

South Gloucestershire Climate Change Strategy 2018 - 2023

Overview

Our vision

A climate resilient South Gloucestershire with a thriving low carbon economy and lifestyle reflected in our travel, homes, businesses and communities.

The South Gloucestershire Strategic Partnership and the council develop and steer this strategy. The community of South Gloucestershire is critical to its successful delivery.

How are we doing so far?

- We are on track to achieving our carbon emissions reductions as set in our 2013-2015 strategy.
- Local renewable energy generation provides 3.6% of current local energy demand
- We have successfully implemented some key adaptation measures in our 2013-2015 adaptation strategy and will build on these responding to new evidence on UK climate projections.

Our targets

Carbon emissions: To reduce our carbon emissions by: **At least 80% by 2050**

The targets set represent South Gloucestershire's share of UK emissions. These are the reductions required for the UK to achieve its targets in the Climate Act 2008. We are not proposing to increase the target due to planned local growth. We will also work with West of England partners to deliver our targets in the Joint Spatial Plan. To reduce absolute CO₂ emissions by 50% by 2035 from a 2014 baseline.

Renewable energy generation: Locally based renewables providing 6% of local energy demand by 2028 leading to a target of 25% by 2036. The council has a key role in enabling the development of renewables.

Adaptation Plan: We are including our adaptation plan within this strategy, to ensure that reducing emissions and preparing for climate change is given equal importance. We aim to undertake critical adaptation measures identified with partners to ensure the resilience of people, homes and businesses. We will respond to new data emerging in the UK Climate Projections 2018 (UKCP18).

Our Priorities

- Increase resilience to climate change - a safe and healthy place to live and do business.
- Enable reductions in greenhouse gas emissions from energy consumption in homes, transport and businesses in South Gloucestershire.
- Enable the development of secure supplies of renewable and low carbon energy by individuals, community groups and industry
- Support new development to minimise additional associated greenhouse gas emissions.
- Develop the low carbon economy

How are we planning to deliver these priorities and reach our targets?

We will draw up 5 Action Plans to address these key priorities with the South Gloucestershire Strategic Partnership and progress towards them will be measured annually.

How will we measure our success?

- Carbon emissions will reduce in all sectors – reaching or exceeding our targets.
- Renewable and low carbon energy sources will increase reaching or exceeding our targets.
- Critical adaptation measures will be implemented.
- New planned development will have minimal environmental impact.
- The low carbon economy is thriving.

Our Commitment

“We need to manage the risks posed by climate change and reduce our currently high greenhouse gas emissions. We are committed to promoting and enabling a shift to more sustainable and low carbon travel, homes, businesses and communities.”

South Gloucestershire Sustainable Community Strategy 2016

Our Climate Change Strategy aims to set out our priorities and targets for reducing greenhouse gas emissions in South Gloucestershire that contribute to national and global efforts as well as to limit the dangerous effects of climate change, and to manage the risks posed by a changing climate.

Reducing our greenhouse gas emissions and improving our climate resilience presents both great challenges and great opportunities. As energy prices rise and become a significant factor in decision making, the efficiency improvements we make in the coming years will pay dividends. They will make our businesses more competitive and our communities fairer and more resilient, as well as improving our quality of life. The scale of new development being planned across South Gloucestershire could generate significant additional CO₂ emissions, and it will be necessary to plan and deliver growth in a way that minimises new energy demand and contributes to climate resilient; low carbon living, travel and energy infrastructure. The transition to a low carbon place presents significant economic opportunities and it will be important to take steps to capture economic benefits locally.

We recognise the importance of our leadership in supporting and enabling the development and delivery of local solutions to help address these global problems. This strategy sets out our commitment and ambition for delivering the transition to a low carbon and climate resilient, South Gloucestershire.

This Strategy is a refresh of the Low Carbon Plan (formerly Part 1 of the Climate Change Strategy) published in 2013 and the Climate Adaptation Plan (formerly Part 2 of the Climate Change Strategy) published in 2015. We are taking the opportunity to bring the documents together into one succinct high level strategy document. New Action Plans summarising what we are doing to deliver our priorities and targets will be prepared and published separately on our website.

Signatures



CLlr Toby Savage, Leader of the Council

South Gloucestershire Council

South Gloucestershire Strategic Partnership

Introduction and Policy Context

Our Changing Climate

The global climate is changing, with greenhouse gas emissions from human activity the dominant cause. The global increase in temperature of 0.85°C since 1880 is mirrored in the UK climate with higher temperatures and evidence of more extreme weather events. Sea levels globally and around the UK have risen by 15-20 centimetres since 1900 with significant contributions now coming from the melting ice sheets over Greenland and Antarctica¹. In the UK, average sea levels are currently rising by 3 millimetres per year. Plant and animal species are feeling the onset of spring and summer, on average, 11 days earlier than in the 1970s. Winter rainfall is arriving in more intense bursts².

Our climate is being and will be influenced by a combination of committed warming caused by past emissions, future emissions, and natural climate variability. Global temperatures will continue to rise over the 21st century. *“It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The ocean will continue to warm and acidify, and global mean sea level to rise... Continued emissions of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems.”*³

Both extreme weather events and long-term gradual climate change will have wide-ranging implications. In the UK we are expecting increasingly hot dry summers and warm wet winters, alongside more extreme weather events with floods, storms and heat waves of greater severity and frequency, and sea level rise.

Changes in the climate elsewhere in the world will also impact upon the UK. There is a significant risk of declining crop yields globally, and rising sea levels will mean that the homes of many millions of people around the world (including the UK) are likely to be affected by coastal flooding. The consequences of impacts such as these will be transmitted through global trade, resource flows, migration and political networks.

Climate Mitigation - reducing greenhouse gas emissions to limit the extent of climate change

Climate Adaptation - increasing preparedness for and resilience to the changing climate are complementary strategies to address the pressing global issue of climate change.

Climate Resilience - this is the capacity for a socio-ecological system to: (1) absorb stresses and maintain function in the face of external stresses imposed upon it by climate change and (2) adapt, reorganize, and evolve to improve the sustainability of the system, leaving it better prepared for future impacts

¹ <https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Synthesis-Report-Committee-on-Climate-Change.pdf>

² <https://www.theccc.org.uk/tackling-climate-change/the-science-of-climate-change/how-a-changing-climate-affects-us/>

³ Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Synthesis Report Pg:10
http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf

International Policy

Paris Agreement

The central aim of the Paris Agreement (negotiated at the 21st Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC) in Paris in December 2015⁵, is to strengthen the global response to the threat of climate change by keeping global temperature rise this century well below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5°C. The Agreement sets a goal for net zero global emissions in the second half of this century. It also aims to strengthen the ability of countries to adapt to and deal with the impacts of climate change. The Paris Agreement was ratified by the UK in November 2016. Global emissions would need to peak soon and decline rapidly for the Paris Agreement goals to be feasible.

UN Sustainable Development Goals

On 1 January 2016, the 17 Sustainable Development Goals (SDGs)⁶ of the 2030 Agenda for Sustainable Development — adopted by world leaders in September 2015 at an historic UN Summit — officially came into force. These Goals universally apply to all, and all countries are committed to mobilizing efforts to end all forms of poverty, fight inequalities and tackle climate change. All of the SDGs have targets that are directly or indirectly related to the daily work of local and regional governments. Local governments are catalysts of change, the level of government best-placed to link global goals with local communities.

National Policy

The Climate Change Act 2008

The UK Climate Change Act 2008⁷ set a target for the UK to reduce emissions by at least 80% by 2050 compared to 1990 levels. This level of ambition was set to be consistent with the UK playing its part in a global effort to limit global temperature rise to 2°C above pre-industrial levels⁸. The Climate Change Act introduced a system of ‘carbon budgets’ which set legally binding limits on the amount of emissions that may be produced in the UK during successive five-year periods, beginning in 2008. The first five carbon

⁵ <https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>

⁶ <https://www.un.org/sustainabledevelopment/development-agenda/>

⁷ <https://www.legislation.gov.uk/ukpga/2008/27/contents>

⁸. It is therefore less ambitious in its aims to limit climate change than the Paris Agreement which includes a commitment to pursue efforts to limit the temperature increase even further to 1.5°C. However, the Committee on Climate Change has recommended that it is not yet appropriate to set new UK targets. “The priority for now should be robust near-term action to close the gap to existing targets and open up options to reach net zero emissions”

<https://www.theccc.org.uk/wp-content/uploads/2016/10/UK-climate-action-following-the-Paris-Agreement-Committee-on-Climate-Change-October-2016.pdf>

budgets, leading to 2032, have been set in law (in June 2016 the Government adopted the 5th carbon budget).

Budget	Carbon budget level	% Reduction below base year (1990) 2073.3 Kt CO ₂ e
1st Carbon budget (2008-12)	3,018 Mt CO ₂ e	23%
2nd Carbon budget (2013-17)	2,782 Mt CO ₂ e	29%
3rd Carbon budget (2018-22)	2,544 Mt CO ₂ e	35% by 2020
4th Carbon budget (2023-27)	1,950 Mt CO ₂ e	50% by 2025
5th Carbon budget (2028-32)	1,725 Mt CO ₂ e	57% by 2032

The Committee on Climate Change (CCC)⁹ makes recommendations to Government on the level of carbon budgets as well as the best and lowest-cost path to meeting them, and monitors progress with delivery. In its 2018 Annual Progress Report to Parliament, the CCC reports that UK emissions are 43% below 1990 levels:

UK emissions continue to fall and we've seen progress wherever policymakers have been bold enough to make strategic commitments. In the last five years, emissions outside of power and waste have plateaued. My Committee has chosen this moment to give a strong message to Government: Act now, climate change will not pause while we consider our options. And act in the consumer interest: pursue the low-cost, low-risk options, like onshore wind, and enforce the standards that will reduce emissions from vehicles and buildings..."¹⁰

In October 2017 the Department for Business, Energy and Industrial Strategy (BEIS) has published the Clean Growth Strategy¹¹ which clarifies the government's preferred route to decarbonising the economy and stimulating low carbon growth. The plan details funding to achieve these aims, up to and including, the fifth carbon budget, and this plan will be taken into account in the development of our Climate Change Strategy Action Plans. In this strategy the government has explained that it would like the public sector to be leaders in reducing carbon emissions. The public sector also has a key role to play in demonstrating best practice, promoting transparency over emissions reporting and catalysing markets in energy efficiency by implementing measures at scale.

The Committee on Climate Change has broadly welcomed the Clean Growth Plan.

New policies included in the strategy will begin to close the significant gap between existing policies and what is required to meet the carbon budgets. We welcome the new thinking and ambition. We also recognise that the Government has identified areas where it will aim to do more and acknowledges there is work to be done to develop effective new policies.

⁹. The Committee on Climate Change is an independent body established by the Climate Change Act 2008 to advise the UK government on reducing greenhouse gas emissions and climate adaptation

¹⁰. <https://www.theccc.org.uk/wp-content/uploads/2018/06/CCC-2018-Progress-Report-to-Parliament.pdf> Pg:5

¹¹. <https://www.gov.uk/government/publications/clean-growth-strategy>

This work will need to progress quickly in order to meet the legal obligations in the Climate Change Act 2008 and to realise the Governments' ambition to build a world-leading low-carbon economy. To meet the UK's 2050 target, emissions from the buildings and activities of the public sector will need to be near zero. As with homes and commercial property, this means improving energy efficiency and energy management, and decarbonising the heating and cooling of buildings as far as possible. Our pathway to 2032 sees emissions from the public sector falling by around 50 percent compared to today.¹²

In South Gloucestershire, we will continue to build upon our action in the electricity generation sector but also concentrate our efforts and future action on tackling emissions from heating and transport.

UK Climate Change Risk and National Adaptation Programme

The Climate Change Act 2008 also sets a framework for action on climate adaptation. The Act requires:

- A UK-wide climate change risk assessment (CCRA) to be undertaken every five years;
- A national adaptation programme (NAP) to be put in place and reviewed every five years, setting out the Government's objectives, proposals and policies responding to the risks in the CCRA;
- The Adaptation Sub-Committee of the Committee on Climate Change advise on the preparation of the UK CCRA and report to Parliament on Government's progress with the NAP.

The second UK CCRA was published in January 2017¹³ and sets out six priority risk areas:

- Large increases in flood risk;
- Exposure to high temperatures and heatwaves;
- Shortages in water;
- Substantial risks to UK wildlife and natural ecosystems;
- Risks to domestic and international food production and trade;
- Risks from new and emerging pests and diseases.

Detailed responses and actions will form the subject of the next National Adaptation Programme 2018.

Local Government is identified in the first National Adaptation Plan (2013) as having a central role to play in *"leading and supporting local places to become more resilient to a range of future risks and to be prepared for the opportunities from a changing climate"*. In particular to:

- *build resilience into decisions on buildings, roads, businesses, parks and other public spaces*
- *build resilience into key services such as social care, emergency planning and public health*
- *make the best use of land, assets, investments and maintenance spending to manage risk better*
- *plan for the long term by reflecting climate risks and sustainable development in Local Plans*
- *increase organisational resilience to extreme weather building climate change risks into corporate risk registers*
- *support retrofitting, green-building and the design and management of green spaces*
- *encourage local businesses to be climate ready to ensure they are resilient and competitive*

For South Gloucestershire, our Action Plans will build upon these themes and take account of the emerging National Adaptation Plan 2018¹⁴ and the 25 year Environment Plan¹⁵.

12. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf Pg:115

13 CCRA - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/584281/uk-climate-change-risk-assess-2017.pdf

14. NAP - <https://www.gov.uk/government/publications/climate-change-second-national-adaptation-programme-2018-to-2023>

15 A Green Future: Our 25 year plan to improve the environment - <https://www.gov.uk/government/publications/25-year-environment-plan>

Renewable Energy

The EU Renewable Energy Directive (RED)¹⁵ requires the UK to generate 15 per cent of its energy (not just electricity but also energy used in heating and transport) from renewable sources by 2020. The overall obligation includes three sub-targets: 30% in electricity, 12% in heat and 10% in transport.

In 2017, 10.2 % of total energy consumption came from renewable sources; up from 9.2 % in 2016. Renewable electricity represented 27.9 % of total generation; renewable heat 7.7% of overall heat; and renewables in transport, 4.6%.

The EU, which included the UK, agreed to a more ambitious although non-binding new renewable energy target of at least 27% of total energy consumption in the EU as a whole by 2030 as part of the EU's energy and climate goals for 2030. ¹⁶ This has since that date been increased to a target of 32% by 2030.

Whether the targets proposed will apply to the UK after it leaves the EU will depend on the exit deal reached by London and Brussels. Whilst Brexit may have an impact on the UK being anchored to the targets set in the EU Renewable Energy Directive, the government has expressed a renewed commitment to accelerating towards a low carbon economy as part of the Clean Growth Plan (November 2017). We remain committed to setting renewable energy generation targets, as it is an important driver to stimulate change and this Climate Change Strategy will include an updated target for renewables.

As stated in the National Planning Policy Framework (July 2018)¹⁷ “The planning system should support the transition to a low carbon future in a changing climate;and support renewable and low carbon energy and associated infrastructure”

16.https://publications.parliament.uk/pa/cm201617/cmselect/cmenergy/173/17303.htm?utm_source=173&utm_medium=sbullet&utm_campaign=modulereports16.https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729371/Ch6.pdf pg 155

17.https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728643/Revised_NPPF_2018.pdf

Local Context

Introduction

South Gloucestershire is in the West of England between Gloucestershire and Bristol, the Severn Estuary and the Cotswolds. South Gloucestershire is a mix of long-established urban communities, market towns, small villages, extensive rural landscapes and substantial new development. Around 277,600 people live in South Gloucestershire (mid-2016 ONS data) and there are around 115,160 homes (2016 Dwelling Stock data, DCLG). Provision is being made to accommodate approximately 32,500 additional homes by 2036¹⁸ along with commercial and industrial development. The resulting pressure on infrastructure and increases in carbon emissions present significant challenges but also bring opportunities for innovative solutions.

Most of the energy we use is produced from the burning of fossil fuels which emit greenhouse gases that contribute to climate change. Carbon Dioxide (CO₂) accounts for the greatest proportion of these gases. CO₂ is not the only greenhouse gas but it accounts for about 83% of greenhouse gas emissions in South Gloucestershire. The other greenhouse gases include water vapour, methane, nitrous oxide, ozone, CFCs and HCFCs. The focus of the strategy is on CO₂ emissions reductions because that is the gas that the council has the greatest scope for influence upon. Local emissions data includes CO₂ only, so we will be using the CO₂ data as our proxy for reporting total greenhouse gas emissions.

Local Emissions

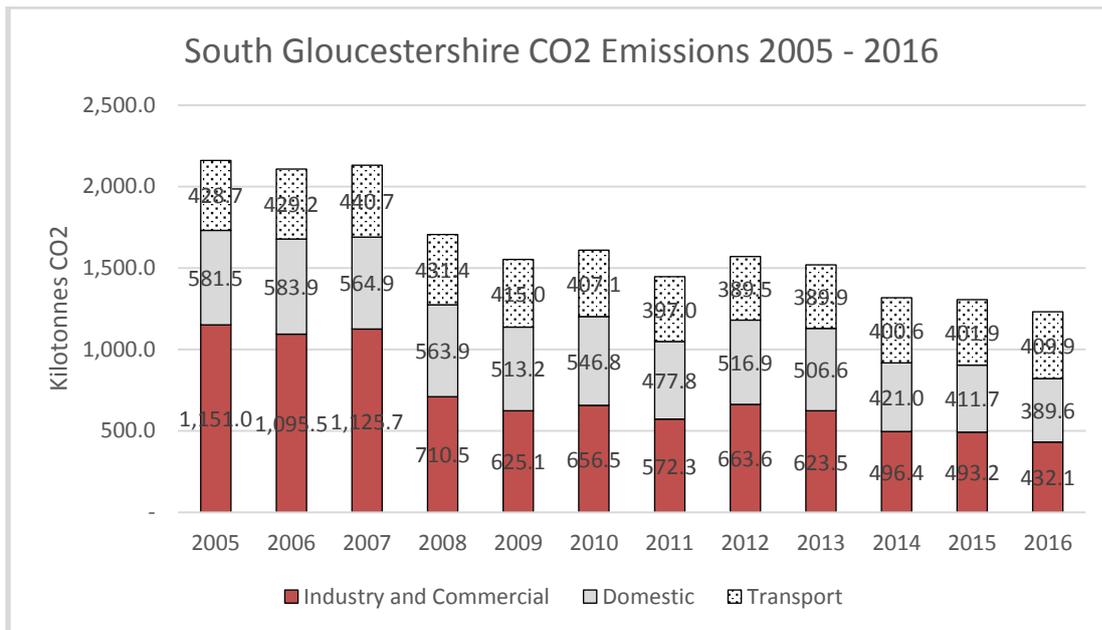
Each year the Department of Business, Energy and Industrial Strategy (BEIS) provide a breakdown of CO₂ emissions by local authority area¹⁹. Annual emissions are influenced by factors such as weather conditions, the economy, and new development as well as national and local policies.

In 2016 (the most recently available data), emissions totalled 1,231.6 kt which is 41% lower than in 1990. The target for 2020 has therefore been exceeded and progress towards the 2025 target of reducing Co2 emissions by 50% on 1990 levels is being made.

There is a 15 month delay in calculating emissions this is due to the complexity in collecting and processing data on Greenhouse Gas producing activities across the UK. The emissions for South Gloucestershire are equal to 4.4 tonnes for each resident, 35% of emissions came from industry and commercial sources, 32% from domestic sources, and 33% from road transport (excluding motorways). The graph below shows changes in overall and sectoral emissions from 2005 – 2016.

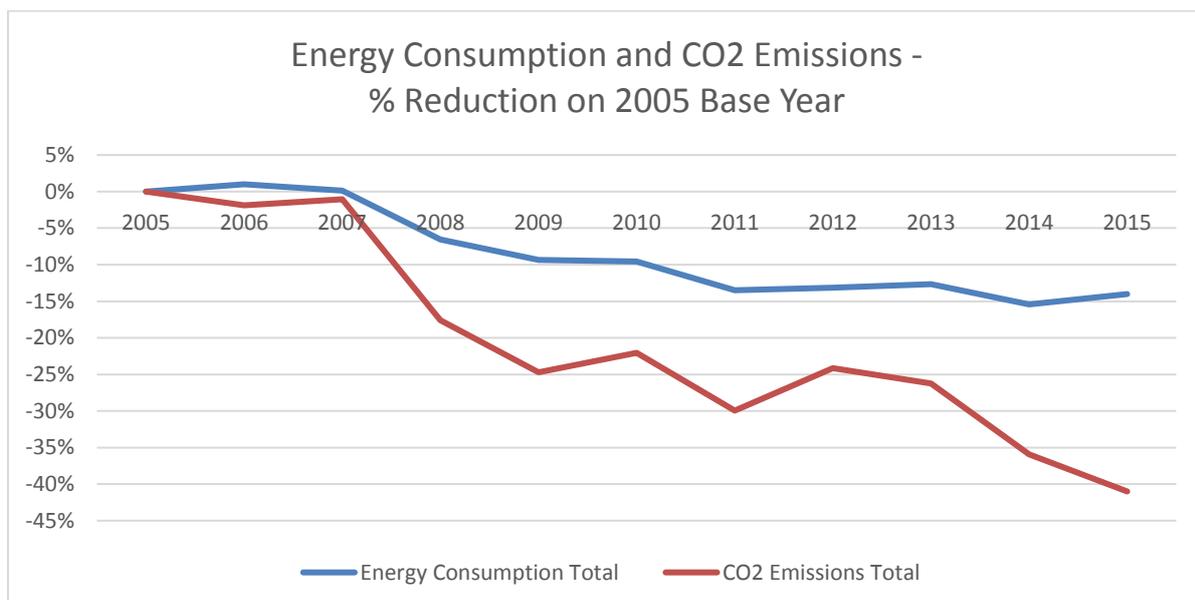
¹⁸ Approximately 22,500 houses left to deliver from the Core Strategy allocations, and approximately 10,000 additional houses to deliver by 2036 from the Joint Spatial Plan (July 2017)

¹⁹ <https://www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics>



Energy Demand

Total energy demand in South Gloucestershire has reduced more slowly than total CO₂ emissions, as shown in the graph below. This is predominantly a result of changes in the 'grid factor' (or the carbon intensity) of electricity supplied via the national grid. The electricity supplied via the national grid is produced using a range of energy sources including fossil fuels, grid-connected renewable energy as well as nuclear power. As the proportion of grid electricity generated from coal has decreased and the proportion generated from renewable sources has increased, the overall carbon intensity of grid supplied electricity has reduced. Changes in CO₂ emissions locally therefore result from a combination of local changes in energy demand (quantity and fuel type) and national changes in the carbon intensity of grid supplied electricity.



Industry and Commerce

Industry and commerce represents 35% of our local carbon emissions and this is 432.1 kt CO₂. In 2016 there were 11,415 local businesses in South Gloucestershire, 81.7% were micro enterprises employing between 0-9 staff.

South Gloucestershire has a diverse economy ranging from rural and home grown small and medium sized enterprises to world leading companies in key high growth sectors vital to continued national economic growth. These include aerospace and advanced engineering, defence, micro-electronics and silicon chip design which can be high energy demand industries.

The council works with key partners in the West of England and the Local Enterprise Partnership (LEP) to deliver infrastructure as well as economic development. There is a recognition from the business community that it is important that high level carbon emissions are reduced and that the local economy benefits from opportunities associated with the transition to a low carbon economy. Local production and consumption as well as services close to where people live are an important part of this. As well as working with existing business across the district, we will work with areas of new commercial development. The Local Enterprise Partnership is aiming to deliver tens of thousands of new jobs into the area by 2030 primarily across our three Enterprise Areas, Avonmouth-Sevenside, Filton and Emersons Green. These three areas will be a focus for work to reduce emissions from new businesses and to build the low carbon economy. Planned growth in the economy will need a concerted effort to mitigate emissions increases.

Transport

Transport represents 33% of our local carbon emissions 409.9kt CO₂ and this excludes emissions from motorways which are considered national emissions. In 2016 transport overtook the energy generation sector to be the biggest source of carbon emissions in the UK accounting for 124.4 Mt²⁰.

As well as generating CO₂ emissions road transport has a considerable health impact and air quality hotspots in South Gloucestershire monitored. Three Air Quality Management Areas (AQMA) were declared in the centres of both Kingswood and Staple Hill and at Cribbs Causeway adjacent to the M5 Junction 17 roundabout. The Kingswood and Staple Hill AQMAs were extended in 2012 following further assessment and the Council produced an Air Quality Action Plan for Kingswood and Staple Hill, focusing mainly on transport measures. In 2015 the Kingswood – Warmley AQMA was declared when the former Kingswood AQMA was extended nearly 2km eastwards along the A420 to Warmley, due to the further locations where the nitrogen dioxide annual mean objective was being exceeded. Work continues on the delivery of the plans, these are reviewed annually. The Cribbs Causeway Air Quality Management Area (AQMA) is not currently in operation, legal compliance has been achieved, monitoring continues.

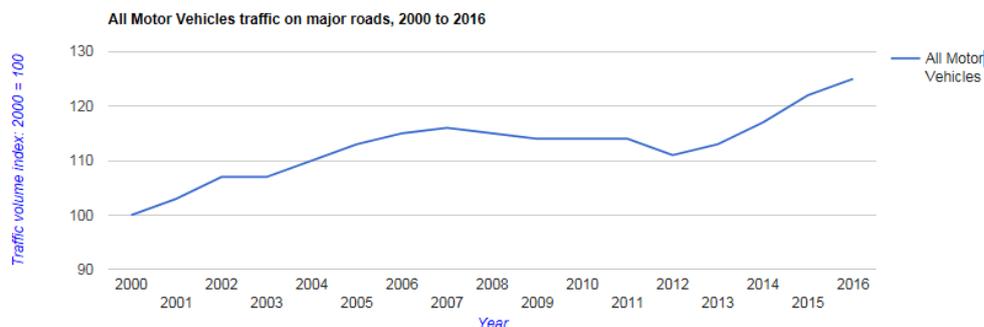
Public health have commissioned a report looking at a broader range of pollutants across a wider area of South Gloucestershire which includes an examination of potential mitigation measures. This will be used to draw up a broader implementation plan. South Gloucestershire Council are part of a cross authority working group looking at the impact of the proposed Clean Air Zones in Bristol and B&NES considering how these may impact on our area.

There is considerable work underway locally to promote active travel using low carbon modes of transport, walking and cycling and to join up and install new infrastructure. Significant improvements to

public transport are underway with the MetroBus project. This is a major project reducing motor vehicle traffic, tackling emissions and congestion providing a route between Cribbs Causeway and Hengrove Park via UWE and the city centre. The Emersons Green route into Bristol launched in May 2018. The full list of current travel projects are available on the Travel West website <https://travelwest.info/projects>. Whilst there is a considerable amount of work on active travel, the graph below illustrates motor vehicle use on major roads continues to grow. The growth in motor vehicle use coupled with developments mean that transport needs considerable attention to ensure a reduction in emissions is achieved.

Motor vehicle use in South Gloucestershire.²¹

All motor vehicles on major roads 2000 to 2016



Housing

Domestic sources of carbon emissions account for 32% of the area emissions or 389.5kt CO₂. There are 114,934 dwellings in South Gloucestershire, 75% are owner occupied, 15% private rented and 10% social rented. Provision is being made to accommodate approximately 32,500 additional homes by 2036 and planning policy aims to address reducing emissions from new dwellings.

In terms of existing households, most recent fuel poverty figures from BEIS (2014) illustrates that approximately 10,800 households in South Gloucestershire were considered to be ‘fuel poor’. Action plans on domestic energy should aim to address fuel poverty improve health and wellbeing and raise the energy ratings of properties progress is detailed in our Home Energy Conservation Act Report 2017.²²

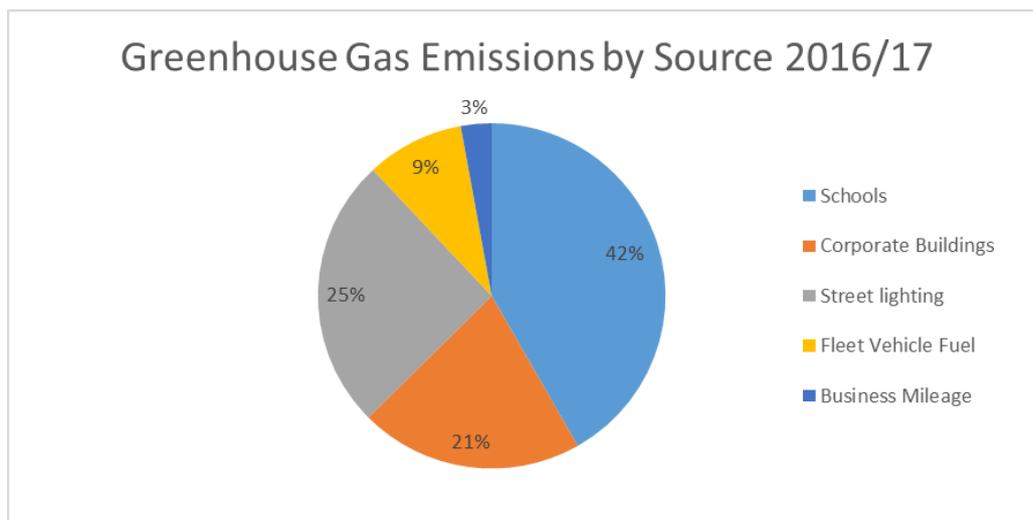
New Minimum Energy Efficiency Standard²³ for privately rented properties came into force April 2018 and work will be centred on assisting landlords with bringing their F and G rated properties to the rentable E rating. New Houses in Multiple Occupation (HMO) licensing came into force in 2017. These new legislative tools provide opportunities for engagement with landlords to improve the energy efficiency of existing properties. The Climate Change Strategy will focus on measures to improve the energy efficiency of existing dwellings and to increase up take of renewable energy as costs come down.

²⁰. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/719182/Local_Authority_CO2_Emissions_Statistical_Release_2016.pdf

²¹. www.dft.gov.uk/traffic-counts/area.php?region=South+West&la=South+Gloucestershire

Council Emissions

We monitor greenhouse gas (GHG) emissions from our own estate and activities in our Annual Local Greenhouse Gas Emissions Report 2017²⁴ This includes emissions from energy consumption in buildings (including local authority maintained schools), electricity consumption in street lighting (including lighting for signs and bollards) fuel use in fleet vehicles, and business mileage paid to staff for business use of own vehicles (which excludes commuter mileage). In 2016/17, emissions from these sources totalled to 16,671 tonnes of CO₂e. These are broken down below:



Our total GHG emissions are now 50% lower than in the baseline year 2009/10. However, this has been skewed somewhat by the conversion of schools to academies (which are no longer included in the council's emissions data). In addition the overall data recorded continues to demonstrate that the council has made significant progress in its efforts to reduce energy consumption, but there is still more to be achieved.

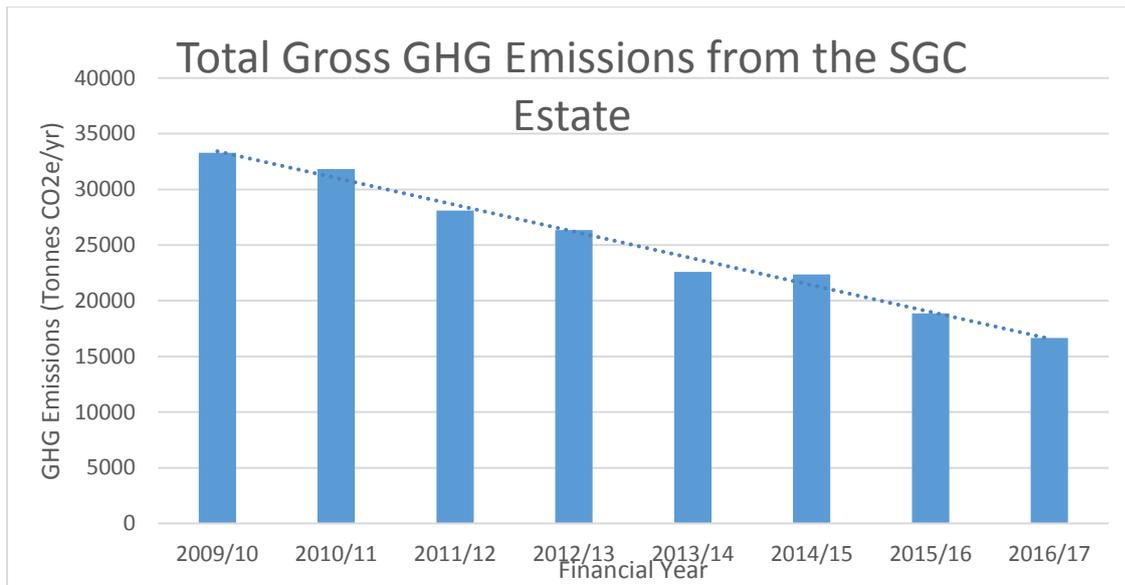
On average, the councils' GHG emissions have reduced by over 7% per year since the baseline year of 2009/10. Tackling emissions from the SGC estate and activities will continue to be addressed through the Action Plans and we will continue to strive to minimise our energy consumption.

Our measured emissions represent 1.32% of the total emissions for South Gloucestershire.

²² www.southglos.gov.uk/documents/HECA-Report-2017-F2.pdf

²³ <https://www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents>

²⁴ <http://www.southglos.gov.uk/documents/South-Gloucestershire-Council-Local-GHG-Report-2016-17.pdf>



Procurement and Services

There are other considerable Greenhouse Gas emissions that result from the council delivering its functions and from the wider community including the emissions associated with outsourced services, such as health and social care services, domestic waste collection and processing, food and water production and consumption and the emissions 'embedded' in the products and services we procure. These emissions are less easily measured and controlled but the council has aims to embed plans and policies in place to reduce emissions from these sources within our Climate Change Action Plans.

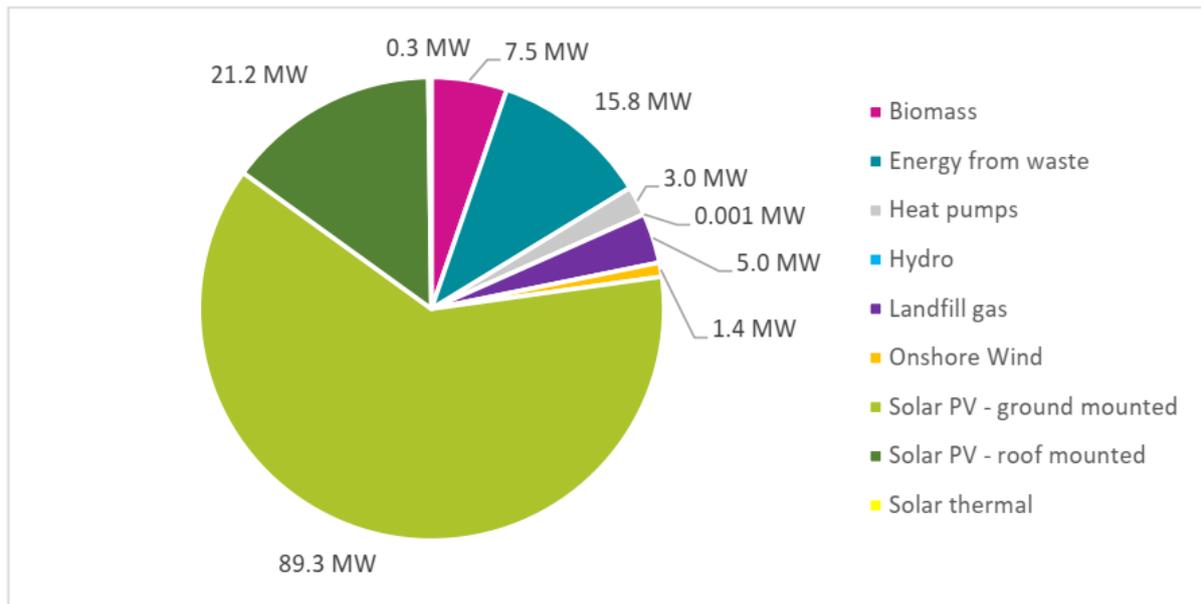
The Council also has a critical influencing role in its engagement with the wider community which means it has the power to shape emissions reductions across the area from new developments, industry and commerce, housing and communities but also through policy, supply chains and purchasing.

Existing Renewable Energy Generation

Renewable energy currently generated in South Gloucestershire is equal to 3.33% of projected 2020 energy demand. The graph below provides a breakdown of current generation by renewable energy technology.

Installed renewable energy capacity by technology for South Gloucestershire

(Source: South Gloucestershire Renewable Energy Progress Report (Regen, March 2018))



We have demonstrated leadership in this area by developing two ground mounted solar farms at Badminton Road, Yate and Moorend, Emersons Green utilising our buildings to install roof mounted solar photo-voltaic (PV). Other technologies have also been explored and implemented and these will continue to be considered within the Climate Change Action Plans. How to stimulate and encourage the renewable energy sector as a whole and embrace new technologies to ensure other opportunities are taken up will be a key task.

Our Priorities and Targets

Priorities

We have identified five priorities to enable the transition to a climate resilient and low carbon South Gloucestershire. These are as follows:

- **Increase resilience to the changing climate so that South Gloucestershire remains a safe and healthy place to live and do business.**
- **Enable reductions in greenhouse gas emissions from energy consumption in homes, transport and businesses in South Gloucestershire.**
- **Enable the development of secure supplies of renewable and low carbon energy by individuals, community groups and industry**
- **Support new development to minimise additional associated greenhouse gas emissions, incorporate low carbon technologies and build in climate resilience.**
- **Develop the low carbon economy.**

Action plans will be developed with members of the South Gloucestershire Strategic Partnership to cover each of these priorities and plans will summarise what we are doing and what further action is planned to deliver the priorities and targets. Progress and information will be published on our website at www.southglos.gov.uk

We will work with our partners particularly across the West of England and West of England Combined Authority (WECA) area to deliver our targets within the Joint Spatial Plan. We will also work with partners across the region to deliver joined up plans on energy, transport and green infrastructure.

Within South Gloucestershire Council we will work to harmonise our Climate Change Strategy Action Plans to support the delivery of other strategies that are critical to this work including the Food Plan 2017-2020 and Private Sector Housing Strategy 2018.

As well as improving our resilience and reducing emissions, our priorities and targets will contribute to a range of wider benefits including:

- Improvements to energy security.
- Reductions in fuel bills and fuel poverty for households and businesses.
- Reductions in the amount of money that leaves the area in energy bills.
- Improvements to health and quality of life.
- Reductions in local air pollutants.

Priorities in depth:

- **Increase resilience to the changing climate so that South Gloucestershire remains a safe and healthy place to live and do business**

This action plan will build on adaptation measures carried out in the last adaptation²⁵ strategy on flooding, new development, health and wellbeing and the economy. It will ensure that new robust critical measures are identified and implemented. Information on Climate Risks published in the UKCCRA 2017²⁶ shows that flooding continues to be the highest priority issue, followed by overheating, with risks of infrastructure breakdown linked to health service disruption. We will respond to the National Adaptation Plan 2018 once published. Work on flooding will include liaison with the Environment Agency and the Wessex Regional Flood and Coastal Committee (WRFCC) and will support the Wessex Regional Flood and Coastal Committee Strategy for 2017 – 2021 and beyond. Work on overheating will be built into the Joint Strategic Needs Assessment, Local Plan and Housing Policy. This strategy will support the delivery of food systems resilience in the Food Plan 2017-2020 and will include work to reduce water use, increase water efficiency and prepare for water shortages. Work on green infrastructure and biodiversity will include ensuring that the benefits from nature's assets and services are recognised and incorporated into decision making. This plan will include work on flood risk, asset management, biodiversity, health, natural resources and weather monitoring but will also look at our systems of procurement and our services to ensure resilience is built into all projects and programmes.

- **Enable reductions in greenhouse gas emissions from energy consumption in homes, transport and businesses in South Gloucestershire**

This Action Plan will build on the outcomes of the **Low Carbon Plan Progress Report 2015**²⁷. This had a set of actions relating to the council, homes, travel, economy, energy and communities. Particular attention will be given to actions relating to the economy, homes and transport where some emissions increases have been observed. We will focus on development of the low carbon economy to engage businesses on the opportunities arising from climate change transition. Motor vehicle use on local roads has increased and with planned new development, this will also be a priority area for action. We will engage with businesses and private sector landlords to drive up energy efficiency in commercial buildings and in existing domestic housing stock required by the MEES (Minimum Energy Efficiency Standards) Regulations which make it unlawful from April 2018 to let buildings (both commercial and domestic) in England and Wales which do not achieve a minimum Energy Performance Certificate (EPC) rating of 'E'.

²⁵ www.southglos.gov.uk//documents/Climate-Adaptation-Plan-February-2015.pdf

²⁶ www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/national-summaries/england/

²⁷ www.southglos.gov.uk/documents/Low-Carbon-Plan-Progress-Report-March-2015.pdf

- **Enable the development of secure supplies of renewable and low carbon energy by individuals, community groups and industry**

This Action Plan will focus on renewable opportunities arising from major developments in South Gloucestershire. It will also concentrate on enabling the development of heat networks and opportunities arising from technologies such as energy storage. Development of renewables in South Gloucestershire has been slower than anticipated due to a range of factors including government policy and land availability. Capacity of the grid has also been an issue and our action plan will look at tackling any barriers we have influence over and putting planning policy measure in place. The plan will include looking at opportunities within the commercial sector to boost the installation of renewables.

- **Support new development to minimise additional associated greenhouse gas emissions**

This Action Plan will concentrate on ensuring that planning policy measures are put in place to avoid, mitigate and ensure climate change adaptation is planned and built into new developments.²⁸ The Joint Spatial Plan includes an aspiration for new development to be Zero Carbon. Alongside this, planning policy measures within the new Local Plan covering domestic and commercial developments will ensure that opportunities for minimising energy use, maximising renewable energy installations and building in climate change resilience to flooding and overheating are fully integrated including green infrastructure and building in opportunities for local food production. The plan will feature work with developers and the local communities to ensure that these developments are integrated into the local area. The plan will include policies to support the development of district heat networks in South Gloucestershire, where appropriate.

- **Develop the low carbon economy**

This action plan will cover all sectors of the economy and seek to develop opportunities for industry in the low carbon economy. A particular focus will be the three enterprise areas identified by the Local Enterprise Partnership and include Avonmouth-Sevenside, Filton and Emersons Green. The low carbon economy can cover all sections of the economy including for example food businesses and food production therefore supporting existing strategies that stimulate action such as the Food Plan 2017-2020.

²⁸<https://www.gov.uk/guidance/flood-riskassessments-climate-change-allowances>

Targets

Carbon reduction

The proposed targets for reducing CO₂ emissions are: **Baseline 1990 = 2073.3 Kt CO₂**

2050

To reduce CO₂ emissions in South Gloucestershire by at least 80% by 2050 on a 1990 baseline to 414.6 Kt

2032

To reduce CO₂ emissions in South Gloucestershire by 57% by 2032 on a 1990 baseline to 891.5 Kt

2025

To reduce CO₂ emissions in South Gloucestershire by 50% by 2025 on a 1990 baseline to 1036.7 Kt

2020

To reduce CO₂ emissions in South Gloucestershire by 35% by 2020 on a 1990 baseline to 1347.7 Kt

Rationale for the carbon reduction targets

Our carbon reduction targets were set in 2013 (in the Low Carbon Plan - formerly Part 1 of the Climate Change Strategy). They are derived from the legally binding UK targets and reflect the national trajectory set out within the carbon budgets.

We remain committed to the overall 2050 carbon reduction target and the interim targets adopted in the 2013 Low Carbon Plan. We are proposing an additional interim target to reflect the carbon budget for 2028-32 which has been adopted by the UK government since the 2013 Low Carbon Plan was published. We have removed the target for 2015 set in the 2013 Low Carbon Plan since 2016 emissions data is now available and shows that our 2015 and our 2020 targets have been exceeded. However we are not proposing to increase our targets at this stage due to the considerable growth planned in this area.

Local emissions data is published annually (2 years in arrears) by the Department of Business, Energy and Industrial Strategy (BEIS) and is available going back to 2005. This is the data used for the purposes of monitoring progress against our carbon reduction targets and it includes CO₂ emissions from domestic, industrial and commercial (including the public sector), and road transport (excluding motorway) sources²⁹.

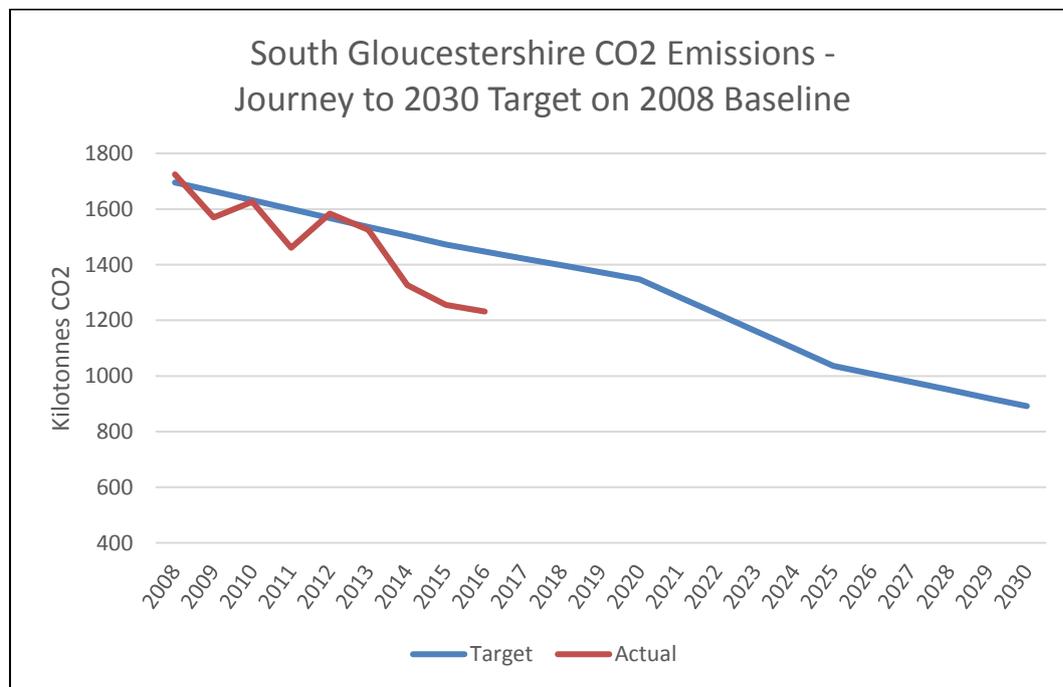
CO₂ is not the only greenhouse gas but it accounts for about 83% of greenhouse gas emissions in South Gloucestershire. The other greenhouse gases include water vapour, methane, nitrous oxide, ozone, CFCs and HCFCs. Local emissions data includes CO₂ only and so we will be using the CO₂ data as our proxy for reporting total greenhouse gas emissions.

As reliable emissions data has only been available at a local authority level since 2005 it is necessary to project backwards to determine the 1990 baseline. This has been undertaken from a 2008 baseline (not a

2005 baseline) in order to align with the national carbon budgets and to avoid the impact of a skew in the data for South Gloucestershire caused by the closure of a major industrial operation (Terra Nitrogen). Terra Nitrogen in the Severnside area was closed down in early 2008 and this resulted in a large reduction in our emissions³⁰. Nationally an 18% saving was achieved between 1990 and 2008 and for the purpose of this plan it has been assumed that this has been reflected locally. **This gives a baseline for 1990 of 2073.3 Kt CO₂ for South Gloucestershire.** Assuming there is a steady decline in emissions from one carbon budget mid-year to the next, the graph below shows the target CO₂ reduction journey for South Gloucestershire from 2008 to 2030. The actual emissions data for 2008 to 2016 has also been shown on the graph.

29. Two data sets are produced – a ‘full’ dataset and a ‘subset’ which local areas are deemed able to influence and which will be used to monitor progress against our carbon reduction target. The subset excludes motorway traffic, large industrial processes that are classed as European Union Emissions Trading Scheme sites, diesel railways and net emissions from land use, land use change, and forestry. For further information see www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics

³⁰. Historically the closure of a local industrial plant was factored in to the calculations however this would have been classed as a European Emissions Trading Scheme Site.



32,500 additional homes are planned for South Gloucestershire by 2036 .Whilst the aim is for these to be Zero Carbon developments they will have associated travel and consumption impacts, we will need to move faster than most to ensure we keep pace with the national carbon reduction journey. Without dedicated policy these new homes and the travel they generate could result in an increase in CO₂. A concerted and coordinated local approach will therefore be required, with every opportunity taken to set us on track to a low carbon future. The Action Plans covering our priorities will be developed and published setting out how we plan to focus our resources to enable reductions in local carbon emissions.

Renewable Energy

The proposed target for renewable energy generation is:

For the equivalent of 6% of South Gloucestershire’s total local energy demand to be generated from renewable energy installations located within South Gloucestershire by 2028 with a longer-term target as follows:

2028	6%
2036	25%

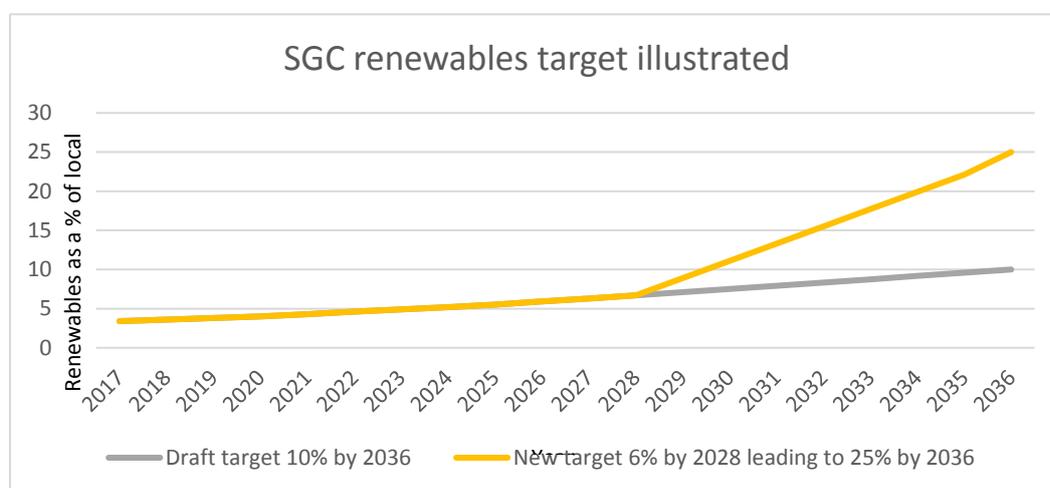
Total energy demand includes electricity, heat as well as transport fuel.

Rationale for the renewable energy target

The proposed target replaces a target set in the 2013 Low Carbon Plan which was for the equivalent of 7.5% of South Gloucestershire’s total energy demand (or 508 Gigawatt hours) to be generated from renewable energy installations located within South Gloucestershire by 2020. The Renewable Energy Roadmap published by the Government at the time indicated that approximately half of the UK 15% renewable energy by 2020 target would be met from ‘National’ deployment with little local influence.

Existing renewable energy installations in South Gloucestershire generate enough energy to supply about 3.3% of South Gloucestershire’s projected 2020 total energy demand (June 2018). Renewable energy has not been developed at the rate anticipated when the 2013 Low Carbon Plan was developed. This reflects the situation nationally and is predominantly a reflection of national changes to renewable energy subsidies and planning requirements. We have therefore taken the opportunity to revise the renewable energy target as part of the refresh of the Climate Change Strategy. The Clean Growth Plan (November 2017) reaffirms the government commitment to the targets set out in the Climate Change Act 2008.

The proposed renewable energy target has been derived from an updated assessment of local renewable energy resources and consideration of scenarios for renewable energy development and energy demand on a longer timescale – to 2036, to coincide with the end of the new South Gloucestershire Local Plan period. The revision of the target is in response to a range of factors including new national commitments to renewables, regional targets and joint working opportunities, a public consultation on this strategy where 48% of 73 respondents wanted to see a more ambitious target. The graph below illustrates the increase in ambition:



A range of measures will be required to deliver the target, including through policies to be proposed for adoption in the new Local Plan. These will enable increases in the percentage of renewables in new domestic and commercial buildings and in stand-alone developments enabled through conditions. However, these policies need to be adopted and embedded before they can emerge, through permissions, into developments on the ground. Post 2028 there is the opportunity for an acceleration in renewables delivery as developments take place. This will be associated with the development of national and regional policies and initiatives, the advances in technology and the extent of local energy demand and trend for reducing costs of adoption. It is not possible to fully predict the type, size and location of technologies that will be installed by 2036 as this will be reliant on the individual planning applications and projects that are brought forward by developers, individuals and communities, and these projects being granted planning consent. Deployment levels will also be influenced by national policy as well as advances in technology which may result in more efficient systems or new technologies being available. It will therefore be important to continue to review the target as the policy and technological context evolves.

Following the public consultation on our draft Climate Change Strategy a short analysis of options for delivering 6% locally generating renewables by 2028 has been produced and accompanies this report, See Appendix A.

The estimates of renewable energy generated have been derived using assumptions about efficiency of renewable power and heat conversion at the current time as advised by Regen. Off shore wind and tidal energy are excluded from the resource assessment as these technologies would be counted as national infrastructure projects. The potential strategic district heating network has been excluded as it is most likely to use gas rather than renewable energy by 2036. Nuclear power is also excluded as the energy source is not renewable and it is also classed as a national infrastructure project.

Changes in energy demand will also affect the proportion of energy demand met by renewable energy generation. Energy demand projections have been provided by Regen and are based on national projections which do not take into account local variation in new development. Given the extent of new development proposed in South Gloucestershire during the target period, it will be important that every opportunity is taken to reduce energy demand in order that the projected energy demand is not exceeded. New policy guidelines for developers are being included in the Local Plan with the aim of reducing energy demand and promoting installation of renewables.

The Action Plans covering our priorities will include actions to help enable and stimulate renewable energy generation. The council will continue to have an action where it develops Renewable Energy on its own estate and buildings where there is a business case to do so but will work to facilitate renewables installations in new developments and retrofit as well as by industry, communities and individuals.

Climate Adaptation

Local Context

UKCP09 is still the source of the most up to date projections of changes for a number of climate variables and time periods at 25 km resolution broken down for administrative regions including the South West England. The UKCP18 will be released in November 2018 and as soon as it is available we will use this updated information to develop our climate resilience action plan. South Gloucestershire falls within four of the 25km grid squares. The UKCP09 data is complex and it is misleading to present a small number of 'headline messages' for South Gloucestershire. The projections vary markedly depending on the future emissions scenario and the time period. Nonetheless the information gives an indication of the magnitude of potential change.

For each emissions scenario and time period, all three probability levels (the 'central' estimate and the low ('very unlikely to be lower') and high ('very unlikely to be higher') estimates are given.

River Severn

The sea level data is extracted from the UKCP09 projections relates to the area around the second Severn crossing (English side), stretching (approximately) from Oldbury on-Severn southwards towards Severn Beach and the Severnside Industrial area. Unfortunately this data is no longer deemed accurate and we are awaiting the publication of the UKCP18 during 2018 to provide the updated scenarios. As soon as this data is available we will publish it alongside our Action Plans and use it to inform which critical adaptation measures need implementation.

In the meantime we are following government guidance on the continued accuracy of this information. Further information is available from <http://ukclimateprojections.defra.gov.uk/>

Adaptation Targets

As the pace of climate change accelerates, adaptation measures become increasingly important to protect the local population and ensure the economy remains resilient. We will be using the revised climate change impact data published in the UKCP18 to inform critical adaptation measures to be included in our resilience action plan and look at this in relation to local data such as on public health. Furthermore the council will consider critical local adaptation measures to be put in place in consultation with the South Gloucestershire Strategic Partnership. We will ensure that adaptation measures are incorporated into all relevant Council decisions, activities, policies, plans and strategies.

We will be updating and expanding the action plan for climate adaptation currently set out in the 2015 Climate Adaptation Plan to reflect these critical measures with work on flooding, health and wellbeing, natural resources, food and water systems, economy and infrastructure and building resilient new developments a key focus of this work .

Progress on climate adaptation will be monitored by means of annual progress reports on the delivery of the action plan, and actions will be embedded in service plans of relevant service areas for the council and our partners and will be monitored accordingly.

Management, implementation and monitoring arrangements

South Gloucestershire Council and the South Gloucestershire Strategic Partnership are responsible for leading, driving and monitoring action on Climate Change in South Gloucestershire.

Within South Gloucestershire Council the Executive Member for Policy and Resources has overall responsibility for the Climate Change Strategy and the Executive Member for Planning Transportation and Strategic Environment takes the lead on co-ordination, monitoring and management.

All Councillors, managers and staff are responsible for implementing the Strategy and ensuring that Council policies, decisions, projects and procurement are delivered in line with the priorities in the Strategy.

South Gloucestershire Council provides the resource for co-ordinating the Strategy. The lead officer for co-ordination and management of the Strategy is the Director of Environment and Community Services supported by the Strategic Transport and Environmental Policy team and the Corporate Strategy and Partnership Team.

The South Gloucestershire Climate Change Strategy will be updated on a 5-yearly basis unless an earlier review is warranted for example by significant changes in relevant national policy or spikes in climate change impacts. Action plans will be produced and information will be available on the council website at <http://www.southglos.gov.uk>.

Links into related Policies and Strategies

This strategy builds on the work carried out as part of the following documents:

- [Low Carbon Plan 2013-2015](#)
- [Climate Change Adaptation Plan 2013-2015](#)
- [Low Carbon Plan Progress Report 2015](#)

This strategy is also delivered through other area-wide and organisational strategies which include the:

- [Children and Young People's Plan](#)
- [Core Strategy](#)
- [Economic Development Strategy](#)
- [Early Years Strategy](#)
- [Housing Strategy](#)
- [Joint Health and Wellbeing Strategy](#)
- [Joint Local Transport Plan](#)
- [Joint Spatial Plan](#)
- [Joint Waste Core Strategy](#)
- [Local Plan](#)
- [Local Flood Management Risk Plan](#)
- [LEP Strategic Economic Plan](#)
- [Policies, Sites and Places](#)
- [Avon and Somerset Police Crime and Commissioner's Plan](#)
- [Safer and Stronger Communities Strategic Partnership Plan](#)
- [Sustainable Communities Strategy](#)

Next Steps:

The revised Climate Change Strategy 2018-2023 was adopted by the Council on the 8th October 2018. It will go to the South Gloucestershire Strategic Partnership for endorsement on the 25th January 19.

Following the adoption of the strategy the Action Plans will be further developed and delivery will commence. These Action Plans will be reviewed and updated annually.

For any questions please contact: EnvironmentalPolicy@southglos.gov.uk

Appendix A

SGC Renewable Energy Target

Measures to meet 6% of local energy demand from locally deployed renewables by 2028

Technology	Current Capacity	2028 Additional Capacity
Roof mounted solar PV	21.1MW electricity (5% domestic rooves)	30.6 MW 15 percent of commercial roof space over 200m ² = 689,000 m ² New homes developed: 1,800 per year from 2020
Ground mounted solar	89.3 MW electricity	30.5 MW (30 hectares or 75 acres which can include car parks, privately owned land through LDO council owned sites etc...)
Heat Pumps	3 MW (324 installations)	0.5 MW (additional 54 installations)
Onshore Wind	1.4MW electricity (11 current installations)	6.1 MW (3 large 2 MW turbines)
Energy from Waste	15.8 MW electricity (1 current installation)	4 MW
Roof mounted solar thermal	0.3MW	Increased solar capacity focus on increasing PV capacity.
Biomass	7.5 MW heat (92 installations)	1.6 MW one small
Landfill Gas	5 MW (3 installations)	
Hydro	0.001 MW (1 installation)	
Anaerobic Digestion	0	
Domestic Energy Efficiency		10% increase in the number of A-C EPC rated homes (80, 853 below A-C rated, 10% = 8,085 homes)
Total	3.6% of current local energy demand (6,727 gwhs)	6.1% of predicted 2028 local energy demand (6,100 gwhs)
Supporting technologies		
Energy Storage (large-scale)	0	12 MW
Energy Storage – (Domestic) 500 homes		3.6 MW