

Mole Valley District Council Climate Action Planning

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Part 1 INTRODUCTION

About the Carbon Trust

Our mission is to accelerate the move to a sustainable, low carbon economy.

The Carbon Trust is an independent, expert partner of leading organisations around the world, helping them contribute to and benefit from a more sustainable future through carbon reduction, resource efficiency strategies and commercialising low carbon technologies.

About Mole Valley District Council

Mole Valley District Council is a second tier local authority based in Surrey.

The council has 258 full time employees and operates services including: planning and building control, environmental health, housing, roads, parking and travel, community life, waste management and recycling, and sports and leisure centres.

Background

- The need for taking immediate and bold action on climate change is being increasingly recognised by businesses, government and the general population.
- Mole Valley District Council (MVDC) declared a climate emergency in June 2019. One key aspect of the climate emergency declaration is the target to make Council's operations carbon neutral by 2030.
- As a first key step in this process, Carbon Trust was commissioned by the Council in late 2019 to calculate MVDC's footprint, to inform the pending Climate Change Strategy and Action Plan.
- This report consolidates the results of the footprint exercise and initial engagement providing recommendations on future scope, targets and roadmap planning.

Part 2 EXECUTIVE SUMMARY

1. Key Findings

- Mole Valley District Council (MVDC)'s measured footprint for the 2018/19 financial year is **4,162 tonnes of CO2 equivalent (tCO2e)**
- The largest emission source relates to buildings that are owned by the Council and operated by a 3rd party (leased buildings)
 - These consist of three buildings: **Leatherhead leisure centre** (1084 tCO2e); **Dorking sports centre** (560 tCO2e); **Meadowbank football ground** (123 tCO2e)
- Emissions from **procured or purchased goods and services (PG&S) (1,362 tCO2e)** is the second largest source of emissions
 - The Council will need to integrate carbon management in its interactions with contractors and operators to achieve the 2030 carbon neutral target.
- Emissions from Council operated activities primarily come from **gas and electricity consumption** in buildings
 - In a do nothing scenario out to 2030, **gas consumption will account for 52.7% of emissions** from Council controlled operations, and should be a focus area for mitigating actions. This is largely related to the “greening” of the electricity grid.

2. Recommendations

Strategic:

- Given the natural decarbonisation of the UK grid and subsequent implications for associated electricity emissions, the focus of MVDC should be on reducing gas (heating) consumption –this has both emissions and financial upsides.

Direct:

- The measured carbon footprint has indicated key areas that the council can focus on to reduce its direct emissions, these involve **electrifying its fleet**, and upgrading to **LED lighting** where this is not already present.
- Feasibility options should include, **electrifying heating supplies** and **installing renewables** to fully decarbonise stationary assets and large consumers such as Leatherhead leisure centre.

Indirect:

- Indirectly, the council can reduce scope 3 emissions by **expanding its selection criteria for contractors** to include sustainability metrics –for example the minimum kilometres driven by Electric Vehicles in delivering the contract.
- MVDC should also develop a **Data Management Plan**, denoting data owners, how data should be stored and maintained, and identifying where data needs to be sourced or data quality improved. Better management and analysis of footprint data ultimately leads to insights that enable reductions.
- Looking ahead, the council should **monitor carbon emissions annually**, and source data to create an expanded and more comprehensive scope 3 footprint.

Part 3 INTRODUCTION TO CARBON FOOTPRINTING

Introduction to Greenhouse Gases (GHGs)

- Greenhouse gases (GHGs) are gases in Earth's atmosphere that trap heat. They let sunlight pass through the atmosphere, but they prevent the heat that the sunlight brings from leaving the atmosphere.
- **Carbon dioxide is not the only greenhouse gas.** There are five other principle greenhouse gases that contribute to global warming: Methane, Nitrous Oxide, Hydrofluorocarbons, Perfluorocarbons and Sulphur Hexafluoride.
- Not all of these gases arise from combustion of fossil fuels, with some originating from refrigeration/cooling, agriculture, chemical production and electrical applications.
- **Under the GHG Protocol (see next page), each gas has its own global warming potential (GWP).** By comparing each gas's GWP to that of Carbon Dioxide (CO₂) it is possible to derive a **Carbon Dioxide equivalent value (CO₂e)**.
 - Example: CO₂ has a GWP of 1, Methane has a GWP of 24; therefore we can say that 1 ton of methane emissions is equal to 24 tons of CO₂e (tCO₂e)
- **Values presented in this report will be given in CO₂e or tCO₂e** and therefore reflect the emissions resulting from all 6 of the above greenhouse gases.
- Although CO₂ has the lowest GWP, with some other GHGs having a GWP thousands of times higher, it is by far the most abundant GHG and is therefore the predominant focus when discussing emissions reduction and climate change.

GHG Protocol and emission scopes

- The **greenhouse gas (GHG) protocol** is the most widely used and accepted methodology for GHG accounting. It has been followed to calculate MVDC's footprint for FY 18/19.
- Under the GHG Protocol, emission sources are divided into **scopes 1, 2, and 3**. Scope 1 emissions are a result of an organisations' **direct** operations, whereas scope 2 and scope 3 emissions result from an organisations' **indirect** activities from importing electricity and from the supply chain (for example, from the manufacturing of products used by the Council).
- Scope 3 emissions are generally emitted by third-party operations and are generally **more difficult to monitor, control and reduce**. As a result, public (and private) sector carbon action has traditionally focused on scope 1 and 2 emissions.
- Where scope 3 emissions have been included, organisations have tended to only consider select elements. However, there is now **increasing appetite to include a more comprehensive set of scope 3 emission sources** in footprints to encourage carbon reduction in an organisations' supply chain.

Footprint scope for FY 18/19

Scope 1 emissions [S1]:

- Gas consumption, typically used for space and water heating in buildings
- Fuel consumption used to power the Council's fleet

Scope 2 elements [S2]:

- Electricity consumption

Scope 3 elements [S3]:

- Emissions resulting from business travel in non-Council operated vehicles
- Emissions from the third-party disposal and treatment of waste generated in Council-controlled operations
- Emissions resulting from the supply and subsequent treatment of water consumed by the Council's operations
- Emissions associated with the execution of Council-procured goods and services
- Emissions from energy consumption in buildings leased to a 3rd party operator

Table of Excluded Emissions Sources

The following emission sources, which all fall into the Scope 3 category, have been excluded from the footprint calculation:

| Emission Source | Comment |
|--|---|
| Capital goods | Out of scope: Does not play a key role in the Council's operations. |
| Upstream leased assets (3rdparty owned, Council operated) | Included in scope 1 &2 inventories |
| Employee commuting | Out of scope. |
| Franchises | Out of scope: No franchises controlled by the Council |
| Investments | Out of scope: No investment data available |
| Downstream transportation and distribution | Out of scope: No sold goods distributed by the Council |
| Processing of sold products | Out of scope: Not applicable to the Council's operations |
| Use of sold products | Out of scope: Not applicable to the Council's operations |
| End-of-life treatment of sold products | Out of scope: Not applicable to the Council's operations |

Guidance on Green Electricity Accounting

Recently, there has been a considerable amount of debate in both the public and private sector on the correct carbon accounting procedure for Renewable Energy Guarantees of Origin (REGO)-backed green electricity tariffs. The debate revolves around whether, if sourcing energy needs from REGO-backed tariffs, Scope 2 emissions can be reported as zero.

- This ultimately depends on whether the given public sector organisation are looking to meet **(1)** the UK Government Environmental Reporting Guidelines (GERG), or **(2)** the GHG Protocol Corporate Standard.
 1. Under the UK GERG it is mandatory to report scope 2 emissions using the location-based method, but *optional* to report using the market-based method.
 2. Under the GHG Protocol Corporate Standard it is mandatory to report scope 2 emissions using *both* the location-based and market-based method.
- For scope 2 the location-based method involves using a grid-average emission factor for all electricity consumption (except on-site renewables). The market-based method involved using a supplier-specific emission factor relating to the electricity purchased.
- The issue is that by allocating REGO-tariffs, a zero emissions figure can be seen as double counting, as the carbon factor of the UK grid already accounts for all renewables that are part of the mix.
- In order to guarantee 'real' emissions reduction, direct investment in specific renewable schemes with a private wire, or sleeving and Power Purchase Agreements (PPAs) should be pursued where possible. However, it is recognised that such arrangements are not always possible, in this case using both reporting approaches is recommended.

Part 4 CARBON FOOTPRINT ANALYSIS FOR FY 18/19

2018/19 Carbon Footprint

- The total carbon footprint for Mole Valley District Council's own operations in the FY 2018/19 is equal to 4,162 tCO₂e
- The majority of this footprint is attributed to the indirect emissions resulting from leased buildings and procured or purchased goods and services. The Council's gas consumption for space and water heating in buildings, and electricity consumption are also significant emission sources.

| Scope category | Emissions [tCO ₂ e] |
|----------------|--------------------------------|
| Scope 1 | 435 (10.5%) |
| Scope 2 | 419 (10.1%) |
| Scope 3 | 3,308 (19.5%) |

N.B. The raw excel data used to calculate the footprint is available to the Council

Footprint breakdown

The Council's emissions can be broken down into discrete emission categories, as defined by the GHG protocol. The following figures are in tCO₂e.

Total emissions- 4,162

- Scope 1 (435)
 - Natural Gas (387)
 - Fleet (118)
- Scope 2 (419)
 - Electricity (455)
- Scope 3 (3,307)
 - Water (30)
 - Waste (13)
 - Upstream emissions from Scope 1 & 2* (105)
 - Procured/purchased goods & services (1,365)
 - Business Travel (27)
 - Leased Buildings (1,767)

**Sum of upstream gas emissions (169 tCO₂e), upstream electricity emissions (96.5 tCO₂e), and upstream transport fuel emissions (22.5 tCO₂e)*

MVDC's Operational Emissions

MVDC's operational emissions include a mix of direct and indirect emissions associated with the **Council's operation and use of their own buildings and assets**. This includes:

- **Scope 1:** gas (primarily for heating buildings) and transport fuel consumption in the Council's own fleet
- **Scope 2:** electricity consumption within MVDC buildings used by MVDC staff
- **Scope 3:** waste generation, water supply & treatment, business travel (arising from MVDC operated buildings and completed by MVDC staff on behalf of MVDC activities).

These emissions equal **1,030 tCO₂e** (24.7 % of the total footprint), of which electricity and gas consumption are the two largest sources.

The decarbonisation of the national electricity grid is expected to reduce emissions associated with electricity by 65% by 2030, to 160 tCO₂e. Under a no-action scenario, **gas consumption will account for 52.7% of the Council's operational emissions**.

Emissions from Council operated buildings

The majority of emissions from MVDC-operated buildings and facilities are from the Council's **Pippbrook office & Dorking halls**. Together, these account for 60% of emissions from Council operated buildings.

- **Electricity and gas consumption** are the dominant emissions sources for all buildings.

Numerous measures can be put in place to **reduce these emissions**. The roll-out of deep retrofit measures, alongside the installation of controls and improved behavioural changes, will help to reduce the emissions produced at these buildings.

In addition, as the national grid decarbonises, it is recommended that **heat sources are generally electrified** where possible (e.g. by the installation of heat pumps). This will help to reduce gas consumption significantly and the emissions associated with heating Council operated buildings.

Emissions from Council leased buildings

Energy consumption (gas & electricity) in buildings owned by the Council and leased to a 3rd party operator is the largest single contributor to MVDC's measured footprint.

The Council lease three energy intensive leisure and recreation facilities, which require high natural gas and electrical consumption to operate.

The electricity & gas consumption per m2 does not appear abnormal for the nature of the buildings*, and reductions will likely involve a combination of deep retrofit options, and close collaboration with the building operators to determine hotspot emissions & reduction strategies.

**Benchmarking not conducted*

Procured or purchased goods and services

Emissions from the execution of services outsourced to 3rd parties – 'Procured or Purchased Goods and Services' – make up **32.8 % (1,365 tCO₂e) of the Council's total footprint.**

Where primary data was not available, contract emissions were calculated using the environmentally extended input-output (**EEIO economic proxy**)*

- EEIO proxies are a GHG-protocol approved method of calculating scope 3 emissions, and have the advantage of being simple to apply, and require less resource than collecting process data from all suppliers.

The waste collection and street cleaning contract (AMEY) was the only contract where primary data instead of expenditure proxies was used to calculate the associated emissions.

- Emissions were calculated from the fleets (refuse & street cleaning vehicles) fuel consumption; the emissions associated with the disposal of district-wide waste was not included.

**Refer to page 17 of 'Technical Guidance for Calculating Scope 3 Emissions' of the GHG protocol for more information on EEIO proxies*

Decarbonisation of the grid

Maintaining a business as usual (BAU) case, where energy consumption remains constant will still result in a decrease in electricity emissions as a result of grid decarbonisation*.

In a 'do nothing' scenario, MVDC's emissions are expected to reduce by 774 tCO₂e as a result of MVDC using greener electricity from the national grid*.

Beyond this, a further 3,389 tCO₂e reduction must then be achieved by MVDC to achieve the 2030 carbon neutral target (the level of offsetting required will need to be determined following detailed project identification, assessment and prioritisation).

**This refers to electricity consumption in Council operated and leased buildings. It does not account for changes in emission intensity from contracted work, which will also benefit from a greener grid.*

Part 5 RECOMMENDATIONS AND NEXT STEPS

Strategic Recommendations

Given the natural decarbonisation of the UK grid and subsequent implications for associated electricity emissions, the focus of MVDC should be on reducing gas (heating) consumption this has both emissions and financial upsides.

Although fleet emissions are proportionally lower, introducing Electric Vehicles (EVs) and charge points is a visible intervention which signals intent, develops employee awareness and experience of these technologies, and provides a platform for further action.

With the completion of a carbon footprint, MVDC should move to the next stage of the emissions reduction process: creating an action plan to reduce the measured footprint in line with the established target.

The footprint data can be leveraged as a useful communication tool to drive internal awareness and behaviour change, as well as building support for the wider agenda and the subsequent interventions that will follow.

- This includes its utility in creating senior level buy in for committing resources and budget to the development and delivery of potential interventions.

Direct Control Recommendations

Given the focus of MVDC should be on reducing gas (heating) consumption, future ambitions could include electrifying heating supplies, for example through heat pumps , for high consumption sites, such as Pippbrook offices, Dorking halls and Station road depot Dorking.

- Although a leased building, Leatherhead leisure centre has a particularly high gas consumption. It is located opposite a large playing field, which could provide opportunities for a Ground source Heat Pump.

Energy efficiency is always recommended as an initial heat load reducing measure, this could involve smart controls to ‘trim’ heating hours overnight for staffed buildings, and improving air tightness for buildings in constant use to reduce heat loss.

The measured carbon footprint has also highlighted key areas that the council can focus on to reduce its direct emissions, these involve fleet electrification, and upgrading to LED lighting wherever possible.

- Fleet electrification has a lower emissions impact, however is a useful communication tool, showing leadership in the community. LED lighting is a ‘low hanging fruit’ option, with short investment paybacks.

Indirect Control Recommendations

Procured or purchased goods and services constitute roughly a third of MVDC's total footprint. Although not under direct control, there are several levers the council can pull to influence these emissions. The benefit of exerting influence through procurement is clear, as it is a means to 'invest' already allocated budget.

- The council can reduce scope 3 emissions by expanding its selection criteria for contractors to include sustainability metrics for example the minimum kilometres driven by Electric Vehicles in delivering the contract, or giving an XX% weighting to social value in tenders.

MVDC should also develop a Data Management Plan, denoting data owners, how data should be stored and maintained, and identifying where data needs to be sourced or data quality improved.

- Linking with the above, a stated stretch target in procurement could be to include a data reporting condition for contractors. This will enable scope 3 related contracts emissions to be quantified more accurately, and establish a clear data flow.

The council should also work collaboratively with leased building operators to reduce energy costs and associated emissions, identifying hotspots and sharing the burden of interventions.

Looking ahead the council should monitor carbon emissions annually, and source data to create an expanded and comprehensive scope 3 footprint.

Next Step - Monitoring and Reporting

- One of the most fundamental follow on activities for an organisation that has completed a carbon footprint is monitoring and reporting.
- It is integral that an organisation aims to complete a carbon footprint at regular intervals in order to demonstrate progress in carbon reduction.
- As an organisation becomes increasingly familiar with the process required to complete a carbon footprint, and is able to instil a strong data collection framework, they can begin to look to expand their footprint to cover all emission sources and revisit existing sources to make them more accurate and less reliant on proxies.
- Fundamental to this is establishing clear roles and responsibilities for the different areas of data collection feeding into the footprint i.e. electricity, gas, business travel, water, waste, leased buildings.
- This also acts as a method to verify and validate previous footprints.

Next Step - Enhanced Scope 3 Footprinting

As mentioned previously, MVDC should aim to enhance their scope 3 footprint by moving away from proxy values (EEIO and benchmarks) to real, more precise data.

Emission factors can be developed by doing a detailed scope 1 and 2 footprint of individual contractors, suppliers, and leased buildings. This creates an inventory of supply chain emissions, which can be updated at regular intervals.

Furthermore, MVDC should look to develop appropriate metrics for measuring the performance of key suppliers. By analysing the model and the results, it is likely that different metrics will be relevant for different Economic Sectors and/or key suppliers.

- For example, the performance metric for the waste collection and treatment sector should be kg CO₂e/tonne of waste collected and treated, whereas the metric for passenger transport could be kg CO₂e/km of service delivered, or passengers served.
- For construction, it could be kg CO₂e/km of road laid or m² of building completed. For all suppliers however, there will always be the fall back option of measuring kg CO₂e/£ spent.

Next Step - Strategy & Action Plan

- With an ambitious target set, and baseline of emissions accounted for, a detailed strategy should be produced that demonstrates how to reach the target.
- The strategy must be relevant to MVDC's specific context, priorities and constraints, and reflect current and future ambitions and projects.
- As part of a strategy, it is possible to determine the ease of reaching the target through high level modelling; thereby also determining the likely level of offsetting the council must carry out too.
- An action plan is an essential component of a strategy, and maps out how the target set will be reached through costed and quantified policies, projects and interventions.
- Carbon Trust would be pleased to discuss the development of a bespoke strategy and action plan with MVDC, building on the completed footprint work to design interventions that reduce the council's footprint and move it forwards to meeting its target.

Part 6 APPENDIX

Appendix: Data Sources

- Energy, vehicle mileage, utilities data - Mole Valley District Council
- Building energy benchmarks - CIBSE
- Emission Factors - BEIS
- UK emission factors projections - BEIS

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