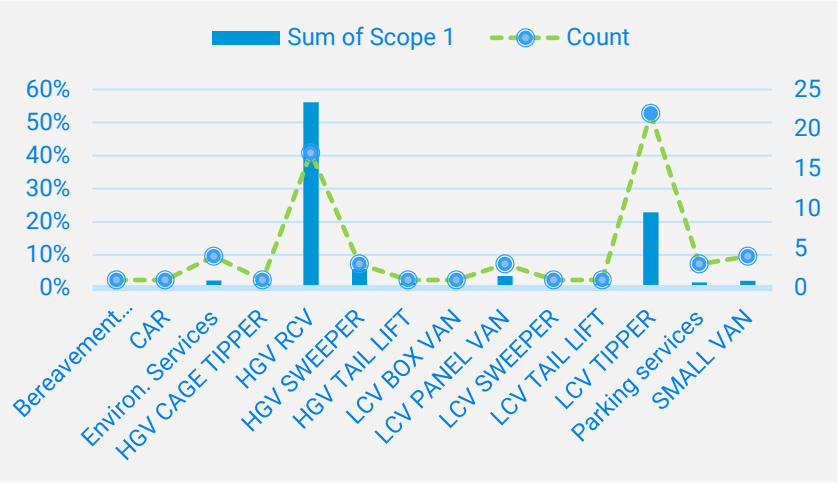
Buildings and Lighting Energy Demand



GYBC's carbon footprint: fleet

Diesel consumption of the Council's vehicle fleet accounted for 495.74 tCO₂e of direct emissions in the baseline year (6.3% of total emissions), increasing to 613.8 tCO₂e (7.8%) when upstream emissions are included. This represents a significant carbon and air pollution source and a revised fleet strategy will be required for the Council to achieve their decarbonisation ambitions. As with natural gas, the emission factors associated with liquid fossil fuels will not decrease significantly between now and 2050 and fuel-switching (electrification to battery electric vehicles) will be required to achieve meaningful reductions in emissions. However, the provision of a reliable, efficient and available fleet is central to the Council's function and cannot be compromised in any fleet replacement strategy.

The battery electric vehicle (EV) market is undergoing a phase of rapid development and it is anticipated that suitable BEV replacement will be competitive across the vast majority of GYBC's fleet within years. As the market develops, the provision of supporting charging infrastructure is anticipated to become the largest constraint to GYBC's fleet transition. The Council should prioritise securing access to a robust and available charging network to facilitate the roll-out of electric vehicles, and detailed technical and economic analysis of infrastructure requirements should be performed.



Fleet make-up: The data provided outlines that the Council operates a core fleet of 63 vehicles. Diesel is used exclusively as a fuel across all vehicle categories.

As shown opposite, fuel consumption is heavily concentrated to HGVs and LCVs, with both categories combined accounting for almost 79% of total liquid fuel consumption. Although the market for electric heavy vehicles is developing, it is still at a lower commercial readiness relative to standard cars and light commercial vehicles. The infrastructure requirements for these vehicles are also far greater, and will require significant electrical capacity to realise. Transitioning these vehicles to low-carbon alternatives is an achievable yet significant decarbonisation challenge.

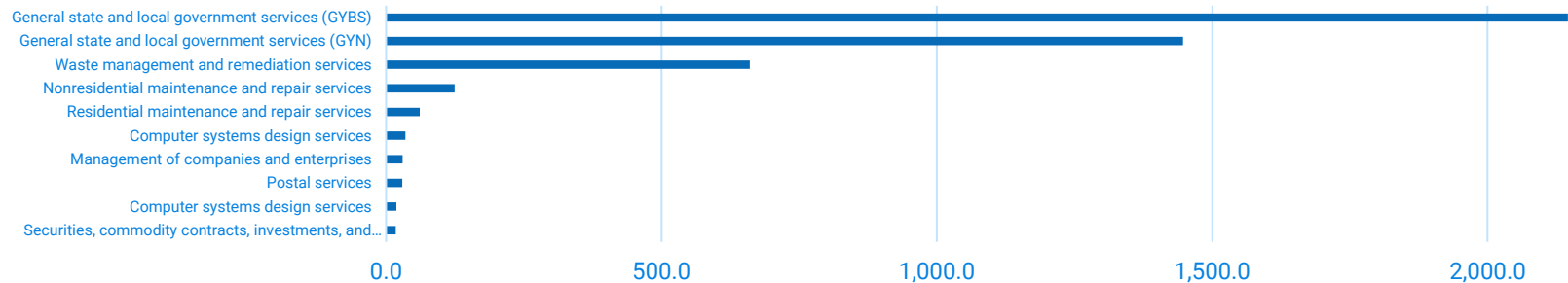
GYBC's carbon footprint: procured goods and services

Procured goods and services (PG&S), capital goods and upstream transportation and distribution includes all cradle-to-consumer emissions¹ from the goods/services purchased by the Council. This ranges from, for example, the paper bought for use in the Council to the manufacturing of concrete used by a construction contractor. As calculating the emissions associated with all goods and services procured by GYBC would be a significant undertaking in itself it was agreed to only include contracts over the value of £100,000 per annum in this footprint.

Due to its range, PG&S is often one of the largest contributors to a footprint. It is also one of the hardest to obtain primary activity data for as the data is often held by several organisations along the value chain with no direct contact to the reporting organisation. In the absence of activity data, environmentally extended input-output (EEIO) analysis has been performed to estimate emissions using contract type and value. Whilst EEIO's reduce data requirements and allow for hotspots to be identified, they are a function of industry national-level trends and are not sensitive to local factors (e.g. green procurement). A consistent and heavy reliance on EEIO factors is not recommended due to their approximate nature, and efforts should be made to make PG&S reporting more nuanced where possible, for example by engaging with core 'tier 1' suppliers.

Approximately 79% of calculated PG&S emissions are associated with general state and local government services². Waste management and remediation services is the second largest service contributor, with various smaller expenditure against typically lower carbon services making up the remaining footprint. Engagement with suppliers should be performed to encourage sustainable delivery and reduce service emissions, and sourcing and procuring low-carbon and sustainable goods should be promoted to minimise goods emissions. Where possible, the upcycling and reuse of existing goods should be explored as the first option.

PG&S Emissions [tCO2e]



¹ Cradle-to-consumer refers to the GHG emissions from the extraction of raw materials (i.e. cradle) through to product manufacture and upstream transport to the consumer.

² As GYBS is an arm's-length external organisation (ALEO) that provides waste collection services on behalf of the Council it is noted that this figure may include some double-counting of scope 1 emissions. Further **11** investigation is required by GYBC to determine, if this is the case, how waste fleet operations can be split out from other services covered by the contract.



GYBC's carbon footprint: leased buildings

Energy consumption (natural gas & electricity) in buildings owned by the Council and leased to a 3rd party operator accounts for approximately **3.07% of GYBC's measured carbon footprint**. The data provided for this aspect of the footprint relates to the Phoenix Pool Leisure Centre, Churchill Road Depot and Claydon Community Centre.

The status of these buildings should be continually reviewed by GYBC to ensure accurate carbon accounting. GYBC should also ensure that any additional leased buildings not included in the Council operated buildings data are accounted for in future iterations of the footprint.

The Council will need to work closely with building operators at leased sites to determine hotspot emission areas and reduction measures across the site.

Leased Buildings	FY19/20
Electricity Consumption (kWh)	277,395
Gas Consumption (kWh)	737,008
Total Scope 3 Emissions (tCO ₂ e)	240.77

GYBC's carbon footprint: remaining scope 3 emission sources

Procured goods and services are GYBC's largest emission sources and make up 84.8% of their measured scope 3 footprint with Fuel & Energy Related Activities in second, contributing 6.9%. A further 4.5% is from Leased Buildings, leaving ~3.8% across the remaining scope 3 emission categories of waste, business travel and water:



The magnitude of these emission categories relative to GYBC's overall baseline is low. However, these emissions directly stem from employee behaviour and a commitment to reduce them will result in tangible differences noticed by employees, for example, the provision of EV charging points or the promotion of cycling to reduce transport emissions. These actions can be powerful drivers for instilling a sustainability culture within the Council and enable buy-in from employees towards overall decarbonisation objectives, often more effectively than action to reduce larger emission sources.

It is recommended that the Council set individual targets for each of these emission sources (e.g., no waste to landfill, reduce business travel emissions by 50%) and develop a list of key actions required to meet the targets. Data gathering and reporting should be performed annually to transparently measure progress against the targets.



Data quality

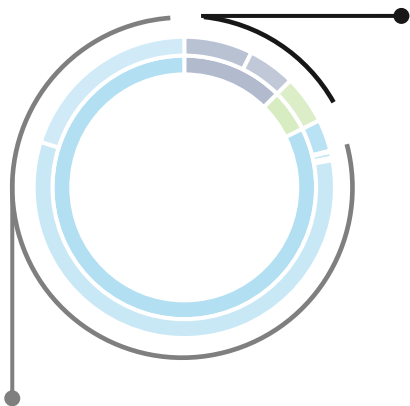
The majority of data provided by GYBC was cleanly presented and of good quality. Obtaining data in a timely manner has been a challenge throughout the delivery of this project however. A lack of dedicated resource and established data gathering processes has hindered delivery, causing significant delays and potentially reducing the accuracy of the delivered footprint. **As a priority GYBC should dedicate resource to data collection and carbon reporting to ensure transparent and accurate reporting going forward.** A summary of the data used for each emission source with some commentary is provided below:

● Good quality data ● Data requires some improvement ● Data requires substantial improvement

Emission source	Activity data	Benchmarks or proxies	Comments
Natural gas	●		kWh consumption data provided for 38 meter points.
Fleet	●		Mix of mileage and fuel consumption data provided for 63 vehicles. Fuel consumption data for housing repair fleet was unavailable.
Purchased electricity	●		kWh consumption data provided for 241 meter points.
Water	●		m ³ consumption data provided for 76 meter points.
Waste	●		Waste type and terminal data provided for 14 sources.
Refrigerants	●		Refrigerant leakage data provided for 38 units.
Business travel	● — ●		Total car mileage figure provided. Emission factor for "Average car" used. No other business travel or accommodation data was received therefore it is assumed no rail, bus, air, sea travel or overnight accommodation took place during the data period.
Purchased goods and services	● — ●		Internal classification of spend does not allow for easy categorisation. Economic proxies have inherent uncertainty and should be replaced with better quality data where possible.
Leased buildings	●		It remains unclear whether data has been provided for all buildings owned by GYBC and leased out to third parties. It appears that GYBC has operational and financial control over the majority of the buildings it leases out and therefore these have been included in the footprint as Council operated buildings. A review of all leased assets and their operational status is strongly recommended.

GYBC's carbon footprint

The Council should take a holistic view to decarbonisation and aim to achieve reductions across every emissions category. Whilst all emission sources are combined under the Council's emissions inventory, each emission source is nuanced and will require discrete, targeted action to achieve reductions. Due to their differences, methods for achieving impactful reductions will vary from category-to-category and the Council should look to upskill and support the resource required across their emissions inventory. The difference between scope 1 – 2 emissions and scope 3 emissions is particularly defined, and the subsequent phase of this project will explore these concepts in more detail.



Scope 1 and 2 emissions. The Council has operational control over these emission categories and can directly implement energy saving measures and low-carbon technologies to achieve emission reductions. In the measured footprint, scope 1 and 2 emissions are relatively evenly split between diesel consumption in the Council's fleet, and natural gas and electricity consumption in Council-operated buildings. Under a do-nothing scenario, the share of natural gas and diesel will increase out to 2050 as the UK's electricity grid decarbonises and the emissions associated with electricity consumption decrease. Electrification of the Council's fleet and heat supply in buildings will be critical for the Council to substantially reducing their scope 1 and 2 emissions.

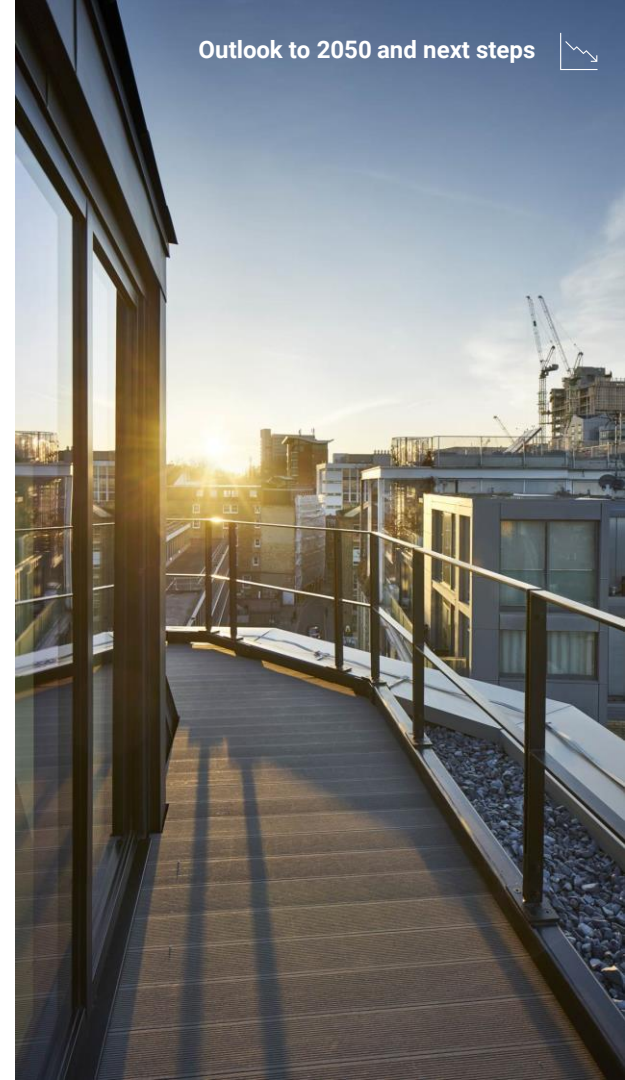
The Council can actively drive the transition away from fossil fuels in their scope 1 and 2 through procurement policy (e.g., heat pumps considered for all boiler replacements, energy efficiency standards), and co-ordinated planning enabled by good quality data. For example, feasibility studies should be performed as standard in advance of vehicle and heating replacements to identify any enabling actions that are required (e.g., fabric upgrades, EV charging infrastructure).

Scope 3 emission sources are further removed from the Council's operational control and less sensitive to direct action by the Council. Obtaining regular and accurate data for scope 3 emission sources is also harder due to the detachment from Council operations. Softer measures such as supply chain engagement and sharing of best-practice will be required to achieve emission reductions. Simultaneously improving data quality and using their influence to drive sustainable behaviour in the value chain will be key to a successful scope 3 emissions strategy. The Council should not lose sight of small scope 3 emission sources (e.g., waste, water, business travel) that are far smaller but easier to influence and have the ability to create a culture of change and buy-in for the overall decarbonisation strategy.

Next steps

This baseline footprint report represents a first step for the Council in relation to their climate action programme. The following next steps are recommended:

1. **Data quality and collection.** As a priority the Council should review current systems to ensure that data can be regularly collected in a format that allows for a footprint to be calculated and decarbonisation opportunities to be identified. Once in place, annual measurement and reporting of the Council's footprint should be conducted.
2. **Development of a carbon reduction strategy.** A comprehensive and granular implementation strategy should be developed for the emissions covered in this report. The strategy should set out potential routes to decarbonisation to determine the scale and scope of investment, before a more detailed identification and prioritisation exercise of specific decarbonisation projects is conducted. The strategy should outline the investment requirement and a timeline of actions required to realise the strategy (i.e., an implementation plan).
3. **Ratify carbon reduction target.** The Council has not yet set a decarbonisation target and as such it is currently unclear what level of carbon reduction the Council aim to achieve. This is an important part of any decarbonisation programme and should be clearly stated in the Council's communications. A science-based target approach is recommended to align with national and wider public sector targets.
4. **Resource.** Dedicated internal resource will be required for the Council to enact the above recommendations and ultimately achieve their decarbonisation ambitions. The Council should ringfence resource for climate action across relevant departments and incorporate it into job descriptions where appropriate to ensure that adequate resource is available to turn strategy into implementation.





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Great Yarmouth Borough Council's Organisational Carbon Footprint 5-Year Action Plan (2022-2027)

Our goal is to ensure that the climate and nature emergencies are at the heart of all our decisions so that we can drastically cut emissions over the next 5 years and beyond, committing to reach **Net Zero as a local authority by 2035**.

GYBS Ltd – Scope 3 Emissions (27%)

Overall Aim 1.0:

(A) To fully decarbonise the vehicle fleet to zero emission alternatives.

(B) To significantly reduce energy-related emissions at depot sites.

	Objectives	Project Lead/Team responsible	Investment Timeframe	Outputs/Outcomes	Comments
1.1	Produce a fleet strategy covering all current GYBS Ltd operational vehicles incl. RCVs and LCVs. Strategy to detail technical & economic analysis of infrastructure requirements and a roadmap of how the fleet can be decarbonised.	Head of Environment & Sustainability / GYBC Managing Director	Yr 1	Detailed Fleet Strategy in place with a clear roadmap for decarbonisation	
1.2	Implement fleet strategy including any investment required in zero emission alternatives and supporting infrastructure.	Head of Environment & Sustainability / GYBC Managing Director	Yr 1-5	All vehicles switched to zero emission alternatives by 2030	Delivery of the Fleet Strategy will be dependent on future investment.
1.3	Undertake energy audit of operational sites and produce a workplan of appropriate actions to reduce emissions.	GYBS/Property Team	Y 1	Reduction in energy use at sites	
1.4	Implement energy audit workplan & recommendations.	GYBS/Property Team	Yr 2-5	Year on year reduction in emissions from operational sites	

GYN – Scope 3 Emissions (18%)

Overall Aim 2.0:

- (A) To fully decarbonise the vehicle fleet to zero emission alternatives.
- (B) To significantly reduce energy-related emissions at depot sites.

	Objectives	Project Lead/Team responsible	Investment Timeframe	Outputs/Outcomes	Comments
2.1	Work with GYN Ltd to reduce the carbon footprint of its fleet.	Property Services	Year 1-5	Annual year on year reduction in line with agreed plan.	GYN Ltd currently has some Electric Vehicles. Similar work to GYBS Ltd, work is required to develop a fleet strategy and decarbonisation plan.
2.2	Work with GYN Ltd to reduce its energy usage as part of the joint venture company.	Property Services	Year 1-5	Annual year on year reduction in line with agreed plan.	Similar work to GYBS Ltd, energy consumption requires mapping, and a reduction plan developed and implemented.

Procured Goods & Services (12%) and Upstream Fuel and Energy (5%) Scope 3 Emissions

Overall Aim 3.0:

To significantly decrease emissions associated with procured goods and services.

	Objectives	Project Lead/Team responsible	Investment Timeframe	Outputs/Outcomes	Comments
3.1	Develop a sustainable procurement policy using the LGAs Sustainable Procurement Toolkit .	Head of Legal Services & Finance Team	Yr 1	Policy in place and embedded.	Training to be rolled out for services.
3.2	Implement sustainable procurement policy in line with the Council's Sustainability Strategy & Carbon Reduction Plan.	Head of Environment & Sustainability	Yr 2	Policy used and emissions reductions met.	
3.3	Engage with all Tier 1 suppliers to evidence their plan for decarbonisation & reduction of emissions.	All contract managers	Yr 1 – Yr 5	Year on year reduction of emissions within Tier 1 suppliers.	Tier 1 suppliers are those that directly conduct business with the Council.

Gas & Electricity Scope 1 Emissions (10%) and Scope 2 Emissions (8%)

Overall Aim 4.0:

(A) A reduction in emissions associated with council buildings directly under the Council's control.

(B) A reduction in emissions associated with on-street lighting, directly under the Council's control.

	Objectives	Project Lead/Team responsible	Investment Timeframe	Outputs/Outcomes	Comments
4.1	Undertake energy audits of all operational properties to enable prioritisation of buildings in terms of energy consumption & reduction. E.g., 'hotspot' sites such as, Crematorium and Town Hall.	Property Services	Yr 1	League table report available to make decisions regarding prioritisation of areas of focus.	Property Services manage software to create a 'league table' of buildings. Energy Audits to be taken into consideration. Some locations have communal boilers.
4.2	Utilise energy audit data to develop site specific workplans to improve buildings' energy efficiency & retrofit solutions where necessary.	Property Services	Yr 1	To have a site specific workplan completed for each building. Improved energy efficiency of our buildings.	External funding may be available but also likely to require capital investment.
4.3	Develop an energy efficiency plan setting out how building users should contribute to everyday energy consumption reduction.	Property Services & Portering Services	Yr 2-5	Year on year reduction in emissions from GYBC buildings of 5-10%	Behavioural change campaigns, nudge tactics and energy efficiency reminders to be refreshed.
4.4	Continue to invest in the council's housing stock to achieve highest possible sustainability ratings with all new council homes built to the highest efficiency standards.	Housing Assets	Yr 1 – 5	EPC C rating or above from 2025 for new tenancies, 2028 for existing. Improved energy efficiency of Council Housing.	External Funding sources are available but may need to be combined with capital investment if this programme of works is to be accelerated.
4.5	Use existing knowledge of on-street lighting stock to accelerate workplan to adopt energy efficient alternatives e.g., Replace older lamps with energy efficient LEDs where appropriate and consider the	Property Services	Yr 1-2	All lighting changed to LED by 2027.	Capital investment required to accelerate.

	introduction of lighting controls such as movement or daylight sensors.			Energy usage of all lighting reduced by 50% by 2027.	
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Refrigerants – Scope 1 Emissions (7%)

Overall Aim 5.0:

To reduce refrigerant leakage across council sites.

	Objectives	Project Lead/Team responsible	Investment Timeframe	Outputs/Outcomes	Comments
5.1	Undertake an audit of all refrigerant plant to assess leakage and identify hotspots.	Property Services	Yr 1	Understand leakage rates	
5.2	Develop site specific plan to reduce refrigerant leakage or look at alternative technologies.	Property Services	Yr 1-5	Reduce refrigerant leakage year on year.	

Internal Fleet – Scope 1 Emissions (6%)

Overall Aim 6.0:

To fully decarbonise the vehicle fleet to zero emission alternatives.

	Objectives	Project Lead/Team responsible	Investment Timeframe	Outputs/Outcomes	Comments
6.1	Produce a fleet strategy covering all current internal operational vehicles. Strategy to detail technical & economic analysis of infrastructure requirements and a roadmap of how the fleet can be decarbonised.	Head of Environment & Sustainability / GYBC Managing Director	Yr 1	Detailed Fleet Strategy in place with a clear roadmap for decarbonisation	
6.2	Implement fleet strategy including any investment required in zero emission alternatives and supporting infrastructure.	Head of Environment & Sustainability / GYBC Managing Director	Yr 1-5	All vehicles switched to zero emission alternatives by 2030	

Leased Buildings - Scope 1 Emissions (3%)

Overall Aim 7.0:

To work with third party operators to ensure they are taking the necessary steps to decrease emissions in the buildings leased to them.

	Objectives	Project Lead/Team responsible	Investment Timeframe	Output/Outcomes	Comments
7.1	Work with building operators where there is a shared responsibility to undertake energy audits to support the development of appropriate carbon reduction measures.	Property Services	Yr 1 – Yr 5	Completion of energy audits. Implementation of carbon reduction measures. 50% reduction in emissions of each leased building by 2027.	Example: Freedom Leisure is a case study of direct investment at the Phoenix pool site to improve the buildings energy efficiency.
7.2	Add carbon reduction measures to conditions within future and renewing leases.	Property Services	Yr 1 – Yr 5	Tenants aware of the need to decarbonise & taking steps to do so.	
7.3	Review property procurement processes to favour carbon reduction requirements as part of the evaluation criteria.	Property Services	Yr 1	All tenders to give a 30% weighting to carbon reduction measures in evaluation.	

Commuting and Business Travel - Scope 3 Emissions (1%)

Overall Aim 8.0:

Increase the proportion of people that choose to travel by sustainable modes of transport e.g., cycle, e-bikes/scooters, walking & public transport.

	Objectives	Project Lead/Team responsible	Investment Timeframe	Outputs/Outcomes	Comments
8.1	Implementation of Agile Working Policy to reduce travel time and need to commute.	HR	Yr 1	Reduction in all travel and commuting by 50%.	Policy approved and implemented.
8.2	Encourage staff to consider & use the hierarchy of sustainable transport modes, ranked in order of carbon impact: Zero carbon – walking and cycling Very low carbon – public transport Low carbon – electric vehicle High carbon – private combustion engine vehicle	HR	Yr 1-3	90% of staff who can use alternative transport are doing so by 2024.	Benchmarking active travel work already completed for the Council.
8.3	Consider incentives for active travel and promote car sharing.	HR	Yr 1	More people using active travel – Year on year increase.	
8.4	Encourage use of electric vehicles where car use is absolutely necessary	HR	Yr 1 - Yr 5	Appropriate charging infrastructure in place to support.	

Waste and Water - Scope 1 Emissions (2%)

Overall Aim 9.0:

- (A) To be a zero-waste area, where waste is prevented or avoided, minimised, reused or re-manufactured, composted or recycled as part of a Circular Economy approach.
- (B) Significantly reduce water usage in operational buildings.

	Objectives	Project Lead/Team responsible	Investment Timeframe	Outputs/Outcomes	Comments
9.1	Ensure council sites/office areas have access to a recycling facility and promote rules of recycling to maintain quality.	Portering Services	Yr 1	Office recycling is maximised.	
9.2	Reduce the number of waste bins to encourage recycling to support an overall reduction of waste produced across the council.	Portering Services	Yr 1 - 5	Office waste is minimised or avoided.	
9.3	Continue make & promote the use of vermiculture (in-house wormeries) to reduce organic waste and reuse the digestate product.	Portering Services	Yr 1	All suitable food waste put into this waste stream.	Already in place though needs greater awareness.
9.4	Raise awareness of Single Use Plastics alongside promoting reusable alternatives from shrink-wrapped good to drinks cups.	Portering Services / HR	Yr 1	Elimination of Single Use Plastic.	Requires a cultural change.
9.5	Explore opportunities to reuse furniture, and other office supplies across services.	Property Services	Yr 1	Less office supplies required items reused	
9.6	Explore possibility of installing water saving infrastructure including, low-flow plumbing fixtures in council buildings and opportunities for grey water reuse.	Property Services	Yr 1		
9.7	Raise awareness of water use reduction behaviours.	HR	Yr 1		

9.8	Ensure water systems in council sites are not leaking.	Property Services	Yr 1 - ongoing	Regular maintenance and inspection of water systems	
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