

South Gloucestershire Council: Local Greenhouse Gas Report (2021/2022)

**Council-owned greenhouse gas emissions and renewable
energy generation**

(December 2022)

Executive Summary

- Our aim is to become a carbon neutral Council across our estate and all functions by 2030. This was set out in our Climate Emergency declaration of 2019, and the [revised UK100 pledge](#) that we have signed up to.
- We monitor energy use (and associated greenhouse gas emissions) from all Council buildings, including South Gloucester Council -run schools, street lighting, fleet vehicles and staff business mileage.
- We have actively reduced our carbon emissions since 2009, reflecting a long record of action on climate change. Total greenhouse gas (GHG) emissions in 2021/22 have decreased by 5.6 % since the previous year, which equates to a reduction of equivalent 531 tonnes (CO₂e). GHG emissions have declined by 73% since the base year (2009/10).
- Total energy consumption shows a 1% reduction in 2021/22 compared to the previous year, which is lower than would usually be expected. The Badminton Road Solar Array, which normally supplies energy directly to the council offices, was taken off-line for a significant portion of the year due to building work and therefore replacement energy had to be purchased. Enhanced ventilation in some buildings, due to Covid 19, would also increase energy consumption.
- Fuel use in the Council's fleet has decreased by 5% compared to the previous year as fleet vehicles transfer to electric vehicles (EVs) where possible. There is also year to year fluctuation as colder weather that requires gritting will increase fuel use.
- Staff mileage has significantly increased (by 36%) compared to last year, when Covid restrictions were in place, though it remains below pre-covid levels.
- The energy used in Council buildings (including SGC-run schools) accounts for two-thirds of the Council's total green-house gas (GHG) emissions. Reducing energy consumption in existing schools and Council buildings through retrofitting fabric improvements, energy control systems, technology upgrades, solar PV and phasing out

fossil fuels as a heating source continues to be incredibly important. In 2022 143 kWp of solar PV was installed on schools and we need to rapidly accelerate measures such as these.

- A total of 783,241 kWh (783.2 MWh) of renewable energy has been generated from solar PV schemes on our land and buildings. We continue to generate a substantial amount (326,590 kWh) of renewable heat energy from biomass sources too. In addition, the remaining electricity and gas we purchase is on a green energy tariff.
- We have been encouraging our remaining schools to switch to a green energy tariff and there has been a significant increase in schools getting their energy from a green tariff increasing from 18% of school electricity being from a green tariff in 20/21 to 81% in 21/22.
- Whilst the 5.6% reduction in GHG emissions is positive, it is not as close as would be desired to our annual target and we continue to look at opportunities to reduce our emissions. Emissions reductions will get more difficult as we progress through the years, once the easier to implement measures are undertaken, and this means we must rapidly accelerate our own actions, influence and lobbying to be as close to net zero as possible at 2030.
- Further understanding and reducing our Scope 3 emissions is important for our Carbon Neutral Council ambition and work continues in this area. Sage were commissioned in 2021/22 to look at our likely Scope 3 emissions based on procurement spend and the data from this will help shape our future plans.
- Even with all possible measures, there will still be residual emissions in 2030 and therefore work on offsetting will continue to be important. Work with the University of the West of England, building on their plan to 2030 for the wider area, and working with other authorities will be a key focus for the coming year.

1. Purpose of report

This report monitors the Council's own greenhouse gas emissions and the renewable energy directly generated by the Council. In future years it will also include reference to carbon offsetting projects that the Council directly implements or invests in.

The data presented establishes the progress being made towards the aim of becoming a carbon neutral Council by 2030. This aim formed part of the Climate Emergency declaration made by the Council in July 2019.

Being carbon neutral means reducing carbon dioxide emissions as far as possible and then balancing out any remaining releases by, for example, creating new habitats to sequester carbon. Net zero is a similar term but relates to all greenhouse gas emissions.

2. Climate emergency

A changing climate is recognised as being the most significant threat to our society that we have faced. Nationally, the UK Government has set a target in law for all greenhouse gas emissions to be net zero by 2050. However, in order to pursue efforts to limit warming to 1.5C (as per the Paris Agreement in 2015) and avoid the severest impacts of climate change, it is important that the 'net zero' target is achieved much sooner. Consequently, many Councils have declared a Climate Emergency and set a 2030 target.

South Gloucestershire Council made a Climate Emergency declaration on 17th July 2019. This means that the council is saying that the global climate is in a state of breakdown and that this is an Emergency situation and that urgent steps need to be taken to address the situation by preparing for the local impacts of climate change and by reducing carbon emissions. In the declaration, the Council's committed to providing the leadership to enable the whole of South Gloucestershire to be carbon neutral by 2030. As part of this, it included the aim of the Council itself becoming carbon neutral by 2030, across all its functions.

In order to monitor progress towards this aim, and to help inform the identification of areas for action, it is important that we monitor the greenhouse gas emissions from the Council's own estate and activities. This is something we have been doing since 2009 and reflects the Council's long record of action on climate change.

3. Scope of emissions data

We have monitored annually, since 2009, all the Council's emissions that are known as Scope 1 and Scope 2 emissions. Some Scope 3 emissions (business mileage and electricity transmission / distribution losses) have also been monitored and are included in the reporting figures.

- **Scope 1** emissions are those that come directly from the burning of fuel e.g. gas boilers used in buildings, diesel used in vehicles.
- **Scope 2** are the emissions that come from the energy e.g. electricity that is purchased and used by the Council.
- **Scope 3** emissions are those that are a consequence of the Council's actions and occur at sources not owned or controlled by the Council e.g. through procurement activity.

Appendix A sets out a full definition of the 'scopes' and how our data fits into these.

In summary, the emissions data that we collate in this report comes from the following sources:

- emissions from energy consumption in buildings
- electricity consumption in street lighting
- fuel use in fleet vehicles, and
- business mileage

There are other emissions that result from the Council delivering its functions, such as outsourced services and the procurement of products and services (known as Scope 3), but the emissions are not easily measured and are not currently included in the data reported. However, in **Appendix B**, we set out the key sources of these emissions alongside actions we are taking, or plan to take, as part of our [Climate Emergency](#) response.

As highlighted in the last annual report our [Carbon Emissions Baseline report](#) estimated that Council Scope 3 emissions from procurement activity could be 5 times higher than scopes 1 and 2. We currently report on only a small proportion of our Scope 3 emissions and work, explained later in this document, is being undertaken to further our understanding of our Scope 3 emissions.

The Council has an **overall target to become carbon neutral by 2030**. This means that our emissions must be zero or as close to zero as possible with the residual emissions being balanced out, or offset, through carbon saving projects by 2030.

The purpose of this report is therefore to quantify GHG emissions from the Council's estate and activities listed in the bullet points above, and to analyse progress against this target. The relevant data is set out in **Appendix C**, with key points highlighted in the Report.

The actions that are currently being taken and are planned to be taken over the next few years to reduce GHG emissions from the Council's estate and activities and services (which together form the Council's carbon management plan) are set out in the overarching [Climate Emergency Action Plan](#) , with more specific opportunities and actions set out in other Council strategies and plans relevant to that particular service area. For example, the Strategic Property Asset Management Plan contains carbon management opportunities that relate to Council property, development and corporate estate.

4. Energy consumption

Energy consumption across the Council estate derives from:

- Energy consumption in buildings (this includes: local authority maintained schools, libraries, council offices, public toilets, the Bristol Bath Science Park. But it does not include academy schools and leisure centres);
- Electricity consumption in street lighting (including lighting for street furniture, signs, bollards, traffic signals, metrobus 'l points' etc.);
- Fuel use in council fleet vehicles - pool cars and Streetcare vehicles used for highways maintenance, litter bin collections, open spaces management etc (the household waste collection service is outsourced to Suez and so these waste vehicles are not included); and,
- Business mileage paid to staff and Members for business use of their own vehicles (this excludes commuter mileage).

Table C1 (Appendix C) shows a breakdown of the Council's total energy consumption. This has fallen year on year since monitoring began. **Energy consumption¹ in 2021/22 was 42,659 MWh which was 1% lower than in the previous year and 54% lower than in 2010/11.**

The key changes compared to the previous year are:

- **Energy consumption in our schools fell by 9%.** Five schools (Olveston, Blackhorse, Marshfield, Stanbridge and Beacon Rise) have had roof top solar PV added in 2021/22, totalling 143 kWp whilst eight schools have benefitted from our LED light replacement programme. Some of the energy reduction will also reflect a change to the school estate, with Chipping Sodbury converting to an Academy and being removed from the figures. Furthermore it is expected that post-covid operational changes, with schools re-opening properly- including initially with enhanced ventilation, could have had an impact on energy use, with schools at that time utilising more energy than would be expected. There continues to be a need to help schools to reduce energy consumption.

¹ Energy consumption is calculated in MWh and covers gas, oil and electricity use in schools and non-school buildings, plus electricity used for street lighting, and fuel used for fleet vehicles. It does not include business mileage as this is not calculated in MWh.

- There has been an overall **increase of 22% in energy consumption in non-school buildings**. The Badminton Road Solar array had to be shut down during the construction of the new Yate Park and Ride as the electrical cable feeding at the South Gloucester Council office had to be rerouted. The array only produced a fifth of the power generated the previous year and therefore the council needed to purchase additional electricity. Gas consumption also increased, likely in relation to the re-opening of buildings such as libraries, but with additional ventilation measures due to the Covid 19 pandemic, resulting in increased energy consumption for heating (particularly when compared to the year before when some buildings would have been fully or partially shut and therefore have had a much lower level of energy use than normal).
- The power used by our IT equipment and server room was 293,720 KWh, very similar to last year. This is incorporated into the overall buildings energy consumption figure for electricity. We will continue to monitor energy usage by IT going forward and review where we can achieve greater energy efficiency.
- A **5% reduction in electricity use in street lighting** and other street / highways infrastructure. This reduction is mainly a result of our ongoing street lighting LED replacement programme. The LED replacement programme will be completed in 2024/25, but after that, years 1, 2 and 3 of the programme will be revisited as technology has improved and further savings can be made.
- There has been a **5% decrease in fleet vehicle fuel use of all types** (which is the equivalent of 19,926 litres of fuel) over the previous year. The previous year saw a temporary increase in the fleet to allow for staff social distancing and for other functions such as PPE distribution during the Covid 19 pandemic so a decrease this year would be expected, however, the reduction is to a level lower than pre-pandemic years. The move to corporate electric vehicles will be part of this though it should be noted that variations occur year on year due to the weather and the need for gritting lorries to be used.
- **Business mileage has increased by 32% from last year**, this is to be expected with a reduction in Covid lockdown measures and therefore staff returning to work. Business mileage compared to the base year of 2009/10 is 78% less and business mileage remains lower than that of pre covid levels.

The above figures do not cover commuter mileage, but this is an area where the Council has significant influence and will continue to encourage staff to choose sustainable transport options, preferably active travel modes. The staff survey from 2022 shows a decrease in car use to get to work, mainly reflecting an increase in full time home working compared to pre-covid. The move to hybrid working should mean less overall commuter mileage, and associated greenhouse gas emissions, as there are less trips to the office from hybrid working staff. Our travel to work survey shows that in 2022 6% of staff have an electric or hybrid car, compared to 1% in 2021.

5. Greenhouse gas emissions

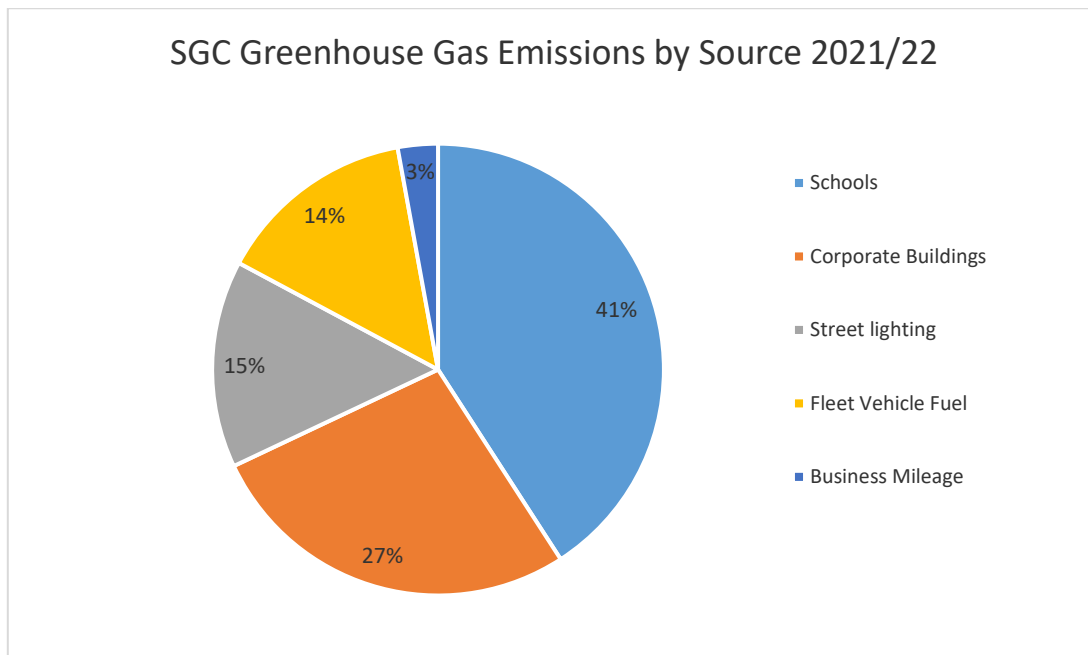
We convert fuel use to Greenhouse Gas Emissions using conversion factors published by the Government each year. Emissions from different fuel types vary over time, especially for electricity where the various forms of generation (coal, wind, gas, solar, etc) affect the emissions per unit of electricity generated. We therefore need to see a decreasing trend in both energy consumption and GHG emissions if we are to hit our GHG emissions targets.

Table C2 (Appendix C) sets out GHG emissions data for each year since the base year 2009/10. **Total GHG emissions in 2021/22 have decreased by 5.6 % since the previous year and by 73% since the base year (2009/10).**

However, it is important to remember that as the national electricity grid decarbonises (due to the move away nationally from Coal based power stations, and to an increase in renewable energy generation from primarily wind and solar) then this will also be reflected as a reduction in our greenhouse gas emissions too. In other words, if the Council's electricity consumption remained the same, then the greenhouse gas emissions would still reduce due to the progress being made to decarbonise the national grid.

Also, as we move forward to a carbon free future, we will need to continue to focus on minimising energy consumption because there will be more demand for electricity as we shift heating and transport over to electricity as a fuel source, and it will also save money too.

The following chart shows the GHG emissions from the Council estate and activities by source, the split per source is broadly the same as in the previous year.



Some key points are described below:

- Overall **total Greenhouse Gas emission have reduced by 5.6%**, with the energy used in Council buildings (including Council-run schools) accounting for **two-thirds of the Council's total emissions**.
- Emissions at schools reduced by 15% reflecting a reduction in both total energy use and in the type of fuel being used, with gas use reducing by 14% and oil by 22%. The significant increase in the cost of energy means schools have in some cases reassessed their heating fuel, changing from fossil fuels to biomass, significantly increasing the overall use of biomass in the school estate.
- Greenhouse gas emissions for non-school buildings are higher than expected as energy use is higher. As previously mentioned the Badminton Road Solar Array was offline for much of the year due to building work, and therefore the council needed to purchase more electricity. Grid electricity has a higher carbon factor than producing our own energy and this further impacts on the GHG figures.
- Emissions from street lighting and highways infrastructure (utilising electricity), continues to decrease having **fallen by 13% this year**. This reflects both a reduction in actual energy use and the decarbonisation of national grid electricity leading to a reduction in GHG emissions.

- Emissions from **business mileage have increased by 36% from last year** , this is expected with a reduction in Covid lockdown measures and therefore staff returning to work, but business mileage remains lower than that of pre covid levels.
- **There has been a 5% decrease in fleet emissions this year**, as highlighted previously reflecting the move to corporate EV's and noting there will be some variability between years due to weather conditions impacting fleet fuel use.

Carbon accounting, including Scope 3 emissions

We are constantly looking to improve the accuracy of our emissions data on council activities. We continue to look to improve our understanding of our Scope 3 emissions, the importance of which was reiterated in the 2021/22 '[Plan to 2030](#)' report. To enhance our knowledge the council commissioned consultants Sage to help us look at our procurement spend, as this can be used as a proxy to help understand our Scope 3 emissions, and the results from this should be available next year

We again took part in the [Carbon Disclosure Project](#) (CDP), and made our second submission of South Gloucestershire area – wide (not just Council-own) data in 2022. CDP runs the global environmental disclosure system and each year thousands of companies, cities, states and regions are supported by CDP to measure and manage their risks and opportunities on climate change and a wide range of sustainability issues. CDP have created a system over the last two decades that has resulted in unparalleled engagement on environmental issues worldwide.

6. Renewable energy generation

Generating energy from renewable and low carbon sources is a positive and practical way that the Council can help to tackle climate change through the use of its own estate and activities. By increasing renewable energy generation we are supporting the transition of South Gloucestershire to a low carbon society and directly contributing to the decarbonisation of the national grid.

Electricity

The Council generates renewable energy from a range of sources. The prime source of renewable electricity generation are the two ground mounted solar systems (at Badminton Road, and Moorend). The Badminton Road scheme feeds renewable electricity directly into the Badminton Road office building, whilst the Moorend Solar farm generates electricity that is fed into the National Grid. In total, ground mounted solar PV schemes from the Council estate have generated **783,241 KWh** this year (see Table C3 in Appendix C), less than the previous year due to the Badminton Road Scheme being offline for part of the year. An additional 3,170 KWh has been generated from the wind turbine at Marshfield Primary School.

Since the previous reporting year there have been roof mounted solar PV installations, totalling 143kWp, completed at five primary schools. Building mounted solar PV supplies renewable electricity directly to the buildings, which means the energy consumption recorded is reduced.

The installations that feed directly into Council buildings are taken into account in the energy consumption figures for those buildings – i.e. they help to reduce the amount of energy purchased from the national grid.

The Council's standalone ground mounted solar scheme at Moorend supplies electricity directly into the national grid. Last year it generated 733 MWh of electricity. Continuing to increase the amount of renewable energy generated by the Council, including via installing solar on council owned buildings, is an action in the [Year 4 Climate Emergency Action Plan](#).

Heat

The Council has also generated renewable heat energy this year from Biomass sources, totalling **1,002,650 KWh**, a **considerable increase on last year**. Our biomass fuel suppliers are registered on the Government's Biomass Suppliers List available at: <https://biomass-suppliers-list.service.gov.uk/> and therefore have to meet the sustainability criteria set out by the Renewable Heat Incentive (RHI) scheme. There are a total of six biomass boilers installed across the Council estate (in one office and five schools), as well as two ground source heat pumps, two air source heat pumps and four solar thermal arrays. The Bristol and Bath Science Park also has biomass and solar pv installed. Two mini combined heat and power units are also installed, which are generating low carbon heat and electricity (though this is not considered to be renewable and is therefore not counted in Table C3 of Appendix C, which sets out renewable energy generation for this year).

7. Offsetting residual emissions

The priority of the Council is to minimise energy consumption to reach as close to zero emissions as possible. However, we recognise that there will likely be some residual emissions which require offsetting in order for us to be a carbon neutral council. In order to encourage others (residents, visitors, businesses, communities etc) to do this as well, we will develop opportunities for investment.

In 2021/22 we commissioned the University of the West of England to undertake a piece of work, '[Plan to 2030](#)', which looks at the likely remaining carbon emissions in our area by 2030 when both the maximum possible national and local interventions have been applied. This can be used as a starting point to consider our offsetting and we will work collaboratively with partners such as the University of West of England and other local authorities to share knowledge and ideas over the coming year. We intend to make reference to high level data from carbon offsetting projects in future reports, to help us evaluate progress against our 2030 target.

An immediate action that the Council took following its Climate Emergency declaration was to switch the purchased electricity and gas used in corporate buildings to a green energy tariff. Therefore, from April 2020, all the energy purchased for our corporate buildings, and also some schools, was renewable. We have been encouraging our remaining schools to switch to a green energy tariff and there has been a **significant increase in schools getting their energy from a green tariff increasing from 18% of school electricity being from a green tariff in 20/21 to 81% in 21/22**. While this is useful mitigation there is some criticism that buying certified green energy doesn't lead to an increase in renewable supply and consequently is a questionable approach and should not be used as a means to achieve carbon neutrality in place of actions to reduce demand and self-generate.

The table below indicates the current situation regarding 'Green' energy tariffs:

Table 1: Amount of Energy purchased on a 'Green' Tariff in 2021

	kWh on a green tariff	% of energy on a 'green tariff'
Schools (not including Academies) Gas	161,177	1%
Schools (not including Academies) Electricity	1,101,939	18%

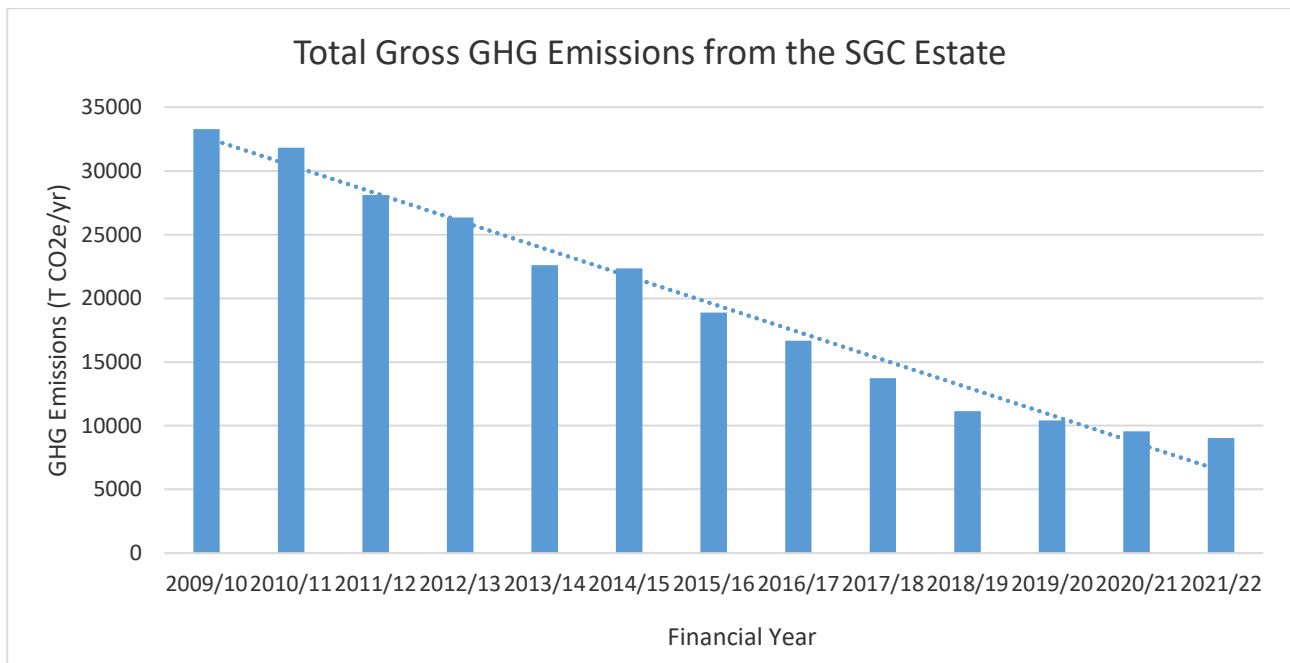
Non Schools Gas	5,488,619	99%
Non Schools Electricity	4,501,050	100%

Table 2: Amount of Energy purchased on a 'Green' Tariff in 2022

	kWh on a green tariff	% of energy on a 'green tariff'
Schools (not including Academies) Gas	665,740	6%
Schools (not including Academies) Electricity	4,700,000	81%
Non Schools Gas	6,313,038	100%
Non Schools Electricity	5,643,538	100%

8. Conclusion

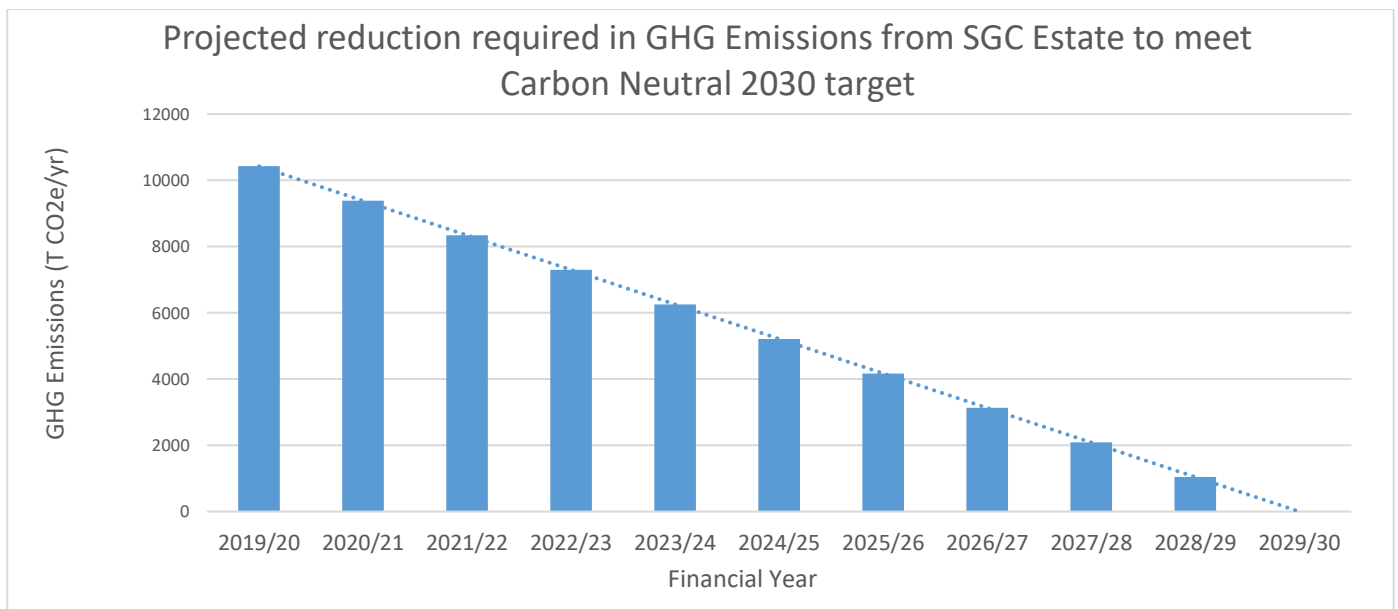
The Council has a target to **reduce its GHG emissions to 'net zero' by 2030**, in line with the Climate Emergency declaration. To complement this aim, the Council also needs to minimise energy consumption as far as possible. There has been an absolute reduction in GHG emissions of **5.6%** since last year, which equates to **531 tonnes** of CO₂e.



Total GHG emissions are now **73% lower** than in the baseline year, however, this has been skewed somewhat by the conversion of schools to academies (which have not been included for several years in the Council's emissions data), but on the other hand some new properties have been brought into the Council estate e.g. the Bristol & Bath Science Park Innovation Hub.

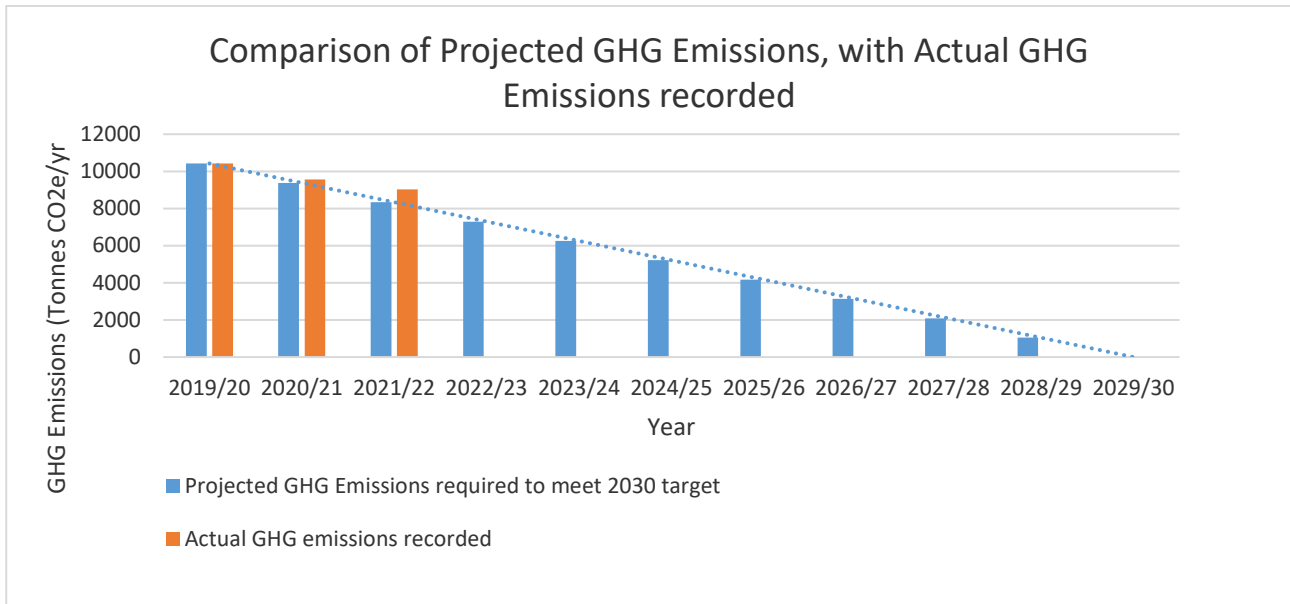
Overall, the data recorded still demonstrates that the Council has made good progress in its efforts to reduce energy consumption and greenhouse gas emissions in the past, but that the progress is now slowing down. To some degree this can be expected, as the easier measures have now been undertaken and we are moving on to more difficult tasks. However, this means we must increase our efforts to minimise emissions from all sources if we are to reach the 2030 target of a carbon neutral Council.

The following chart shows a linear trajectory to zero GHG emissions in 2030. In 2019/20 we calculated that a saving of 1,042 tonnes of CO₂e per year each year was required in order for the Council to be on track to achieve the carbon neutral target by the end March 2030. This means all scope 1 and scope 2 emissions, plus some scope 3 emissions (business mileage and transmission/distribution of electricity).



The data presented in this report (and in the chart below) shows that we have missed the 1,042 tonnes of CO₂e target this year, as we also did last year. The emission reduction we

have achieved is still positive, but we need to continue to focus on the work that we can do, including a strong focus on those areas of our largest greenhouse house gas emissions.



By analysing our data, we can identify where we need to focus our efforts to ensure we are on track to achieving our 2030 target. For example -

- **The energy used in Council buildings (including SGC-run schools) continues to account for two-thirds of the Council’s total GHG emissions.**
 - The need to rapidly accelerate action on reducing energy consumption in existing schools and Council buildings through retrofitting and solar PV schemes, and phasing out fossil fuels as a heating source, continues to be a high priority. The public sector decarbonisation fund has provided opportunities to do this and we need to continue to look for further opportunities.
 - We need to ensure we are not adding to the problem through our new build proposals. Working with Government we must ensure budgets are in place to at least reflect the national target of Net Zero by 2050 so that new schools (and any other Council buildings) are designed and built to very high energy efficiency standards (such as Passivhaus), have renewable sources of heating and are resilient to a changing climate.

- **With streetlighting continuing to reduce, fleet is now the second highest source of council Greenhouse Gas Emissions.** We need to accelerate the ‘greening’ of the fleet as the market for larger vehicles develops and invest in new technologies and more efficient ways of working.

In terms of the Council’s own emissions, we recognise that there will be a certain level of residual emissions that we won’t be able to eliminate, and we also recognise that we will be reliant as a society in generating sufficient renewable energy to meet our needs.

Therefore, action on carbon offsetting projects is a priority and also increasing renewable energy generation capacity.

We will continue to work with both the University of West of England and other councils over the course of the next year to develop our thoughts on offsetting. The completed [Renewable Energy Resource Assessment \(RERAS\)](#) study provides an opportunity to look at our renewable energy generation capacity.

We continue to recognise that more work needs to be done to define, track and reduce the Council’s additional Scope 3 emissions. We will add the outputs from the work that has been commissioned by Sage, to use our procurement spend to assist with further understanding of our Scope 3 emissions, to our existing baseline data ([South Glos Carbon Baseline Report 2019 – Regen](#)) to continue to develop our work in this area.

In summary, this report demonstrates that the Council is leading by example to mitigate and adapt to climate change, and action needs to continue to be accelerated so that we meet our 2030 target. We are committed to revisiting our Climate Emergency response each year and implementing the actions identified in the overarching [Climate Emergency Action Plan](#) and the more specific strategies and plans relating to specific Council service areas and activities in order to achieve further reductions in energy consumption and carbon emissions, and to increase renewable energy generation and carbon offsetting.

Appendix A: Technical background information

Greenhouse Gas Emissions - Definitions of Scope:

These definitions are set out by the Government ([source](#)) as follows:

<p>Scope 1 (direct) emissions are those from activities owned or controlled by your organisation. Examples of Scope 1 emissions include emissions from combustion in owned or controlled boilers, furnaces and vehicles; and emissions from chemical production in owned or controlled process equipment.</p>
<p>Scope 2 (energy indirect) emissions are those released into the atmosphere that are associated with your consumption of purchased electricity, heat, steam and cooling. These indirect emissions are a consequence of your organisation’s energy use, but occur at sources you do not own or control.</p>
<p>Scope 3 (other indirect) emissions are a consequence of your actions that occur at sources you do not own or control and are not classed as Scope 2 emissions. Examples of Scope 3 emissions are business travel by means not owned or controlled by your organisation, waste disposal, materials or fuels your organisation purchases. Deciding if emissions from a vehicle, office or factory that you use are Scope 1 or Scope 3 may depend on how you define your operational boundaries. Scope 3 emissions can be from activities that are upstream or downstream of your organisation. More information on Scope 3 and other aspects of reporting can be found in the Greenhouse Gas Protocol Corporate Standard.</p>

The Council’s Emissions:

We have monitored annually, since 2009, all the Council’s Scope 1 and Scope 2 emissions. Some Scope 3 emissions have also been monitored and included in the reporting figures.

The sources of emissions monitored is set out according to ‘scope’ below:

Table A1: Scope 1: Direct Emissions

Sources of Emissions	Detail
Fuel used in School Buildings (SGC only, not academies)	KWh gas Schools KWh oil Schools KWh biomass (wood pellets) Schools
Fuel used in SGC buildings (corporate buildings, Bristol Bath Science Park and others e.g. libraries, toilets etc.)	KWh gas Non Schools
Fuel use in SGC Fleet Vehicles (Streetcare) this consists of two types: Bulk Storage Fuel – used to fuel fleet vehicles on site (Broad lane depot). Data is total amount purchased in financial year, in litres. Fuel card system – amount of fuel used in fleet vehicles that fill up off site using fuel cards. Total amount in litres for the financial year.	Litres Fleet Vehicles Petrol Litres Fleet Vehicles Diesel Litres Fleet Vehicles Gas Oil

Note: this does not include vehicles operated by Suez (Waste Contractors)	
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Table A2: Scope 2: Energy indirect emissions

Source of emissions	Detail
Electricity consumption in School Buildings	KWh electricity Schools (SGC only, not academies)
Electricity consumption in SGC buildings	KWh electricity Non Schools (this means corporate buildings, and other Council-owned and run buildings e.g. Bristol Bath Science Park, libraries, toilets etc.)
Electricity consumption in Street lighting, street furniture and highways structures.	KWh Electricity used (Note: Data includes metered and unmetered supplies for street lights, illuminated signs and bollards as well as traffic signals)

Table A3: Scope 3: Other indirect emissions

Source of emissions	Detail
Business Mileage	Staff / Members / Schools business mileage – totals (not split by type of fuel used in the car. Does not include use of pool cars, that is captured in fleet vehicles information)
Transmission and Distribution Losses associated with purchased electricity	The total electricity consumed (KWh) in Buildings and Street lighting is multiplied by the Transmission and Distribution conversion factor (see below) to get the emissions impact (kgCO ₂ e) of the losses associated with the electricity purchased.

Conversion Factors:

Conversion factors are updated annually and published by the Government. For consistency, we use the conversion factors that are embedded in the LGA/LP GHG accounting tool.

This enables us to convert energy consumption (in the form of KWh for electricity and gas, Litres for diesel, petrol; Miles for business mileage etc) into the equivalent kg of CO₂ (kgCO₂e) to enable comparisons to be made.

Appendix B: Scope 3 Emissions

There are a range of additional potential sources of Scope 3 emissions that the Council could have influence over that are currently not included in the reporting figures. Often they are difficult to quantify but we are already taking action to minimise these emissions too, in line with our Climate Emergency declaration.

The following potential sources of Scope 3 emissions have been identified so far, and we have taken some steps to reduce these emissions.

We will share knowledge and data with the carbon accounting team from the Local Government Association and Local Partnerships who are also doing further research into Scope 3 emissions.

Table B1 : Scope 3 – other indirect Council emissions- Potential sources of Emissions to be explored further

Potential sources of Scope 3 Emissions to be explored further	Detail and Actions
Commuter mileage	Commuting to and from work in fossil fuel based vehicles by staff. Information is collected through the Travel to Work survey carried out annually. Also, staff are encouraged through various travel campaigns e.g. Access West to walk, cycle or use public transport. The salary sacrifice Electric Vehicle leasing scheme has been launched to staff in 2021.
Waste services (currently out sourced)	The Waste services are operated by Suez on behalf of the Council. Work is already being done to undertake a whole system review of emissions in relation to waste and how to achieve zero carbon.
Investments and Pensions	The finance team have commissioned advice to implement a green finance strategy to ensure the Council investments are aligned with our climate emergency aims. The Avon Pension Fund is committed to being a net zero investor by 2050 or earlier.
Procurement activity	This covers a wide range of goods and services. The Procurement strategy has been revised to incorporate the assessment of carbon impacts in the decision-making process. A series of meetings is being undertaken between procurement leads and commissioners to help commissioners incorporate climate emergency requirements into their contracts with suppliers and providers.

Facilities Management	Integra provide services, for example, the staff restaurant. Some of the related emissions will be included already in the Building data e.g. energy use. However, there may be other sources of emissions that need to be addressed.
Leisure services	The Circadian Trust operates the leisure centres in South Glos. There may be opportunities for the Council to work collaboratively with the Circadian Trust to help reduce energy consumption and carbon emissions.
Academies (schools not run by SGC)	There are cases where the Council leases buildings and land to academies. There may be potential to influence action taken to reduce emissions by working collaboratively with the academy chains.
Highways Operations	The delivery of highways schemes has implications for emissions from the construction process, materials used, and the maintenance practices required. The Council has developed a carbon assessment tool, with consultants – Metis - for assessing these whole life carbon impacts and will continue to explore how to use the tool to make decisions that minimise carbon impacts when delivering highways operations.

Appendix C: Data tables

Table C1: Total Energy consumption across the Council Estate

Energy Consumption (MWh/year)	2010/11- Base Year	2020/21- Last Year	2021/22- This Year	% Change since base year	% Change since last year
School Buildings	52,272	20,672	18,859	-64%	-9%
MWh gas Schools	32342	13,626	11,662	-64%	-14%
MWh oil Schools	3,906	925	725	-81%	-22%
MWh electricity Schools	16025	6,091	5,796	-64%	-5%
MWh Wood Pellets Biomass Schools	-	30	617		1957%
MWh Wood Chip Biomass Schools	-	0	59		
Non-School Buildings	18,288	10,082	12,284	-33%	22%
MWh gas Non Schools	10,403	5,536	6,313	-39%	14%
MWh oil Non Schools	932	0	0	-100%	
MWh electricity Non Schools	6,952	4,501	5,644	-19%	25%
MWh Wood Pellets Biomass	-	0	0		
MWh Wood Chip Biomass	-	45	327		627%
Street Lighting	14,609	6,382	6,084	-58%	-5%
Fleet Vehicle Fuels	8,300	5,739	5,432	-35%	-5%
Total (MWh/year)	93,469	42,875	42,659	-54%	-1%
Business Mileage (miles per year)	2,890,460	667,361	883,745	-69%	32%

Table C2: Greenhouse Gas (GHG) emissions across the Council estate (tonnes of carbon dioxide equivalent (tCO2e))

Emissions (tonnes of CO2e)	2009/10-Base Year	Last Year 2020/21	This Year 2021/22	Change in Tonnes of CO2e since last year	% Change since base year	% Change since last year
School Buildings total	15,261	4155	3,546	-609	-77%	-15%
Gas in Schools	6,073	2507	2,136	-371	-65%	-15%
Heating Oil in Schools	1,694	228	179	-49	-89%	-22%
Electricity in Schools	7,494	1419	1,231	-188	-84%	-13%
Wood Pellets Biomass in Schools		0.45	9	9		1974%
Wood Chip Biomass Schools		0	1	1		
Non-School buildings total	6,018	2296	2,379	3,721	0%	4%
Gas in all non-school buildings	2,177	1019	1,156	137	-47%	13%
Heating Oil in all non-school buildings	225	228	0		-100%	-100%
Electricity in all non-school buildings	3,615	1049	1,198	149	-67%	14%
Wood Pellets Biomass in all non-school buildings		0	0			
Wood Chip Biomass in all non-school buildings		0	5			
Street Lighting	7,296	1487	1,292	-195	-82%	-13%
Fleet vehicle fuel	2,113	1328	1,245	-83	-41%	-6%
Business Mileage Paid	1,140	184	250	66	-78%	36%
Electricity Transmission & Distribution losses	1,457	339	329	-10	-77%	-3%
Total GHG Emissions (t CO2e/yr)	33,284	9562	9031	-531	-73%	-5.6%

Table C3: Renewable Energy Generation from the Council Estate for 1st April 2021 to 31st March 2022 in kWh

Type of Renewable Energy Installation	2021/2022
Total from SGC Ground mounted Solar PV schemes	783,241 kWh
Badminton Road solar array	50,696 kWh
Moorend Solar farm	732,545 kWh
Wind Turbine	3,170 kWh
Biomass	326,590 kWh
TOTAL GENERATED	1,249,242 kWh