ThamesWey

ThamesWey Group Environmental Report

For the reporting period 1st January to 31st December 2024.

Housing | Energy | Development | Sustainability

Document History

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1. Purpose

The purpose of this document is to provide a report on ThamesWey Group's core impacts on the environment, both positive and negative, during the period 1st January 2024 – 31st December 2024. The report is intended to provide a record, analysis and tracking of the Group's environmental performance over time, and provides part of ThamesWey's corporate reporting.

ThamesWey's main operations span four sectors: Housing (THL), Energy (TEL and TCMKL), Development (TDL), and locally delivered environmental projects (TSCL). The scope of this environmental report is relevant to all four of these sectors, the activities 'scoped in' are described in each section. References are made to the[1]Woking 2050' climate change strategy each activity contributes towards, in recognition of ThamesWey's role in helping the council achieve their environmental targets.

References are made to the themes of Woking Borough Council's new 'The Woking Climate Change Strategy – A Vision for a Net Zero Borough'. This strategy replaces the previous 'Woking 2050' strategy. The new strategy sets out 8 main themes including WBC's Journey to Net Zero, Energy, Waste, Water, Transport, Economy Business and Supply Chains, The Natural Environment and The Built Environment. These themes are highlighted when an activity contributes towards its aim, in recognition of ThamesWey's role in helping the council achieve their environmental targets.

2. Context, Overview and Milestones

In 2024, ThamesWey's activities and performance were shaped by a challenging external environment. The economic consequences of political developments in 2023 continued to contribute to inflationary pressures, driving up the costs of commodities, labour, and energy. The ongoing energy crisis, compounded by concerns over security of supply and unprecedented price volatility, placed additional strain on operations.

Following the Section 114 notice issued to its majority shareholder, Woking Borough Council, in 2023, ThamesWey operated under leaner financial and organizational conditions. Despite these constraints, the company maintained a 'business-as-usual' approach, continuing to deliver essential housing, energy, and environmental services to its customers. This resilience demonstrates ThamesWey's ability to adapt in the face of wider market challenges, while laying the groundwork for future stability and growth.

Despite the economic circumstances ThamesWey achieved a number of landmarks:

- Canalside Sheerwater redevelopment progressed with 88 new homes occupied in the 'Copper' phase.
- ThamesWey Housing portfolio grew by 40% to 1,420 properties, with 7 receiving energy efficient renovations.
- The Group's portfolio of solar photovoltaic (PV) arrays underwent a programme of surveys to identify maintenance priorities, the benefits of which should be seen in the coming years.
- Low-income homes across Surrey benefitted from the installation of 142 energy efficiency improvements through the ThamesWey managed Action Surrey scheme.

The use of tri-generation at ThamesWey energy centres resulted in a GHG saving of 411 tCO2e in 2024, a decrease from previous years due to the operating regime required due to the aforementioned circumstances and losses on the Woking network.

[1] Woking Borough Council. 'Woking 2050 A Vision for a Sustainable Borough'.

ThamesWey's solar electricity generation remained consistent YoY. 1,171 MWh of solar energy was generated; enough to supply 391 average homes[2] for an entire year. The carbon savings realised from this renewable energy production equated to 322 tCO_2e.

The number of properties let by ThamesWey Housing increased by 407 to a total of 1,420. The majority of the additions were from the Canalside development, built to minimise environmental impact and provide sustainable living spaces. 7 of the existing properties received thorough energy efficient renovations. The upgrades looked to improve each property's energy efficiency, with measures such as boiler upgrades and loft insulation installed as standard where suitable and windows and doors replaced to reduce heat loss.

ThamesWey's Action Surrey team successful helped low-income homes across Surrey install 142 energy efficiency measures through the 'Home Upgrade Grant Phase 2' funding, projected to save 131 tCO_2e annually. These projects are delivered via a consortium of Surrey Local Authorities, building on the long-standing relationships maintained through the delivery of Action Surrey.

ThamesWey's most significant interaction with the environment was the direct release of Greenhouse Gases (GHGs) from the generation and supply of energy services. Direct emissions from our energy centres increased by 22% percent to 14,158 tonnes of carbon dioxide equivalent. The increase is primarily due to a substantial increase in gas consumption of the Woking District Energy Centres serving the District Energy networks.

The primary opportunities for improving our environmental impacts are District Energy network optimisation, phasing in lower carbon and renewable heat generation for District Energy Centres, increasing the electrification of our vehicle fleet and striving to meet the highest environmental standards for every piece of the built environment we can influence.

3. Background

Following the 1992 Rio Earth Summit, Woking Borough Council set itself an ambitious set of targets regarding climate change. In order to accelerate delivery, Woking Borough Council realised that it needed a dedicated vehicle to engage with private partners, and in 1999 ThamesWey was established to help delivery this aim.

Sustainability is placed at the heart of our operations, and it is essential that we show leadership in this area by taking responsibility for our own environmental footprint. This is reflected in the company's evolving strategy which expressed the intention to address priority actions identified within the carbon reduction strategy dynamic modelling in 2020 and the scope of the ISO14001 certified Environmental Management System[3].

4. Summary of Methodology

This report follows the Environmental Reporting Guidelines published by DEFRA[4], which separates environmental impacts into six main categories:

- Greenhouse gases (GHGs)
- Water
- Waste

[2] Based on 3,000 kWh/year.
[3] Section 4.1 – 4.2, Thameswey Ltd Business Plan 2023, Thameswey Ltd. P7-8.
[4] Department for Environment Food & Rural Affairs. Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance. June 2013. Last updated March 2019.

- Materials and resource efficiency
- Biodiversity/ecosystem services
- Emissions to air, land and water

For GHG emissions, data from contributing activities is combined with BEIS conversion factors[5] to calculate impacts. Further methodological guidance is sought from the GHG Protocol[6].

GHGs are separated into three categories or 'Scopes'.

Scope 1 GHG emissions are the direct result of releasing GHGs to the atmosphere, such as the combustion of fuels.

Scope 2 emissions are indirect from use of electricity only.

Scope 3 covers the remaining indirect emissions, such as employee commuting and goods purchased.

All GHG emissions are reported in a common unit, 'tonnes of carbon dioxide equivalent' (tCO2e) to allow a straightforward comparison between different emission sources.

GHG emissions for electricity consumption are 'dual reported' in line with best practice, as gross emissions and net emissions. Gross emissions are calculated from a location-based average (the UK grid average), whereas net emissions reflect market-based data.

The remaining groups of environmental impacts are reported in their magnitude and specific methods are detailed in relevant sections of the report. In addition to reporting absolute figure(s), data is normalised where possible against suitable values to enable better comparisons.

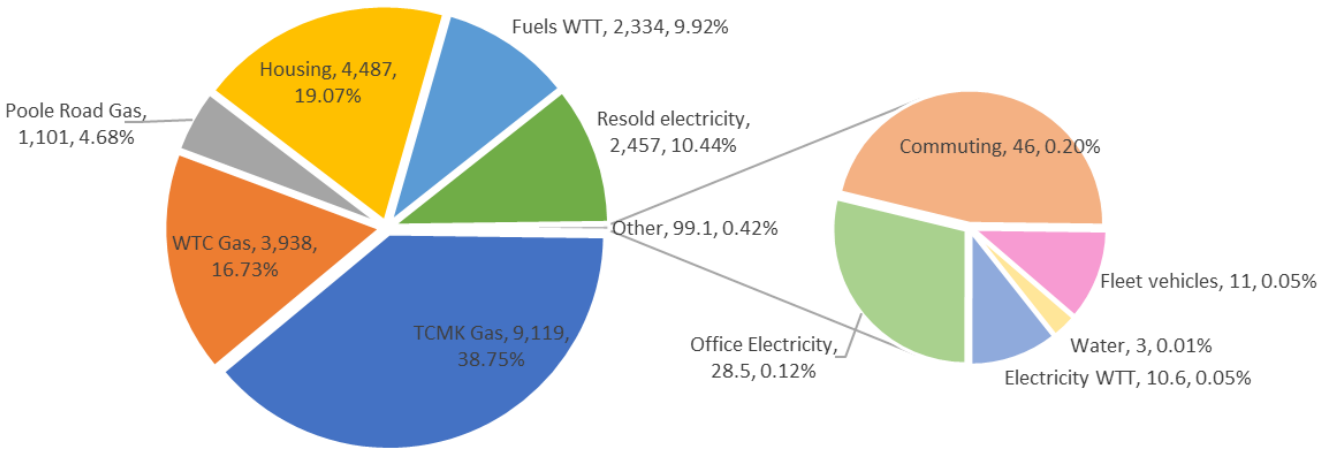
Comparisons have been made to the previous year where data is available. Over time, longer datasets will permit a more robust understanding trends in the Group's environmental performance.

[5] https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting
[6] http://ghgprotocol.org/guidance-0

5. Summary of Greenhouse Gas (GHG) emissions

Gross emissions in 2024 were approximately **23,535 tCO2e**, an increase of 14% from 2023.

Figure 1: ThamesWey Group gross GHG emissions in 2024 by source, quantity (tCO2e) and percentage



The majority of ThamesWey's gross GHG emissions (60%) throughout the reporting period were Scope 1 emissions.

Scope 2 emissions from electricity usage were insignificant in comparison, responsible for only 0.12% of the total.

Scope 3 emissions made up the remaining 40% and were dominated by energy service-related activities and the housing stock.

The relative contribution of all measured emissions is shown in Figure 1, absolute values are summarised in Appendix 1, with comparisons to the previous year.

ThamesWey provides a reduction in GHG emissions to the wider community through a range of activities:

- Emissions are directly prevented by providing low-carbon heat, cooling and electricity to customers in Woking, Milton Keynes and the national grid – around **411 tCO2e** in 2024.
- 2MW peak generating capacity of Solar Photovoltaic (PV) panels supply renewable electricity to buildings in Woking and the national grid - **322 tCO2e.**
- Upgrading the energy efficiency of our property portfolio – creating projected annual savings of **9 tCO2e** or lifetime savings of **212 tCO2e**.

- Locally delivered projects directly target emission savings through energy efficiency, for businesses in Woking and domestic properties across Surrey. Domestic installations created savings of **131 tCO2e** annually or a projected **3,283tCO2e** over their lifetime.

6. Scope 1 GHG emissions

6.1 Generation of heat, electricity and cooling

Supporting Woking Climate Change Strategy Theme 5: Energy and 11: The Built Environment

ThamesWey currently owns and operates two District Energy networks in Woking town centre. The original trigeneration network is supplied from the Victoria Way Energy Centre, the second District Energy network, commissioned in 2021 and initially serving the Victoria Square development, is supplied from the Poole Road Energy Centre.

ThamesWey also own and operate a third District Energy Centre and Network in central Milton Keynes (TCMK).

The Energy Centres are fuelled by a combination of gas-fired Combined Heat and Power (CHP) engines, gas-fired boilers, condensing and electric chillers, which supply heat, electricity and cooling (WTC only) to commercial and domestic customers.

A fourth network in the new Canalside development in Woking completed its handover to ThamesWey at the end of 2023. This Energy Centre supplies the Canalside regeneration with low carbon heat generated by Air Source Heat Pumps and gas boilers. Meter data was incomplete and unusable for the majority of the year and therefore cannot be accurately reported. This presents a limitation in the emissions reporting for 2024. The issues with the metering have since been rectified and the data will be included from 2025 onwards.

Results

Table 1 shows the Scope 1 emissions in the reporting period, measured in tCO2e, compared to the same period in the previous year. Emissions are separated by site to show the contributions of each.

Table 1: Scope 1 Energy Centre Emissions.

	WTC	TCMK	Poole Road	Total emissions
2023	1,208	9,280	1,143	11,631
2024	3,938	9,119	1,101	14,158
Change	+226%	-2%	-4%	+22%

There was an overall increase in emissions from the energy centres in 2024. Whilst some increase in emissions in future is to be expected through growth in energy demand arising from occupation of new connections and developments, there are other factors that have influenced this increase.

Three main factors can affect the scope 1 emissions released from the energy networks: connected load, generator mix and weather.

Connected Load

Overall connected heat load on the networks remained at a relatively stable level across all the networks, consistent with the previous year.

Connected power load on the Woking Town Centre Network decreased by around 10%, primarily due to a few of the larger connections reducing consumption, one as it underwent major renovation another as commercial tenants moved out. On the Poole Road fed network the connected load increased, with consumption rising by 18%. However from this Energy Centre the electricity is not currently generated onsite; it is passed through from the grid via a REGO and therefore carries net zero emissions.

Generator Mix

In Milton Keynes CHP availability was good, averaging 92% of heat generation for the year. The engines also provided a large proportion of the required electricity (rather than the grid). The quantity of excess heat 'dumped' increased compared to the previous year from 13% to 20% of the heat generated.

The emission savings at the Milton Keynes energy centre totalled 262 tCO2e for 2024. This is a significant reduction from the savings produced in 2023, down 80%, even though the level of gross emissions remained fairly consistent. The biggest influence on this is the level of heat 'dumped'. The savings provided by a gas-fired CHP are also slowly reducing as the counterfactual becomes less carbon intensive but overall, the CHP is still providing valuable emission savings.

The CHP engine at the Woking Town Centre energy centre was operational for 2024 following a lengthy period of unavailability while undergoing major overhaul through 2023. The CHP provided 90% of the heat generation and 77% of the power. Despite this, the network's emissions performance suffered due to the levels of heat dump and losses. 40% of the heat generated did not reach the network, and 20% was lost over the network but the emissions from producing this 'lost' heat are still included in the total emissions of the heat supply. These 'lost' amounts add up to the equivalent level of efficiency benefits usually seen from the CHP and therefore when the supply is compared with an individual boiler counterfactual Victoria Way Energy Centre produced no emissions savings in 2024.

At Poole Road the generation in 2024 was 100% gas boilers and 100% grid electricity from a renewable source.

Seasonal weather conditions

Weather conditions can best be represented using Heating Degree Days (HDDs) and Cooling Degree Days (CDDs), which are the measurement of deviation in air temperature against a base temperature of 15.5ºC (and for how long) – indicating a need to heat or cool a space.

As shown in Table 2, the HDDs remained relatively consistent with the previous year, indicating minimal expected change in the demand for heating. There was a decreased need for cooling in 2024 in both locations with less CDDs than 2023, reflected in the 2024 cooling sales, 23% reduction on the Woking network and 10% reduction on the Milton Keynes network.

Trigeneration, absorption chillers and year-round demand for hot water will skew the relationship between emissions and climate, though it is still a useful indicator for the main energy centres.

Table 2: Emissions adjusted for changes in weather. Whilst not a key factor for changes observed this year, weather has a fundamental influence.

	HDDs in Woking	CDDs in Woking	tCO_2e emitted per HDD/CDD	HDDs in Milton Keynes	CDDs in Milton Keynes	tCO_2e emitted per HDD/CDD

2023	1,813	150	0.8	1,847	131	4.7
2024	1,776	109	2.7	1,972	95	4.4
Change	-2%	-28%	+217%	+7%	-28%	-6%

6.2 Fleet vehicles

Supporting Woking Climate Change Strategy Theme 5: Transport

ThamesWey operates a small fleet of vehicles to support engineering and housing staff activities.

Results

During the reporting period, the fleet tailpipe emissions were **10.9 tCO_2e** (including the two electric vans). Compared to the previous year, this is a 31% increase in emissions.

The average emission per active van month has increased by 12%, from 0.17 to 0.19 tCO_2e.

The average tailpipe emissions per km from fleet vehicles remained steady at 116g CO_2/km, based on manufacturer ratings.

Increased vehicle emissions can be attributed to the significant business growth in relation to the completion and commissioning of the Poole Road Energy Centre and District Energy Network, and the Canalside development. These activities result in increased staffing levels to manage site operations, requiring increased localised transport activity for maintenance and customer support.

6.3 Fugitive emissions

Refrigerants found in air conditioning units and other equipment are powerful GHGs. They are often thousands of times stronger than carbon dioxide, therefore leakage of these to the atmosphere must be carefully monitored and prevented. These leaks are known as fugitive emissions.

Results

The maintenance record from 2024 shows no leakage of refrigerant and therefore **zero fugitive emissions** are recorded. This is no change from 2023.

7. Scope 2 GHG emissions

7.1 Office electricity use

Electricity is used in the ThamesWey head office building for office activities covering office appliances, lighting, kitchen appliances, EV charging and HVAC.

Results

In 2024 office electricity usage decreased by 4% to **156 MWh** compared to 162 MWh in 2023. The solar PV on site feeds into the building supply, therefore whilst the gross emissions for 2023 were **30 tCO_2e,** this

reduces to 28 tCO_2e, and net emissions can be reported as **0 tCO_2e** as the office is supplied by 100% renewable electricity from the supplier.

7.2 Energy centre parasitic electricity consumption

The parasitic consumption is the electricity used by the Energy Centres to fulfil core functions, such as running the district heating pumps, fans, lighting and all other electrical systems.

Additionally, electricity distribution network losses from copper losses (cables) and transformer energisation losses are included in this calculation.

Results

The GHG emissions from Energy Centre parasitic loads are accounted for in Scope 1.

- At the Victoria Way energy centre, the parasitic electricity consumption was **410 MWh.** This is an increase on 2023 which can be attributed to the CHP being back in operation
- At the Poole Road energy centre, the parasitic electricity consumption **was 668 MWh.** This includes 83 MWh of metered parasitic consumption and therefore 585 MWh of assumed network distribution losses or unreliable meter data. This is around half the total parasitic consumption seen in 2023.
- In Milton Keynes, the parasitic consumption reduced by over half to **687 MWh**. Three quarters of this is metered parasitics, the rest is assumed thermal efficiency and network distribution losses. The reduction in parasitic consumption in Milton Keynes in 2024 is reflective of a series of efficiency measures including reducing District Heating network differential pressure and improving office switch-off procedures.

7.3 Scope 2 subtotal

Gross Scope 2 emissions are **28 tCO_2e**.

Net Scope 2 emissions include electricity generation from ThamesWey solar photovoltaic assets (see 9.1). The CO_2e savings produced from the renewable electricity generationresults in the total net Scope 2 emissions reducing to **0 tCO_2e**.

8. Scope 3 emissions (upstream)

Upstream Scope 3 emissions are the indirect emissions that are a consequence of ThamesWey's actions, which occur at sources which are not owned or controlled.

8.1 Employee commuting

ThamesWey accounts for the emissions generated by employee commuting. Due to extensive personnel changes since the end of 2024, it was not possible to undertake the usual data collection for this period. Given that staffing levels remained relatively stable between 2023 and 2024, the 2023 data has been used as a proxy for 2024. This is a limitation on the accuracy of the emissions data and a return to full data collection is expected for 2025.

Results

The following figures take into account the well-to-tank (WTT) emissions from each journey, which are the emissions associated with the processing, refining and transportation of fuels before they are combusted. ThamesWey operates a hybrid-working approach for office staff, assisting the reduction in emissions from commuting.

The most common mode of employee transport to work was by car, followed by train travel. The emissions from employee commuting totalled **46.2 tCO_2e** in 2024.

8.2 Imported Electricity

ThamesWey's energy businesses import electricity from the grid to supplement the electricity generated at Energy Centres, which is supplied onto the private wire electricity networks in Woking and Milton Keynes. The imported electricity supplies the network when demand exceeds power produced by ThamesWey's generators. Typically, this is during maintenance outages or when low electricity market prices determine import to be more economically viable than embedded generation.

Although this is purchased by ThamesWey, it is passed through to and consumed by our customers and therefore is a Scope 3 emission.

Results

The amount of electricity imported to the two original Energy Centres reduced compared to 2023 from 8,932 MWh in 2023 to **4,897 MWh** in 2024.. The majority of this reduction occurred at the Victoria Way Energy Centre due to the CHP being back in operation.Poole Road private wire electricity customers are supplied with 100% grid imported electricity, distributed over the private wire network, totalling **6971 MWh.** The grid imported electricity is 100% renewable backed by a Renewable Electricity Guarantee of Origin.

Gross emissions have decreased significantly to **2,457tCO_2e** due to this reduction in import to the Victoria Way network, as a result in increased generation from the Energy Centre.

Net emissions however are **zero**, as ThamesWey was supplied by a fully renewable grid supplier.

8.3 Fuel well-to-tank (WTT) emissions

These are the emissions associated with extraction, refining and transportation of the raw fuels that ThamesWey's District Energy operations and vehicles use (natural gas and diesel).

Results

Corresponding with the increase in Scope 1 emissions from natural gas, the WTT emissions for this fuel have increased 27% to **2,332 tCO_2e**.

Diesel WTT emissions have remained at **2.0 tCO_2e**.

8.4 Electricity well-to-tank (WTT) emissions

As above, there are emissions associated with the raw materials used to generate electricity and the transmission/distribution (T&D) of this to the end user. This therefore applies only to the electricity used by ThamesWey and not the electricity purchased and imported to the private wire networks (these WTT emissions being the responsibility of the end user).

Results

In 2024, these emissions amounted to **10.6 tCO_2e**, a decrease of 3%, reflecting the decrease in office energy usage.

8.5 Water usage

Water use is reported in more detail in another section of the report, although the GHG emissions are relevant here. Water is used at both office sites as well as at the Energy Centres.

Energy Centre water consumption is attributable to general domestic use, District Network replenishment (system losses), and evaporative cooling towers used for District Cooling production. Cooling tower consumption typically accounts for the majority of water consumption.

Results

Water use increased within this reporting period, and the associated emissions were higher, equating to **3 tCO_2e**.

This increase can be attributed to the return to operation of the Victoria Way CHP, with resulting use of the Victoria Way absorption chiller for cooling generation. The absorption chiller uses evaporative cooling towers for process cooling.

9. Scope 3 emissions (downstream)

Downstream Scope 3 emissions are the indirect emissions that occur as a result of ThamesWey's activities.

9.1 Solar Photovoltaic (PV) sites

Supporting Woking Climate Change Strategy Theme 5: Energy.

ThamesWey has **82** active solar PV sites[7] around Woking with a combined peak capacity of **2,085 kW**. They supply renewable electricity to a variety of different sites in Woking, such as schools, sheltered accommodation, Woking Borough Council assets and homes. The Woking Borough Council and the local community benefit from the renewable electricity generated by these arrays, as does the national grid from any PV generated electricity not consumed by the property

Results

ThamesWey's PV sites generated **1,172 MWh** of renewable electricity in 2024, avoiding **279 tCO_2e** of emissions. This equates to the power consumed by 391 homes over an entire year.

Generation levels were similar to 2023 (an increase of just 1%). A significant factor that affects generation is availability and quality of sunlight, which was marginally lower in 2024. The increase in generation was due to the repair and maintenance activity in this period, which resulted in some sites significantly increasing output.

Table 3 shows that ThamesWey's solar assets saw an increase in the level of production relative to the installed capacity and sunlight hours. The increase in kWh generated per installed kWpk when normalised for sunlight availability shows that the maintenance works on the PV equipment has contributed to an improvement in solar power generation.

Around 8% of ThamesWey owned PV were inactive in 2024, highlighting the need for further maintenance to fix or conserve ageing assets. The improvement in normalised generation indicates the worthwhileness of maintenance. Whilst PV installations suffer from annual degradation (which reduces the productivity of solar panels), the higher efficiency of newer sites can help offset the impact of degradation.

[7] Most sites are grouped, comprising numerous arrays in close proximity, therefore the total number of individual properties or units supplied by ThamesWey's PV is much greater than this.

Table 3: Renewable electricity generation, normalised for changes in weather and capacity

	MWh Generated	No. of sunlight hours	kWh per sunlight hour per installed kWpk	Avoided emissions in tCO_2e
2023	1,156	1,564	0.346	318
2024	1,171	1,396	0.402	322
Change	+1%	-11%	+16%	+2%

9.2 Housing Stock

Supporting Woking Climate Change Strategy Theme 8: The Built Environment

ThamesWey Housing owns and lets domestic properties primarily within Woking Borough. A core aim is to provide high-quality and well-designed housing both by acquiring on-street properties and by creating purpose-built units. ThamesWey can influence the emissions from these assets, so are therefore Scope 3 emissions.

Results

ThamesWey's property portfolio increased substantially from 1,013 properties in 2023 to 1,420 in 2024.

The GHG emissions associated with this portfolio therefore increased from 3,657 to **4,487 tCO_2e**.

10. Other GHG emission reduction activities

Sustainability is at the heart of what ThamesWey does and this 'other activities' section aims to highlight how ThamesWey integrates this core value on a daily basis. Whilst no specific GHG Protocol guidelines exist for how carbon reduction activities should be reported, these estimates follow the same method as for emission reporting whilst accounting for product lifecycles. Appendix 3 summarises these activities.

10.1 Upgrading THL stock

Supporting Woking Climate Change Strategy Theme 8: The Built Environment

During 2024 ThamesWey Housing let 1,420 properties in and around Woking. A strategic target of ThamesWey is for each property to achieve an EPC rating of 'C' or higher, in line with the expected change in legislation to a minimum of 'C' for private rented properties from 2027. To achieve this improvement, new and existing properties are refurbished to be as resource efficient as possible. There is a significant capital cost to improving these properties by this much, but the benefits felt by the tenants and the community (through carbon reduction and reduced bills) are equally significant.

Results

Throughout the reporting period, the energy efficiency of 7 properties was upgraded by ThamesWey Housing. This brings the total number of properties with EPC's lower than 'C' to 158.

Energy efficiency improvements in THL stock included installation of additional loft insulation, upgraded windows and roof and new efficient boilers. The upgraded energy efficiency is estimated to avoid the emission of **9.5 tCO_2e per year** or **211 tCO_2e** over the lifetime of the improvements.

10.2 Action Surrey

Supporting Woking 2050 Theme 2: Energy and Theme 8: The Built Environment

Action Surrey is a service delivered by ThamesWey as part of a long-standing partnership between ThamesWey and the county, district and borough councils in Surrey. Its aim is to increase domestic energy efficiency across Surrey by providing advice and facilitating energy-saving installations via government grant funding management.

The Home Upgrade Grant Phase 2 (HUG2) project launched April 2023 and ran to March 2025, providing £2.8 million of grant funding to low income households across Surrey for energy efficiency home improvements. 207 homes have been made more energy efficient with 573 measures installed across the scheme. The improvements installed under this scheme will save the households on average £192 in energy costs annually[8].

Results

From the 573 energy efficiency improvement measures installed through Action Surrey through the HUG2 scheme, 142 of these occurred in the reporting period of 2024. These are projected to save **131 tCO_2e** annually and based on the expected longevity of each installation, would save **3,283 tCO_2e** over their lifetimes.

The quantity of installations and related emissions savings is highly dependent on the timing of projects. The HUG2 scheme was the last scheme to be administered by Action Surrey as part of the ThamesWey group. The HUG2 scheme officially ended in March 2025 and the final retrofit measures installed in 2025 will be reported in next years environmental report.

11. GHG opportunities for 2025

11.1 Opportunities for reducing Scope 1 emissions.

ThamesWey's most significant impact is use of natural gas in the Energy Centres to generate heat, power and cooling for distribution through the District Energy networks. Any activities that reduce the required generation and/or demand are therefore favourable. These are listed in ThamesWey's Environmental Management System as follows:

- Expansion of the heat networks to new buildings, which will further increase the efficiency of the heat generators and distribution networks by increasing generator asset utilisation.
- Sub-metering of parasitic load or individual circuits, to help better identify and upgrade inefficient equipment (e.g. pumps).
- New low carbon/renewable heat generators, such as heat pumps, to operate strategically alongside and ultimately in place of fossil fuel driven generating plant.
- Replacing aging assets with lower carbon alternatives, including trialling replacement technologies and creating upgrade plans.
- Operating assets in the most efficient way, avoiding short equipment cycles by gathering and monitoring data and using the insights to improve operations.
- Taking opportunities, when maintaining or installing new connections, to upgrade insulation of plant and equipment within the energy centres or on secondary networks, to reduce system losses.

[8] Based on Ofgem energy prices in 2023.

- Exploring the possibility of harnessing waste heat from sources such as data centres for use in the district heat network.

11.2 Opportunities for reducing Scope 2 emissions.

By continuing to maintain the solar PV assets, ThamesWey can continue to produce net zero Scope 2 emissions.

Managing resource use in the office can produce savings for gross Scope 2 emissions.

11.3 Opportunities for reducing Scope 3 emissions.

Emissions from electricity imported to the energy networks can reduce with similar actions to those described in 11.1 and by encouraging general energy efficiency among our customers.

Scope 3 emissions based on fuel combustion and electricity consumption can be reduced alongside corresponding decreases with scope 1 and 2 emissions.

To maximise avoided emissions from ThamesWey's solar PV assets, increased maintenance and optimisation of PV performance is required. Increasing overall capacity of PV sites will also help and this can be achieved with new installations or optimising arrays that perform poorly.

To reduce Scope 3 emissions from the ThamesWey housing stock a decarbonisation roadmap would help identify the most effective reduction measures. A dedicated programme of retrofits based on this would produce Scope 3 savings as well as providing benefits to tenants through more comfortable homes and reduced energy bills.

12. Water

Water is an essential environmental resource used by ThamesWey. In the UK, water supply is facing increasing levels of stress in the future[9], so national resources should be protected by minimising our usage – lowering the risk of shortages in the future.

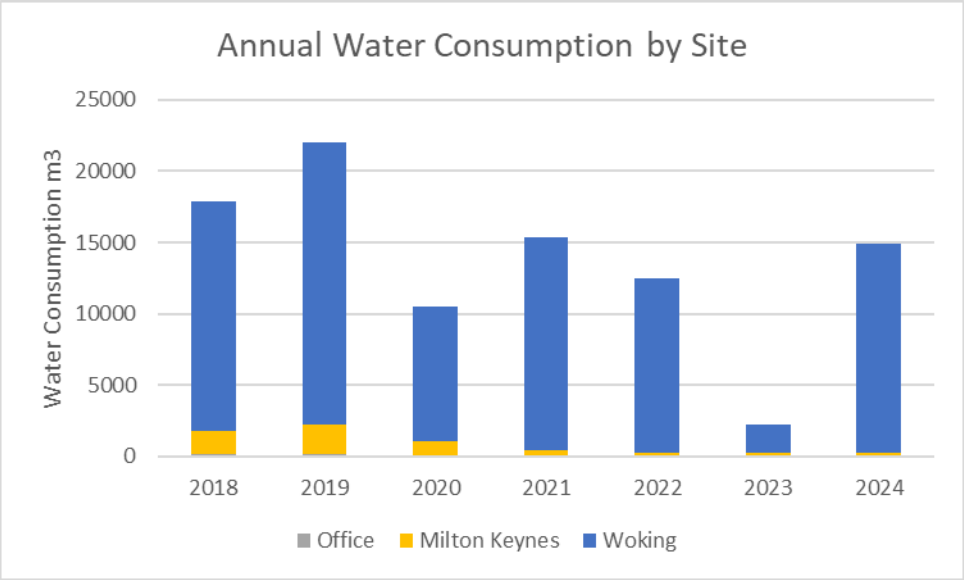
The majority of water consumed by ThamesWey is at the Energy Centre sites. Energy Centre water consumption is attributable to general domestic use, District Network replenishment (system losses), and evaporative cooling towers used for District Cooling production. Cooling tower consumption typically accounts for the majority of water consumption.

Results

In 2024, **15,306m^3** of water was used – 99% of this was used at Energy Centres.

This is a substantial increase from 2023 but is due to a return to normal operation of the cooling towers on the Woking Victoria Way network. The cooling towers were not in operation for the majority of 2023, therefore overall water use dropped significantly in this period. When comparing consumption with years when the cooling towers were operating, the level of water consumed in 2024 was 5% lower than the annual average between 2018 and 2022.

[9] Environment Agency, The state of the environment: water resources. May 2018



12.1 Opportunities and targets for water efficiency

Office water usage remains low. The Poole Road office features low-flow facilities and efficient dishwashers to minimise water consumption. There is scope to install a rainwater harvesting system on the office floor, which will be considered to reduce water use in maintenance activities such as cleaning and plant watering.

Water consumption is monitored and trended for Energy Centre operations. District network make-up volumes are monitored daily to ensure early identification of system hydraulic losses and prompt action to rectify. Cooling tower consumption is largely driven by customer cooling demand; as weather patterns change and the national demand for and reliance on cooling increases, focus on optimisation of cooling generation processes is key. Plant is monitored for efficiency and optimisation. Future measures under review include implementation of automated wet bulb tracking to adjust condenser cooling water temperature setpoints dependent on ambient conditions, thus minimising both water consumption, and electricity consumption through excessive fan operation.

13. Waste

The generation of waste has serious environmental implications, efforts should therefore be made to lessen these impacts and follow the waste hierarchy.

ThamesWey's Environmental Management System contains a Waste Management Procedure for all staff to follow to ensure that all waste produced is appropriately sorted and disposed of responsibly.

Results

This includes waste from normal activities but excludes replacement and disposal of major plant and equipment.

In 2024, waste produced by ThamesWey amounted to **1688kg**. This is a decrease of 1% from 2023.

The treatment of waste followed a similar pattern to recent years; with just over half recycled, just under half used to generate energy and almost zero waste sent to landfill (based on the average waste destination of the contractors' waste treatment sites).

13.1 Opportunities for reduction in waste

Limited waste reduction opportunities exist to replace disposable items for reusable alternatives. Within office activities there is scope for uniform re-use or recycling and to introduce a policy for rechargeable battery use for wireless equipment.

Energy Centre sites prioritise recycling over disposal, with recycling bins of greater capacity and point of first use rules in place.

14. Material and resource efficiency

This has not been evaluated in the report. The Group will consider the feasibility for more detailed reporting in this area. Priority materials and resources will be defined and records built up so that this may be reported in the future.

15. Biodiversity and Ecosystem services

ThamesWey, like all other organisations is dependent on the services provided by the ecosystem. Therefore, effort should be made to understand what impacts we have and how these can be mitigated.

15.1 ThamesWey's relationship with the ecosystem

The following ecosystem services are affected by ThamesWey's activities:

- **Provisioning services** *(the physical products obtained from ecosystems*)
  Example: timber (negative effect, from its use in construction and paper use)

- **Regulating services** (*the benefits gained from the regulation of ecosystem processes and cycles)*
  Example: air quality, climate and water regulation (negative effects through GHG emissions, positive effects through emissions avoided and reduction)
  .
- **Cultural services** *(non-material effects, realised through recreation and aesthetics)*
  Example: impact on wild species (positive effects from biodiversity projects such as swifts)

ThamesWey's assets are located in urban and sub-urban areas, with some areas close to locations of high environmental value such as the River Wey, Hoe Stream, Basingstoke Canal, protected heathland and several other areas of greenspace.

15.2 Biodiversity and ecosystem improvements

Supporting Woking Climate Change Strategy Theme 7: The Natural Environment

Biodiversity remained a key consideration in all projects. By 2024 the Copper phase of the Canalside development was completed. Whilst opportunities for direct biodiversity enhancements was limited in this phase, it did include elements such as rainwater gardens and retaining trees.

Figure 1: The energy efficient new build homes in the 'Copper' phase of the Canalside regeneration.

15.3 Biodiversity and Ecosystem services opportunities

The main influence ThamesWey has on biodiversity is from development projects. Depending on each site, opportunities can exist to promote biodiversity ranging from preventing damage (e.g. retaining trees or the area

of greenspace) to making a net gain (e.g. creating additional habitats, wildlife corridors, greenspace). Biodiversity Net Gain (BNG) is now a statutory requirement for developments of a certain size since end of 2023. This will result in more systematic recording of biodiversity enhancements, which will be reported here in future.

16. Emissions to air, land and water

Milton Keynes Energy Centre and the Poole Road Energy Centre are operated under environmental permits 'Medium Combustion Plant Directive 2015', specifying an emissions limit of sulphur dioxide (SO2) and nitrogen oxides (NOx) at 190 mg/Nm3. There were no breaches of the permit conditions in this reporting period.

Appendix 1: Summary of GHG data sources, gross and net emissions

Scope	Emission source		Data source	2023 Gross (net) emissions in tCO_2e		2024 Gross (net) emissions in tCO_2e		+/- Change in tCO_2e
1	Generation of heat, electricity and cooling	WTC	Billed data	1,208		3,938		+2,730
		TCMK		9,280		9,119		-161
		Poole Rd		1,143		1,101		-42
1	Fleet vehicles		Fuel cards, litres purchased	8		11		+3
1	Fugitive emissions		Maintenance records	0		0		0
1	Temporary generator		Invoices, litres purchased	0		0		0
Scope 1 subtotal				*11,639*		*14,169*		*+2,529*
2	Electricity consumption Office		Meter reads	29.2	(27.1)	28.5	(26.5)	-0.7
Scope 2 subtotal				29.2	*(0)**	*28.5*	*(0)**	-0.7
3	Employee commuting		Survey of all employees	46		46		0
3	Electricity Well-to-tank		Same as Scope 2 sources	11.0		10.6		-0.4
3	Electricity re-sold through networks		CHPQA F4	3,460	(0)	2,457	(0)	-1,004

3	Fuels used Well-to-tank	Same as Scope 1 sources	1,835		2,334		+499
3	Water usage	Meter reads with small element estimated	1		3		+2
3	Waste	Weight, partial estimation of shared element	0.04		0.02		-0.02
3	Owned properties	Estimation based on local authority average.	3,657		4,487		+830
Scope 3 subtotal			*9,010*	*(5,550)*	*9,337*	*(6,881)*	*+327*
Year total			**20,679**	**(17,189)**	**23,535**	**(21,049)**	**+2,856**

*Net Scope 2 emissions are zero to compensate for the renewable energy generated by ThamesWey, that is fed into the grid and/or third parties.

Figures rounded as appropriate.

Appendix 2: Breakdown of the GHG benefits from operating WTC & TCMK energy centres 2018-2023

		Emissions from ThamesWey's energy centres (tCO_2e)			Emissions from on-site gas boiler and displaced/average grid electricity (tCO_2e)		
Year	Emission source	Scope 1	Scope 2	Scope 3	Scope 1	Scope 2	Scope 3
2018	**Gross benefit**	**-3,218**					
2019	**Gross benefit**	**-1,973**					
2020	**Gross benefit**	**-2,174**					
2021	**Gross benefit**	**-2,959**					
2022	Gas	11,348	0	1,961	5,692	0	983
	Electricity	0	0	2,311	0	9,251	1,882
	Gross benefit	**-2,188**					
2023	Gas	10,923	0	1,833	6,324	0	1,061
	Electricity	0	0	2,454	0	8,290	1,741
	Gross benefit	**-2,207**					
2024	Gas	14,158	0	2,332	5,743	0	949
	Electricity	0	0	3,266	0	11,117	2,358
	Gross benefit	**-411**					

This calculation has been updated to reflect the marginal electricity generators on the national grid that are displaced by gas-CHP, in line with HM Treasury Green Book guidance[10]. Grid supplied electricity is incorporated using the 'grid average' emissions for that year.

[10] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/389070/LCP_Modelling.pdf

A negative figure denotes reductions/savings in emissions.

Appendix 3: GHG benefits of ThamesWey's activities

	2023		2024		
GHG reduction activity	Annual emissions in tCO_2e	Projected lifetime emissions in tCO2e	Annual emissions in tCO_2e	Projected lifetime emissions in tCO2e	+/- Change in tCO_2e
Supply of energy services	2,207	n/a	411	n/a	-1,795
Solar PV generation	318	n/a	322	n/a	+5
Upgrading tenanted properties	23	451	9	212	-13
Action Surrey	261	6,532	131	3,283	-130
Totals	**2,809**	**6,983**	**874**	**3,495**	-1,934
				Cumulative savings: **20,005**	

Appendix 4: Methodology overview

6.1 - Generation of heat, electricity and cooling

To participate in the Combined Heat and Power Quality Assurance Programme (CHPQA), stringent monitoring is required throughout the year – providing the necessary information, gas usage, from which the emissions can be calculated.

These emissions vary due to the demand of customers, requiring the energy centres to match this demand. Weather, building occupancy and number of customers will each affect the demand for energy services. An intensity ratio is applied to the emissions to aid comparisons over time, this adjusts emissions based on the change in this second factor. For energy services, heating and cooling degree days are used. This is the measure of how much time the outside temperature has been above or below a threshold that would require a building to be heated or cooled, and how far above or below this threshold the temperature has been.

The benefit of generating this low-carbon decentralised energy is also reported, by comparing the total emissions to a 'business as usual' counterfactual. This is calculated by using an extension to the 'Boiler Displacement method' for co-generated heat and electricity. The cooling is a product of the heat generated so is not included in this calculation to avoid double counting. This is shown in Appendix 2.

6.2 - Fleet vehicles

All (diesel) fuel is purchased using fuel cards, which record the exact volume of fuel purchased for each vehicle. Emissions are calculated directly from this data using the diesel conversion factor, published by BEIS.

The electric vehicles are charged at sites using electricity that is reported in other sections of this report, so to prevent double counting this electricity is not also included here.

The emissions can be compared using the intensity ratio: active vehicle months. This aims to compensate for the changing number of vehicles used, whilst reducing the skewing effect of vehicles that are only in service short-term or are out of use for repairs.

However, as the majority of the vans are also used for commuting, the distance from work each employee lives is another contributing factor to the change in emissions.

6.3 - Fugitive emissions

ThamesWey is responsible for maintaining any air conditioning units at Headquarters. ThamesWey also operate gas insulated electrical switchgear (SF6).

Maintenance records show when equipment has been inspected or tested for leaks and if any refrigerant/insulant is added – if a quantity has been added, that same quantity has leaked.

6.4 - Other fuels

Invoices from the generator hire company record exactly the quantity of fuel used.

7.1 - Office electricity

Consumption data for ThamesWey Headquarters is collected monthly from the Energy Centre BMS system. The natural gas conversion factor is used.

7.2 - Energy centre parasitic electricity consumption

Parasitic consumption is calculated by subtracting electricity sales and grid exports, from electricity generation and grid imports. This also includes the small distribution losses incurred at transformers and substation on the private wire network. The difference between these described totals is deemed to be the parasitic load (note: this does not allow for meter errors or any unmetered supplies).

This load is supplied from both the CHP generation and grid imports, depending on the time of day and network requirements. To avoid double counting, this report assumes that all parasitic consumption is supplied by the CHP engine and the emissions are therefore already accounted for within Scope 1. This is because the CHP engine is typically generating to meet a minimum of 70% of the electrical consumption and therefore the majority of the time.

8.1 - Commuting

Each employee completes a short survey about how they travel to work. The distance of each commute is combined with their mode of transport gives an accurate representation of these emissions. A total figure for the reporting period is calculated by multiplying the daily commute by the proportion of the reporting period each employee is present – weekends, annual leave and any long-term leave (specific to each employee) are excluded.

8.2 - Electricity purchased and re-sold

The amount of electricity imported is recorded in CHPQA submissions and can be corroborated by billing data. The metered usage is multiplied by the grid average conversion figure (for gross emissions) and by the supplier specific conversion factor (for net emissions).

8.3 - Fuel well-to-tank (WTT) emissions

The same data for natural gas and diesel used in Scope 1 emissions are used but with the relevant conversion factor.

8.4 - Electricity well-to-tank (WTT) emissions

The same data from Scope 2 is used to calculate this but using the appropriate WTT conversion factors.

8.5 - Water usage

Meter reads are taken at all sites.

9.1 - Solar photovoltaic (PV) sites

PV production is recorded by generation meters at each site. The quantity of electricity generated is multiplied by the grid conversion factor for UK electricity, electricity transmission and distribution losses and electricity WTT. This shows the total emissions avoided from the generation of on-site renewable electricity, instead of using grid electricity.

To better compare results between years allowing for variations in weather, the PV generation is normalised for the average number of sun hours per day, during the reporting period.

9.2 – Owned properties

The number of active properties is gained from end of year business plans and includes only those that are actively being let – this figure covers to the end of September. Properties secured for demolition and those which have been acquired but are being refurbished are excluded from this calculation, as they will not have an environmental impact. Conversion factors are gained from local authority averages.

10.1 - Upgrading our tenanted properties

When properties are upgraded, records are kept of the works done to them and reasonable projections are made to calculate what effect they would have on resource usage in the future. All savings follow the same methodology where national averages are compared against the known data of exactly what is installed.

For savings on heating, the BEIS Heat Estimator Tool[11] provides the baseline property heating and hot water demand specific to a property type and age. Electricity and water averages are gained from Energy

[11] BEIS Heat Estimator Tool available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/459002/Heat_Estimator_Tool._September_2015.xlsx

Saving Trust publications, who conduct real-world research into domestic resource consumption – there are no standardised figures published so these figures are the most reliable ones available.

Annual and projected lifetime savings are reported, where the lifetime savings are projected based on the lifespan of the installed products and conversion factors for the reporting year.

10.2 - Action Surrey

Each installation is recorded, and the same methodology as above is used here.

12 - Water

At the energy centres and office, our water usage is metered.

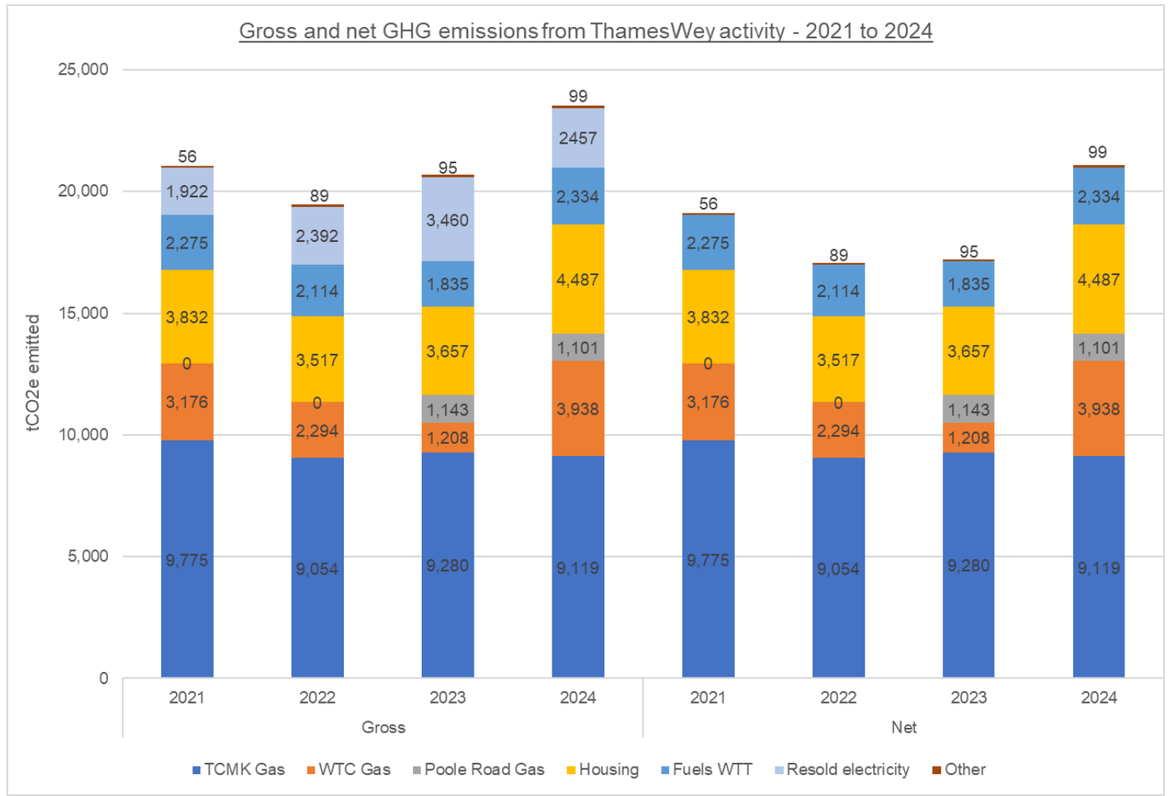
13 - Waste

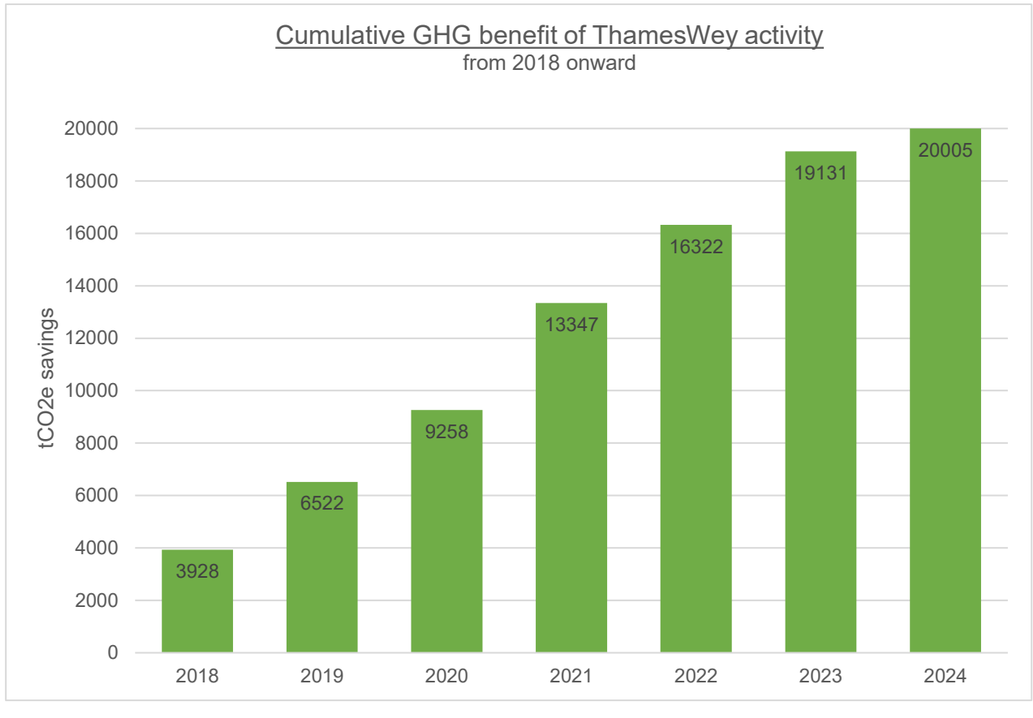
Office waste at Headquarters is measured at the point of collection. The waste collector shares a report detailing the proportion of waste that is recycled, used to generate energy or sent to landfill.

Waste from maintenance activities is recorded by Waste Transfer Notes (WTNs).

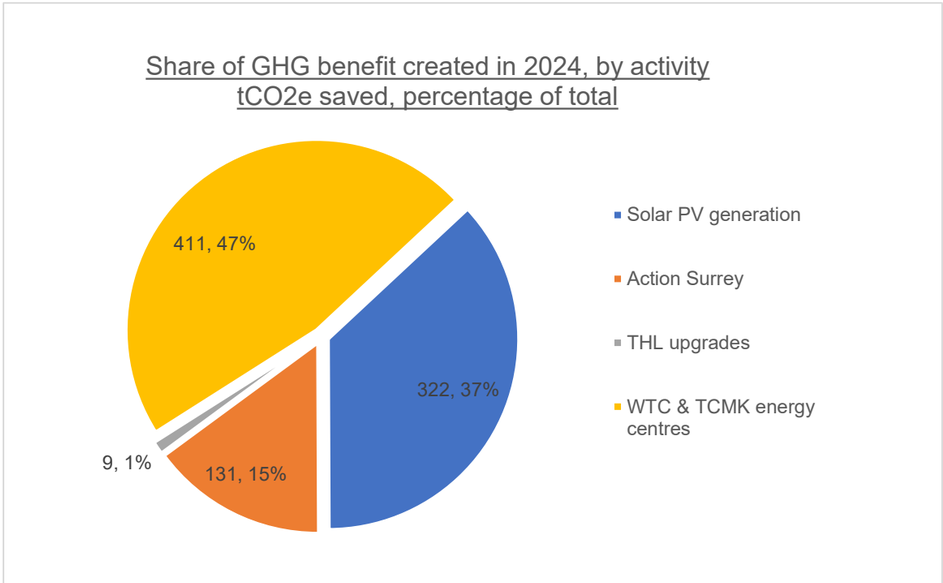
There is no data available for other sources of waste.

Appendix 5: Environmental performance dashboard





	Gross GHGs (tCO_2e)	PV generation (MWh)	Water (m^3)	Waste (kg)
2018	23,018	1,248	17,884	No data
2019	20,385	1,285	22,045	4,228
2020	18,434	1,411	10,471	409
2021	21,608	1,161	15,442	1,816
2022	19,899	1,312	12,959	2,224
2023	20,679	1,156	2,204	1,701
2024	23,535	1,172	15,306	1,688



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