regen
transforming energy

South Gloucestershire's Net Zero Dashboard

—2025

Produced for:

South Gloucestershire Council

Key indicators

Each year the council reports on three overarching indicators in South Gloucestershire.

AREA EMISSIONS

2022

Between 2021 and 2022, emissions **decreased** by:

-5.3%

By 2022, carbon emissions (1,041 kt CO_2) from all sectors had **decreased** by 50% relative to 1990 levels (2,073 kt CO_2).

Between 2021 and 2022, emissions **decreased** by:

58 kt CO_2

RENEWABLE ENERGY

2023-2024

1,539

MCS accredited installations were achieved from April 2023 to March 2024.

Local renewables generated the equivalent of 5% of local energy demand.

5%

COUNCIL EMISSIONS

2023/24

-11%

Council own emissions (7,672 tCO_2e) have **decreased** by 11% since 2022/23 (8,581 tCO_2e).

Progress since 2009/10:

-77%

This progress report was brought to you by Regen.

Regen is a not-for-profit centre of energy expertise and market insight whose mission is to transform the world's energy systems for a zero carbon future. We believe:

— The UK will not achieve its net zero ambition without the active engagement of the people and organisations living and working in each of the UK's nations, cities and regions.

— Clever uses of data can provide solutions that will help us achieve net zero and support the green recovery in our local areas.

The graphics in this publication summarise the most recent publically available national datasets and were put together by Regen. Full sources list and assumptions are available in the appendices at the end of this report.

Contents

Overview

Local leadership on net zero has the potential to reduce carbon emissions, transform our energy system and at the same time build a local green economy, bringing in skilled jobs, investment and resilience.

This report aims to engage and inspire people and organisations in South Gloucestershire by setting out how the area is performing in the key net zero challenges of heat, power and transport: recognising what has been achieved and how far there is to go.

Energy use and carbon emissions

Significantly reducing the amount of energy we use for transport, heat and power is a key step on the path to net zero. This will reduce the amount of renewable and low-carbon generation needed to achieve net zero.

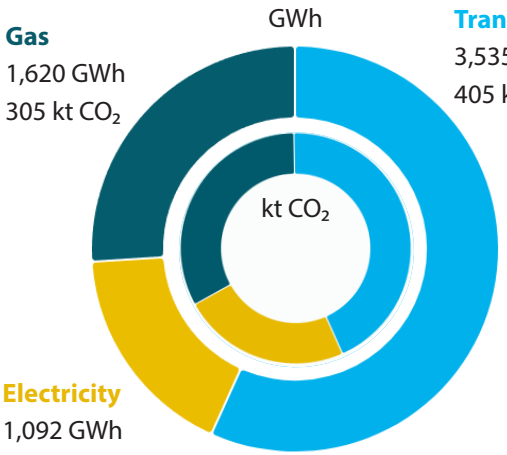
FUEL POVERTY[1]

9.4%

of households were in fuel poverty[1] in **2022**. The UK average was 13.1%.

ENERGY USE

In **2022**, South Gloucestershire's energy use included:



Gas
1,620 GWh
305 kt CO_2

Transport
3,535 GWh
405 kt CO_2

Electricity
1,092 GWh
219 kt CO_2

Total carbon emissions in kt CO_2 were:[2]

1,041

(including other fuels and agriculture)

EMISSIONS RANKING

Tonnes CO_2 per person

3.53

Local authorites in the UK are ranked by emissions per person. In the race to zero carbon, South Gloucestershire is ranked:

143rd

out of 375 UK Councils.

Lowest is Hackney at 2.1 tonnes

Highest is Westminster at 7.6 tonnes

ENERGY USE CHANGE[3]

From **2021** to **2022**

Carbon savings in kt

64

Gas
Domestic
-11.2%

Commercial
-1.9%

Electricity
Domestic
-8.3%

Commercial
+0.4%

Transport fuel
+2.9%

1. Uses the Low Income Low Energy Efficiency (LILEE) metric of fuel poverty
2. Subset CO_2 dataset (excludes large industrial sites, railways, motorways and land-use)
3. Total energy use excludes non-road transport and residual fuels

Homes and other buildings

Achieving net zero will require upgrades to nearly every home and business: to keep heat in, to keep energy use low and to switch to low carbon heat sources. It is one of the greatest challenges of net zero, but also one of the greatest opportunities for green jobs.

HEAT NETWORKS

As of **2024** there were

2,808

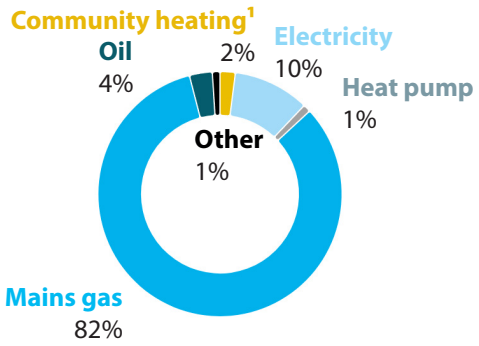
homes connected to community heating networks in South Gloucestershire, with a further

1,031

customers to connect if all heat networks in planning are built.

HEATING

South Gloucestershire's heat sources in homes in **2024**:



14% is the estimated percentage of homes using low carbon heating[2].

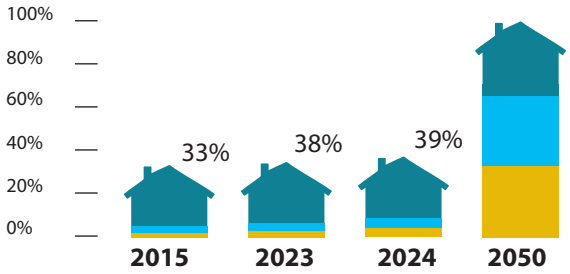
For Green Homes Grants Vouchers, there have been:

- **493** applicants
- **447** installations
- **309** households upgraded

1. Combined heat and power or renewable
2. Heat pumps, electricity and community heating
3. Excluding new build properties

ENERGY EFFICIENCY

2024 EPC ratings[3]:



Energy inefficient homes (D, E, F, G) use on average around 1.5 times the energy of energy efficient homes (A, B, C), which gives rise to higher bills and carbon emissions. Any EPC rating may still be heated by gas.

39% The estimated percentage of existing homes[2] with an energy efficiency rating of A, B or C.

76% The estimated percentage of the 453 non-domestic buildings assessed in **2024**, with an energy efficiency rating of A, B or C.

Renewable energy produced

According to the Climate Change Committee's Sixth Carbon Budget, a UK net zero energy system will require at least 5.8 times more renewable generation than today. New renewable energy projects need to be installed across the UK, from rooftop solar to onshore wind.

PIPELINE RENEWABLES[2]

Energy storage
1,815 MW

Solar PV
568 MW

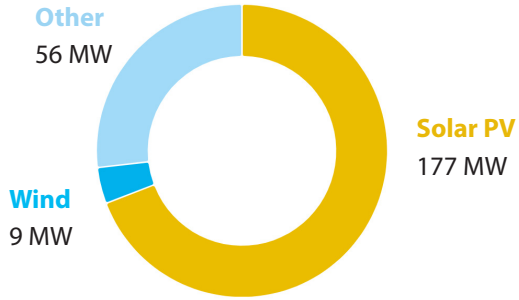
Wind
0 MW

ENERGY CAPACITY

In **2024**, the local renewable capacity was:

242 MW

+ 76 MW fossil fuel capacity still online.



New renewable capacity installed since **2022** totalled:

76 MW

76 MW	Solar PV
0 MW	Other
<1 MW	Wind
0 MW	Hydro

1. Excluding non-road transport and residual fuels
2. In planning or with grid connection enquiries

RENEWABLE GENERATION

In **2023** renewable energy sites generated:

344 GWh

Energy consumption may vary year on year due to external factors such as population growth, change in demand habits, etc.

Electricity consumption is expected to increase exponentially along with electrification of vehicles and heating over time.

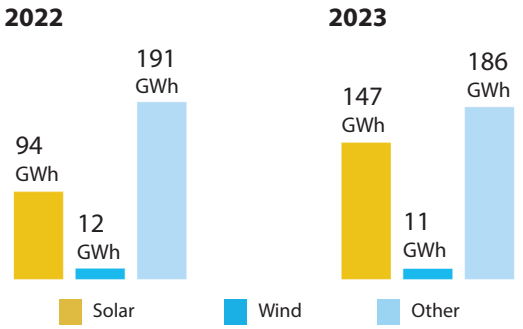
Renewable energy generated in South Gloucestershire is equivalent to

32%

of annual electricity consumption and

5%

of annual energy consumption[1] from heat, electricity and transport.



Transport and mobility

A shift to electric vehicles is inevitable in the next decade, with the 2035 ban on new fossil fuel cars and market growth. We must also reduce private vehicle use with a shift towards active travel and public transport. This will reduce energy use, tackle congestion and improve air quality and health.

FUEL CONSUMPTION

In **2022**,

39%

of total emissions in **2022** in South Gloucestershire were from road transport[1].

Emissions in tonnes per person

Cars 0.58 tonnes/person
UK average 0.35

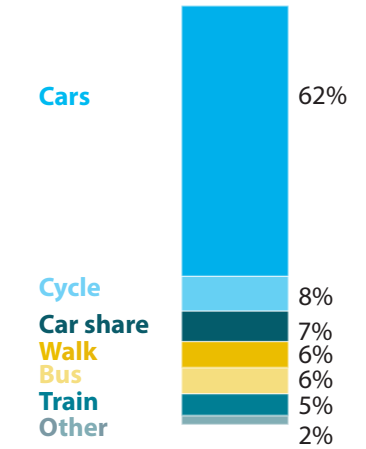
Light goods 0.18 tonnes/person
UK average 0.11

Heavy goods 0.24 tonnes/person
UK average 0.11

HIGHER
Transport emissions in **2022** were higher per person in South Gloucestershire than the UK average.

MODE OF TRAVEL

2024 workplace travel:



Work from home increased by 5%

ELECTRIC VEHICLES

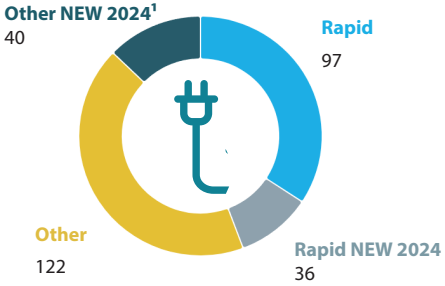
In **2024** **15%**

of South Gloucestershire's vehicles were electric.

There were

295

electric vehicle chargers.



When comparing chargers per person to other council areas, South Gloucestershire ranks:

120th

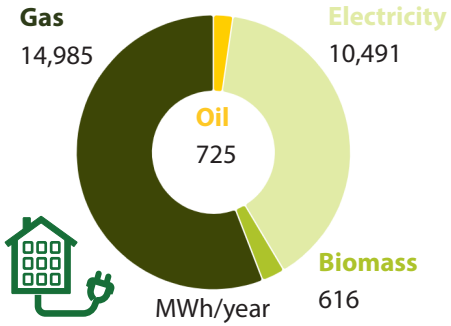
out of 374 UK councils.

1. Excluding motorways

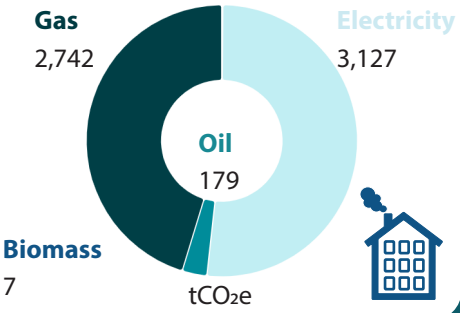
Council's own energy use and emissions

South Gloucestershire Council has set an ambition to become carbon neutral across all council functions by 2030, and joined many councils across the UK by declaring a Climate Emergency in 2019. Tracking council emissions and energy use is a crucial step towards meeting this target.

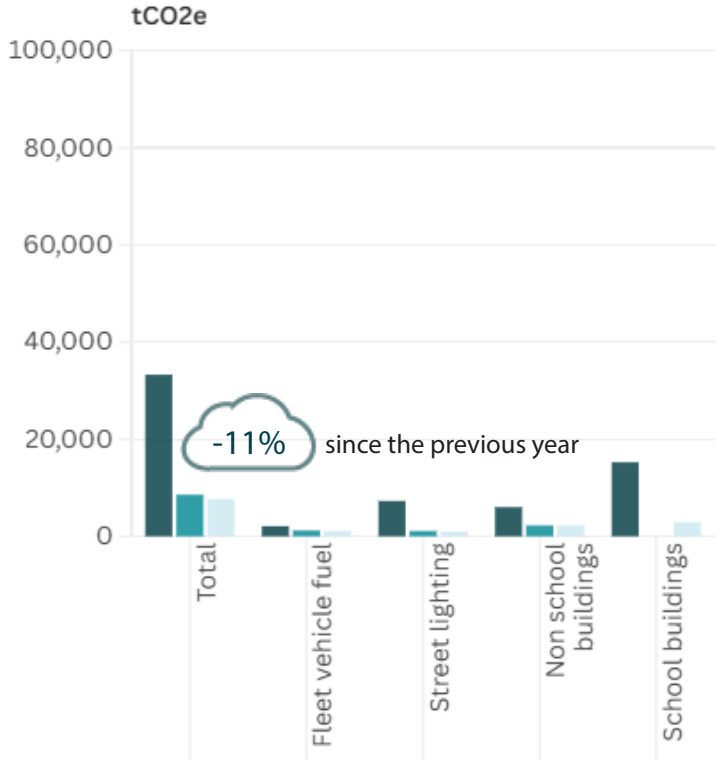
In **2023/24**, energy consumption from council buildings by fuel type was:



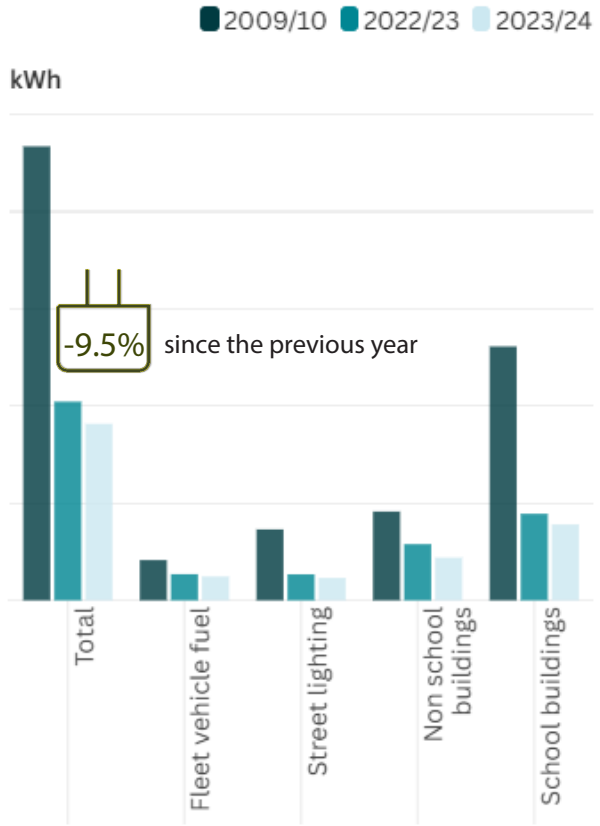
In the same year, resultant emissions from council buildings by fuel type were:



GHG EMISSIONS



ENERGY CONSUMPTION



Data sources and assumptions

Energy use and carbon emissions

1. DESNZ 2024, Sub-national electricity consumption, Great Britain, 2005 - 2023
2. DESNZ 2024, Sub-national gas consumption, Great Britain, 2005 - 2023
3. DESNZ 2024, Sub-national road transport fuel consumption in the United Kingdom, 2005 to 2022
4. DESNZ 2024, UK local authority and regional carbon dioxide emissions national statistics: 2005-2022
5. DESNZ 2024, Sub-regional fuel poverty 2024 report: 2022 data

Homes and other buildings

6. Department for Levelling Up, Housing and Communities 2024, Energy Performance of Building Certificates in England and Wales: October to December 2024. Available from: Open Data Communities
7. DESNZ December 2024, Green Homes Grant Local Authority Delivery Scheme (GHG LAD) and Home Upgrade Grant (HUG) Statistics for England.
8. DESNZ 2024, Heat Networks Planning Database

Assumes EPCs recorded in quoted year are representative of region. The data is in reality weighted towards rental properties since they are more regularly assessed and new builds. National Energy Efficiency Data-Framework, 2018, Tables 27 and 28

Comparison of EPC ratings' consumption takes the average of electricity and gas

Renewable energy produced

9. Sixth Carbon Budget, Climate Change Committee Figure 3.4.a.
10. Embedded Capacity Registers, January 2025 & Renewable Energy Planning Database
11. ONS 2024, National Statistics Postcode Lookup
12. DESNZ 2024, Renewable Electricity by Local Authority 2014-2023

Only includes distribution connected generation shared by DNO registers. Capacity could only be included from Capacity Register where data entry provided a postcode.

Weighted averages were taken for per capita CO_2 emissions estimates

Transport

13. ONS 2024, Mid-Year Population Estimates, England and Wales, June 2023
14. DfT 2024, Road transport fuel consumption tables 2005-2022
15. DESNZ 2024, DUKES conversion factors
16. DfT 2024, Ultra Low Emissions Vehicles Table VEH0132
17. DfT 2024, Licensed vehicles by body type and local authority Table VEH0105
18. DfT 2024, Electric vehicle charging device statistics
19. Travelwest 2024, Travel to Work Survey - South Glos UA

Vehicle emissions 2021 conversion factor: 3179.6 tonnes (Average of diesel and petrol)

Hybrid vehicles discluded. 'New' is the increase in registered vehicles, thereby including decomissioning.

Council Emissions

20. Council South Gloucestershire Council 2024, South Gloucestershire Council: Local Greenhouse Gas Report (2023/24)

Methodology explanatory notes

Energy use and carbon emissions

- **Energy use** was derived from local electricity, gas and road transport consumption datasets published by BEIS, excluding residual fuels. Residual fuels were excluded, as these refer largely to non-road transport and industrial applications that are less likely to be under the sphere of local authority influence.
- **Local Authority Emissions** were taken from the subset CO_2 dataset, rather than the full dataset, to exclude emissions deemed to be outside the sphere of local authority influence, such as large industrial sites, railways motorways and land use. These do not correspond perfectly to the energy use dataset, as some energy consuming activities may not have been included in the CO2 subset data. Furthermore, the total CO_2 emissions figure will not always total the corresponding energy figures, as the total includes some non-energy related emissions sources, such as agriculture. Per capita CO_2 emissions were also derived from the subset dataset, with large outliers removed. It should be noted that areas have been ranked together regardless of type, urban/rural split, etc.

Homes and other buildings

- **Domestic Heat Sources and EPC Ratings** were derived through analysis of EPC data. Duplicate EPC certificates were removed, keeping only the most recent EPC assessment for any given property. For the A, B and C rated homes, certificates issued to new build properties were removed from the analysis to shift the focus to decarbonisation of existing building stock.
- **Non-domestic EPC Ratings** were derived from the MoH subnational dataset, and include new build as well as existing building stock.
- **Green Homes Grant Vouchers** were lifted from the respective subnational datasets published by BEIS.

Renewable energy produced

- **Renewable Energy Capacity and Generation** was derived using embedded capacity registers and the Renewable Energy Planning Database. Duplicates across the databases were identified by mapping projects and removing overlapping projects with the same name, developer and locational data. Figures on new installed capacity, fossil fuel capacity and pipeline projects are harmonised across the EPC registers and the Renewable Energy Planning Database, and complimented with desk research on an ad-hoc basis.

Transport

- **Tonnes of vehicle fuel consumption per capita** figures were sourced from the road transport fuel consumption dataset from BEIS, coupled with mid-year population estimates from ONS to estimate the amount of emissions per person.
- **Road transport emissions** as a percent of total emissions are derived from the CO_2 subset dataset, and exclude motorways and non-road transport.
- **Average transport emissions** were calculated based on the DESNZ CO_2 subset dataset, and compared against the local authority average to determine if local authority emissions are higher or lower than the UK average.
- **Electric vehicle** statistics as a proportion of vehicles were derived by taking the number of total EVs as a percentage of total cars licenced in the local authority.
- **EV charge point** data from DfT was ranked and analysed to determine the split of rapid and non-rapid devices at the end of the last quarter of the previous year. Authorities were then ranked from highest to lowest.
- **Mode of travel to work & Council's own energy use and emissions** data was provided to Regen by South Gloucestershire Council.

Council Emissions

- CouncilSouth Gloucestershire Council 2023, South Gloucestershire