APPENDIX 6:

South Gloucestershire Council Climate Emergency Declaration

Review of Year One of the Climate Emergency Action Plan

South Gloucestershire Council Climate Emergency University Advisory Group

UWE Bristol

October 2020

Index

Note: All web sites accessed in September and October 2020

Executive Summary

South Gloucestershire Council asked UWE' University Advisory Group to review Year One of the Climate Emergency Action Plan. In doing so the Council posed 10 questions for UWE to answer in critically assessing the Action Plan.

1. **Climate Emergency Process – Please provide an assessment of the process to advise if any expected steps have been missed out that need to be picked up?**

The process is robust from a policy and planning perspective. The approach encompasses a declaration of a climate emergency with all party support. This is underpinned by a clear strategy with actions delegated to appropriate entities in a task and finish model. A governance structure is in place which loops back to the Cabinet via the Cabinet Report. Responsibility for the district wide elements of the plan is shared with members of the Local Strategic Partnership. Evidence from a survey of LSP members does not suggest that the major employers are, as yet, fully engaged in this task.

2. **Baseline – Is this robust? Is further baselining/research required?**

The Baseline is robust enough for actions to be planned and executed. However, continuing action to enhance the accuracy and precision of the baseline is recommended. It may require updating to ensure that new knowledge about emission sources and rates is incorporated in the base year estimate. This action will be consistent with the way in which the National Atmospheric Emissions Inventory operates. The baseline should be accompanied by a robust plan to reduce direct emissions year on year. Consideration should be given to setting a target annual carbon budget and percentage reduction required for remaining years until 2030.

The existing baseline position has been identified through an external consultancy using acceptable and sector recognised methods to determine the baseline.

3. **Climate Emergency Year 1 Action Plan: What reflection can be made on this foundation Year 1 plan to tackle the Climate Emergency?**

Policy and plans are in place and the challenge is to ensure that all actors are aware and acting on the signals in the Action Plan. Evidence from a survey of LSP members does not suggest that the major employers are fully engaged in this task.

The Year 1 Action Plan identified a suite of priority projects split into two groups. Those projects already funded through existing budgets and those for which funding will be sought from within the £1.7 million over the 4 year Medium Term Financial Plan (MTFP), in addition to the £85k allocated to early Climate Emergency investments in October 2019 and investments through the Capital Programme. It is not clear how much of the intended investment in climate action has been secured for use.

The Action Plan contains actions in 7 categories.

- Cross Cutting,
- Buildings/Built Development,

- Transport (& infrastructure /Highways),
- Renewable Energy
- Green Infrastructure and Nature Recovery,
- Resources and Waste,
- Adaptation and Resilience.

Each project is assigned a starting stage dependent upon its maturity: Prepare, Develop or Implement. These terms should be defined.

Projects are split into two categories – funded or planned. Under half of the funded projects have reached the stage of Implement. Under half of the planned projects are described as Implement. Over half of the projects will be led by the Council. Adaptation and Resilience has the smallest number of projects identified for action in each category.

4. **What gaps do you identify in the content of the Year 1 plan that need to be addressed in subsequent plans?**

The Year 1 Action Plan is comprehensive in its consideration of areas for action covering the key emission sources. It is not clear what the priority assigned to each action might be but this could be clarified either by a 'likely impact score' based likely carbon saving or adaptation benefit.

A tally should be kept of projects moving between Prepare, Develop, Implement categories. Projects with large and early carbon savings need to be prioritised in subsequent Actions Plans.

Communication and behaviour change messaging needs to be enhanced and LSP members encouraged to act as a champions within their own organisations and with stakeholders.

Adaptation is under represented in the Action Plan and further attention is recommended in subsequent Action Plans.

A greater emphasis in year 2 on community engagement and actions for citizens is desirable and this could link to a local Citizens' Assembly and /or local COP 26 activity.

Offsetting or carbon compensation/ carbon balancing requires further consideration exploring both the potential and the timing of when such actions should be undertaken. This would be both a direct action for the council and an Inspire activity. Consideration should be given to promoting a WECA wide project with a managed fund established from the proceeds of offsetting and dedicated to reinvestment in verifiable offsetting or carbon management / adaptation projects.

Consideration should be given to insetting opportunities on council owned land and opportunities for offsetting on the agricultural land within the District, estimated to be 64% of the area.

5. **What year on year reduction in emissions needs to be achieved?**

In order to meet the zero target of 2030 a linear reduction of 34% per annum is required from a 2020 baseline of 1048.5 kt CO_2e

It is important to 'bank' emission savings early in the decade to 2030. If reduction actions are planned for implementation in later years but for whatever reason are delayed or only partially successful then this runs the risk of overshooting the target year.

An additional risk from planning major reductions later in the decade arises from any failure of earlier year actions to deliver the expected savings. In such a case the missed part of the reduction must be added to future years and increases the difficulty of achieving the annual targets for future years.

6. **What areas of focus should be prioritised in the Year 2 plan?**

- Mitigation of Scope 1 and 2 emissions
- Further consideration of Scope 3 emissions both Council and District wide.
- Integration of climate considerations into routine council business
- Action to enhance co benefits of ecological recovery and climate action.
- Training of staff
- Communications Strategy
- Acceleration of Adaptation consideration and moving to implementation actions
- Outreach activity to win hearts and minds, link to local COP 26 activity.
- Exploration of collaboration opportunities with WECA and local councils to identify early implementation opportunities and possible economies of scale for shared actions.
- A greater emphasis in year 2 on community engagement and actions for citizens is desirable and this could link to a local Citizens' Assembly and /or local COP 26 activity.
- Offsetting or carbon compensation/ carbon balancing requires further consideration exploring both the potential and the timing of when such actions should be undertaken. This would be both a direct action for the council and also an Inspire activity.
- Consideration should be given to promoting a WECA wide project with a managed fund established from the proceeds of offsetting and dedicated to reinvestment in verifiable offsetting or carbon management / adaptation projects.
- Consideration should be given to insetting opportunities on council owned land and opportunities for offsetting on the agricultural land within the District, estimated to be 64% of the area.

7. **What recommendations do you make for improving partnership work and increasing area wide engagement on Climate Emergency across the area?**

- Efforts should continue to enhance the response rate from the LSP survey, improve the quality of information provided including details of the anticipated carbon saving from the actions undertaken by LSP members.
- The routine LSP agenda should contain an item to update progress by members in responding to the Climate Emergency.
- The LSP should routinely discuss the challenge of actions to deliver net zero
- Actions decided at LSP meetings should include quantification of the impact of a decision on the Net Zero target and the carbon budget for the period to 2030. This could be expressed as the percentage share of the annual carbon budget that implementing the decision will expend.
- LSP members should be encouraged to discuss and agree actions that will adapt their business and build resilience in the face of climate change.

8. Strategic Context (Political, Environmental, Social, Technical, Legal, Economic) analysis

A PESTLE analysis has been performed. Challenges, barriers and opportunities have been incorporated into the response to each question posed by South Gloucestershire Council.

- **Political**. Good political support at the Council level and WECA, South Gloucestershire's target is more ambitious than the UK target of 2050. National actions to support recovery from Covid-19 and to promote COP 26 will provide greater momentum in the next year.

- **Environmental.** Emissions are falling but not at the rate needed to meet the UK carbon budget. Adverse weather conditions (rainfall, storm condition, extreme temperatures) are becoming more common with significant public health costs, damage to infrastructure and insurance costs.

- **Social.** Public concern about climate change is growing with the younger demographic particularly concerned. Impacts are not equally distributed with the elderly, the poor and the young most at risk from adverse weather conditions.

- **Technical.** The technical understanding of the options for mitigation and adaptation are robust and the technologies are available to make significant cuts to emissions and to adapt buildings and infrastructure.

- **Legal.** The UK Climate Change Act 2008 and the 2019 amendment set out the legal underpinning of the UK's action on climate change.

- **Economic.** The costs of mitigation and adaptation need to be considered in the light of the recurring health costs and the infrastructure damage costs. The Stern Review on the Economics of Climate Change, released in 2006, demonstrated that the benefits of early action on climate change far outweigh the costs of not acting. The co benefits of action include significant job creation to adapt buildings and protect infrastructure.

9. How does our approach compare with other unitary local authorities of a similar size?

Four local authorities have been compared with South Gloucestershire.

- Plymouth City Council
- Oxford City Council
- North Somerset Council
- Wiltshire Council
-

Each of these has declared a Climate Emergency. Each has unique circumstances and has chosen the range of actions appropriate for those circumstances. Where comparison is valid it is clear that South Gloucestershire's approach is at least as ambitious and as clearly targeted as any in the comparison set.

It is recommended that the actions being undertaken by the comparison set should be kept under review.

10. How does it fit with the national policy direction and what implications do these have in terms of our approach to achieving our goal

South Gloucestershire's target is more ambitious than the UK's 2050 target.

In order to achieve the UK legal target national actions to decarbonise transport, and energy supply will need to be prioritised in the next half decade.

These actions will support South Gloucestershire own actions but on their own they will be insufficient to meet the target. South Gloucestershire will need to deliver larger reductions at a faster scale than the UK as a whole.

COP 26 will provide a major stimulus for action. South Gloucestershire should carefully consider how best to use the COP opportunity to add further momentum to their already impressive actions.

END OF EXECUTIVE SUMMARY

Introduction and Context

UWE Bristol has established a University Advisory Group (UAG) to support South Gloucestershire Council and the Local Strategic Partnership (LSP) in the implementation of the Climate Emergency Action Plan. The Frenchay Campus of UWE is located in South Gloucestershire and is the largest campus in the UWE estate. It has the largest student and staff population routinely using the site and provides accommodation for some 4000 students in purpose built residences.

The UAG comprises of academic staff researching and teaching on climate emergency subjects and professional services staff who are managing UWE's Bristol's own Climate Emergency actions.

On the 17 July 2019 South Gloucestershire Council declared a Climate Emergency. In doing so the council has pledged to provide the leadership to enable South Gloucestershire to become carbon neutral by 2030. In addition the council has signed up to the UK100 pledge to ensure 100% renewable energy across the council area by 2050.

In July 2019 the council set up a cross party task and finish group to consider evidence about how the council can respond to the Climate Emergency declaration. This group produced a report with a carbon emissions baseline gap analysis for the area and a series of recommendations about how the Council could take action. This report went to Cabinet in January 2020.

On the 27 April 2020 the Cabinet provided a response to the Climate Emergency Task and Finish group recommendations approving a Year 1 Climate Emergency Action Plan.

The Climate Emergency Year 1 Action Plan and Cabinet Report can be found at https://www.southglos.gov.uk/environment/climate-change/climate-change-strategy/#:~:text=Climate%20Emergency&text=The%20council%20has%20pledged%20to,across%20the%20area%20by%202050 alongside 5 appendices

Appendix 1 – Responses to the Task and Finish Group recommendations

Appendix 2 – Climate Emergency Action Plan Year 1 – Projects already funded

Appendix 3 – Climate Emergency Action Plan Year 1 – New projects to be funded from the Climate Emergency budget

Appendix 4 – Governance Structure Chart

Appendix 5 – Equalities impact assessment

In order to build an evidence base and inform a reduction strategy the Council appointed Regen to assess the carbon emissions from the area. Their report is available at

https://www.regen.co.uk/project/climate-emergency-carbon-emissions-analysis-for-south-gloucestershire/ and provides an evidence base for actions to minimise emissions.

Regen assessed the emissions from the Council's own activities as well as the potential pathways to net zero emissions for the whole district. They analysed the energy efficiency measures and current heating technologies installed in domestic and non-domestic properties across the district, the renewable energy generation installed and potential for further renewable energy development. A database of emissions was produced, to help the council plan their pathway to net zero.

The key findings of their report are as follows:

• Carbon emissions have fallen since 2005 particularly from industrial sources and emissions from electricity consumption but others like transport, and heat have remained broadly stable. The volume of emissions from the domestic, industrial and transport sectors are similar in magnitude.

• Emissions reductions – and any net zero scenario – is dependent on both local actions and national policy. South Gloucestershire Council has a number of local levers to drive emission reductions but many others are reserved for central government alone.

• Domestic heating upgrade is a major challenge with some 100 000 dwellings requiring low-carbon heating alongside improvements in the energy efficiency of domestic properties.

This report helped informed the Council's overall approach and was an input to the development of the Council's Year 1 Action Plan.

The Council is now reflecting on the action plan and requirements for year 2 and subsequent years of action. It has asked the UAG to provide a technical assessment of the actions intended and outcomes achieved in year 1 and to advise on actions for year 2. In order to structure this assessment the Council has provided a number of questions that together provide the scope of the technical assessment.

1. Climate Emergency Process – Please provide an assessment of the process to advise if any expected steps have been missed out that need to be picked up?

2. Baseline – Is this robust? Is further baselining/research required?

3. Climate Emergency Year 1 Action Plan: What reflection can be made on this foundation Year 1 plan to tackle the Climate Emergency?

4. What gaps do you identify in the content of the Year 1 plan that need to be addressed in subsequent plans?

5. What year on year reduction in emissions needs to be achieved? (We have provided calculation that we have done)

6. What areas of focus should be prioritised in the Year 2 plan?

7. What recommendations do you make for improving partnership work and increasing area wide engagement on Climate Emergency across the area?

8. Strategic Context (Political, Environmental, Social, Technical, Legal, Economic) analysis

9. How does our approach compare with other unitary local authorities of a similar size?

10. How does it fit with the national policy direction and what implications do these have in terms of our approach to achieving our goal (potential barriers/ lobbying that is required)

Year 1 Action Plan - Technical Assessment Questions

1. **Climate Emergency Process – Please provide an assessment of the process to advise if any expected steps have been missed out that need to be picked up?**

The process is robust from a policy and planning perspective. The approach encompasses a declaration of a climate emergency with all party support. This is underpinned by a clear strategy with actions delegated to appropriate entities in a task and finish model. A governance structure is in place which loops back to the Cabinet via the Cabinet Report. It is worth testing that the various parties in the governance structure understand their roles and appreciate the urgency of the actions delegated to them.

There is good political support identified in the declaration and in the Cabinet Report. The document set out a clear understanding of the scale of the task. The challenge is not one of data or policy but one of winning hearts and minds of residents and enterprises to take the actions that are identified in the climate emergency declaration and supporting documents. South Gloucestershire does not have the levers or the financial resources to enable and fund all of the change actions that need to take place and consequently it needs to use behaviour change techniques to encourage mitigation and adaptation by residents and enterprises. The Local Strategic Partnership is identified as the key delivery partner but it is not yet clear that the LSP grasps the urgency and severity of action required to achieve the 2030 goal. Furthermore, the actions reported by LSP members were, in the main, relatively low hanging fruit and rarely addressed the Scope 3 emissions challenge.

Whilst a communication strategy is part of the Year 1 Action Plan it is recommended that this expanded and directed at residents and businesses. This could be led by local councillors and explain the actions the Council is taking and, importantly, identify the actions target audiences can take to minimise their carbon footprint. This could provide tips and guidance on how to reduce the carbon associated with food consumption, travel behaviours, energy use in the home and embedded carbon in purchasing. This can reinforce and extend the existing climate action community engagement work of the Council, see https://www.southglos.gov.uk/environment/climate-change/climate-emergency-community-engagement/ The new Climate Emergency Pledge on the Council website (https://www.southglos.gov.uk/environment/climate-change/climate-emergency/) is a helpful initiative to support communication and outreach.

A public Climate Commitment targeted at major employers and third sector organisations could enhance visibility of the actions and increase awareness and action by the target group. The commitment will need to be supported by a support package outlining actions and further resources for pledging organisations. The pledge needs to be more than a symbolic action and ideally require signatories to report on their actions each year. The LSP members provide the initial target for this initiative and can then be rolled out to other enterprises across the district.

The report of the Climate Assembly published in 2020 https://www.climateassembly.uk/report/ provides asset of recommendations from a cross

section of the population on actions and requirements for a net zero future. The findings of the assembly can help structure and direct the communication strategy.

Key findings from the Climate Assembly are as follows Assembly are presented in Box 1.1

Box 1.1 Climate Assembly Findings

- **Education and information:** there is a need for information and education for everyone – individuals, businesses, government and others – about climate change and the steps needed to tackle it. It is essential for buy-in to the changes that are needed.
- **Fairness:** as with most things in life, the solutions to climate change are neither easy nor free, but they need to be fair. Fair to people with jobs in different sectors. Fair to people with different incomes, travel preferences and housing arrangements. Fair to people who live in different parts of the UK.
- **Freedom and choice:** we believe it is important to maintain, wherever possible, freedom and choice for both individuals and local areas so that they can choose the solutions that work best for them. This should not be at the expense of taking the steps necessary to ensure a safe and healthy environment for future generations. We have outlined in this report where we believe an acceptable balance lies.
- **Co-benefits:** tackling climate change could bring with it many advantages. It could see benefits for local communities, high streets and local businesses. It could boost our economy and promote innovation, including in technology. And it could improve our health and reduce pollution. The UK should take advantage of these potential rewards.
- **Nature:** we need to protect and restore our natural environment, and our access to it. We strongly support measures that have a positive impact on biodiversity and wildlife, whilst also helping the UK move towards its net zero goal.

Some of our strongest views centre on leadership and roles. **It is imperative that there is strong and clear leadership from government** – leadership to forge a cross-party consensus that allows for certainty, long-term planning and a phased transition. This is not the time nor the issue for scoring party political points. The Covid-19 pandemic that has caused so much suffering brings with it new considerations, but it does not change the need for progress towards the UK's climate goals.

Alongside government leadership, we recognise that achieving net zero will require a **joined-up approach across society** – all of us will have to play our part.

Climate Assembly Report (2020) https://www.climateassembly.uk/report/read/final-report.pdf **Page 6.**

Consideration should be given to holding a South Gloucestershire Climate Assembly to support the implementation and ownership of the Year 2 Action Plan. This could form part of a South Gloucestershire COP 26 event exploring the challenge and response of the whole area to the Climate Emergency.

2. Baseline – Is this robust? Is further baselining/research required?

The Baseline is robust enough for actions to be planned and executed. However, continuing action to enhance the accuracy and precision of the baseline is recommended. The baseline needs to be accompanied by a robust plan to reduce direct emissions year on year. Consideration should be given to setting a carbon budget for remaining years until 2030.

The existing baseline position has been identified through an external consultancy using acceptable and sector recognised methods to determine the baseline.

Regen calculates the baseline for South Gloucestershire's district wide emissions to be 1,048,500 tonnes CO2e. Source Regen (2020) South Gloucestershire carbon baseline Presentation to South Gloucestershire Council 6/11/19

The baseline comprises four elements

- Emissions from road transport contribute 383,400 tCO2e, from 280,000 vehicles.
- Emissions from domestic properties contribute 342,000 tCO2e, from 115,000 dwellings.
- Energy consumption from non-domestic properties contributes around 308,500t CO2e from 5,750 buildings.
- Energy consumption from the agricultural sector emits around 15,000 tCO2e. This doesn't account for all agricultural emissions.

This can also be compared with the BEIS estimate of the South Gloucestershire baseline (see https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018) where the South Gloucestershire emission is estimated at 1737 1 kt CO_2.

There are methodological differences between the Regen baseline calculation and the BEIS estimates of emission which include motorways, land use and diesel railway emissions amongst others. The BEIS estimate allows a consistent basis of comparison with other local authorities but the Regen estimate is more specific to areas that the Council and LSP can influence.

In the BEIS estimates Industry and Commerce emissions are the largest emitter at 426 kt, followed by the domestic sector at 369.6 kt and the transport at 352 kt. This in total equates to an emission of 6.1 kt per capita per annum and 3.2 per km^2.

An annual emission budget or target could be calculated for each year to 2030 allowing easy assessment by stakeholders of progress and the gap remaining. The emission targets need to be disaggregated by key sectors and enterprises.

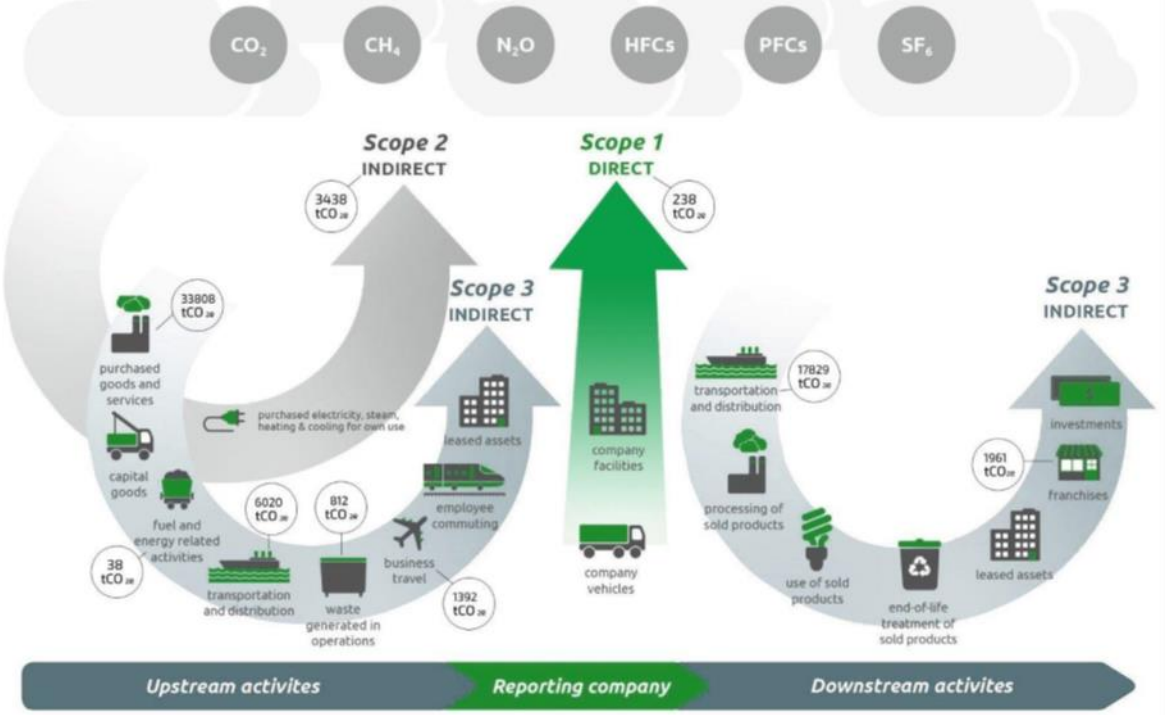
The Regen baseline only includes emissions categorised as Scope 1 and 2 in the Green House Gas protocol (https://ghgprotocol.org/.) Regen has provided an estimate for Council Scope 3 emissions illustrating that Scope 3 emissions from purchasing and related activities are much larger than Scope 1 and 2 emissions.

A net zero declaration needs to encompass Scope 3 of the GHG Protocol and the Year 2 Action Plan should consider how the Council and LSP can influence Scope 3 emissions from the District.

South Gloucestershire Council have made progress in their procurement strategy to address Scope 3 and this learning could be shared with LSP members. Emissions from consumption of goods and services, need to be included in the baseline and actions directed at reducing the embedded carbon in such purchases.

The climate will change adversely over the coming decades and greater attention is needed to assess the risks to health, wellbeing and infrastructure (domestic, commercial, industrial and transport) within the District. Adaptation requirements need a baseline of building stock to be adapted, infrastructure to be climate proofed and progress targets identified. Adaptation measures could be mainstreamed in decision making by the authority, and LSP members, for example through the Corporate Risk Register. The forthcoming adaptation report for South Gloucestershire Council being prepared by the Carbon Trust will address some of these issues. After receipt of the report these issues should be re-examined.

South Gloucestershire Council should consider what actions could be taken to encourage other agencies to enhance infrastructure resilience. In addition, consideration should be given to enhancing community awareness and public and individual resilience to extreme climate events such as extreme heat, intense rainfall, surface flooding etc., for example within the communications strategy, in the discharge of neighbourhood planning responsibilities or through a Local Resilience Forum.



Source Regen (2020) South Gloucestershire carbon baseline. Presentation to South Gloucestershire Council 6/11/19

3. Climate Emergency Year 1 Action Plan: What reflection can be made on this foundation Year 1 plan to tackle the Climate Emergency?

- What contribution does the content of the plan make to the target of area wide carbon neutrality based on the baseline data?
- What contribution does the content of the plan make to the task of area wide adaptation?
- What contribution does the content of the plan make to the task of area wide nature recovery?

Policy and plans are in place and the challenge is to ensure that all actors are aware and acting on the signals in the Action Plan. Evidence from a survey of LSP members does not suggest that the major employers are fully engaged in this task.

Government data (https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018) provides an additional baseline for area and per capita comparison. Emissions in South Gloucestershire on a per capita (6.1 kt) and area basis (3.2 per km^2) are higher than the SW average (4.8 kt, 1.1kt) and the England average (5.0 kt, 2.1kt).

The Year 1 Action Plan identified a suite of priority projects split into two groups. Those projects already funded through existing budgets and those for which funding will be sought from within the £1.7 million over the 4 year Medium Term Financial Plan (MTFP), in addition to the £85k allocated to early Climate Emergency investments in October 2019 and investments through the Capital Programme. It is not clear how much of the intended investment in climate action has been secured for use.

These projects are grouped under the categories of:

- Cross Cutting,
- Buildings/Built Development,
- Transport (& infrastructure /Highways),
- Renewable Energy
- Green Infrastructure and Nature Recovery,
- Resources and Waste,
- Adaptation and Resilience.

Projects are further categorised against the Council's identified role as leader, enabler or inspirer.

- Lead category projects are described as council operations
- Enable projects are those for which the Council's programmes, policies and decisions support the development of a low carbon district.
- Inspire category projects are those for which the Council supports and enables business and residents to take climate action for themselves

Each project is assigned a starting stage dependent upon its maturity: Prepare, Develop, Implement. The terms (Prepare, Develop, and Implement) are useful in signalling the current state of a project but they should be defined so that a reader of the Action Plan understands the difference in the stages. Some projects are defined as being into stages e.g., develop/implement. In the Funded Projects two addition terms are used, Emergency response and Transition. These specific categories

require further information to explain how and why the category has been assigned. Alternatively, for consistency purposes the terms could be removed and replaced by Prepare, Developer Implement. Each action in the Planned Projects is accompanied by a purpose statement.

Table 3.1 Action Plan Funded Projects

Action Plan Category Funded Projects	**Council Role**	**Number of Projects in Category**	**Project Stage: Prepare (P), Develop (D), Implement (I).**
Cross Cutting,			
	Lead	7	6P, 1D
	Enable	2	2D
	Inspire	4	2D, 2I
Buildings/Built Development,			
	Lead	9	2D, 2P, 5I
	Enable	9	6D, 3I
Transport (& infrastructure /Highways),			
	Lead	8	2D, 1P, 5I
	Enable	6	5D, 1I
Renewable Energy			
	Lead	4	3 Emergency Response, 1 transition
	Enable	2	1D, 1P
	Inspire	1	1I
Green Infrastructure and Nature Recovery,			
	Lead	4	3 D, 1D/I
	Enable	3	2D, 1I
Resources and Waste,			
	Lead	4	2D, 1P, 1D/I
	Enable	4	3I, 1D/I
	Inspire	3	3I
Adaptation and Resilience			
	Lead	2	1D, 1I
	Enable	1	1D
Portfolio Totals		**73**	
	Lead	**38**	**Prepare 11**
	Enable	**27**	**Develop 30**
	Inspire	**8**	**Implement 30**
			Develop/Implement 3
			Emergency Response 3
			Transition 1

The Building category has the largest number of actions at 18, where the Council will enable or lead actions. Under half of the funded projects have reached the stage of Implement. Actions in the Adaptation and Resilience category total just 3 projects, as noted above the Carbon Trust's work on adaptation will help clarify the priority for new adaptation projects.

Table 3.2 Action Plan Planned Projects

Action Plan Category Planned Projects	**Council Role**	**Number of Projects in Category**	**Project Stage: Prepare (P), Develop (D), Implement (I).**
Cross Cutting,			
	Lead	6	2D, 2P, 2I
	Enable	4	1D, 1P, 2I
	Inspire	4	1D, 3I
Buildings/Built Development,			
	Lead	5	1D, 2P, 2I
	Enable	1	1I
	Inspire	2	1D, 1I
Transport (& infrastructure /Highways),			
	Lead	4	1D, 1P,1I, 1 D/I
	Enable	1	1P
	Inspire	1	1I
Renewable Energy			
	Lead	2	1P, 1D
	Enable	1	1D
Green Infrastructure and Nature Recovery,			
	Lead	2	2 D/I
	Enable	3	3 D/I
	Inspire	1	1I
Resources and Waste,			
	Lead	1	1I
Adaptation and Resilience			
	Lead	2	1D, 1I
	Enable	1	1I
Portfolio Totals		**41**	
	Lead	**22**	**Prepare 8**
	Enable	**11**	**Develop 10**
	Inspire	**8**	**Implement 17**
			Develop/Implement 6

Under half of the planned projects are described as Implement. Over half of the projects will be led by the Council. Adaptation and Resilience again, is the category with the least

number of projects identified for action. Projects where the Council will inspire citizens or businesses are less than 20% of the Planned Action Plan portfolio. The balance between action categories is appropriate for Year 1 but in future years more projects should be in the Implement category. In future years a further category should be added, namely Completed.

Regional Developments

Bath and North East Somerset (https://www.bathnes.gov.uk/climate-emergency), Bristol City Council (https://www.bristol.gov.uk/policies-plans-strategies/council-action-on-climate-change) and North Somerset (https://www.n-somerset.gov.uk/my-services/nuisances-pollution-environmental-issues/climate-emergency) have each declared a Climate Emergency and developed plans and strategies to address the emergency declaration.

The West England Combined Authority (WECA) declared a climate emergency in July 2019 (https://bit.ly/2Smao70). In October WECA will publish an action plan which brings together plans to tackle the climate emergency and plans for economic recovery and renewal. These plans are to be delivered in partnership with Government, local authorities and others and will set out the scale of the challenge and the action WECA can take to help accelerate delivery building on the action that is already happening in the region (https://www.westofengland-ca.gov.uk/helping-to-tackle-the-climate-emergency/). Reducing the emissions from transport, heating and the generation of electricity will form the priority areas of action for the region. As an indication of the scale of the task, 883 renewable heat schemes have been completed in the region under the government Renewable Heat Incentive since 2014, out of the region's 494,880 dwellings. 7 4,595 electric vehicles are licenced in the region, against 785,000 vehicles in total (WECA Update on climate emergency planning, January 2020, https://bit.ly/2Sh7bFA).

There are considerable opportunities to be had from sharing information and aligning activities across the West of England. Economies of scale may be secured by collaborative action amongst West of England authorities.

4. **What gaps do you identify in the content of the Year 1 plan that need to be addressed in subsequent plans?**

Reviewing the Year 1 Action Plan it is clear that the plan has been comprehensive in its consideration of areas for action covering the key emission sources. It is not clear what the priority assigned to each action might be but this could be clarified by assigning an Impact Score if the specific carbon saving cannot be calculated.

The Funded and Planned portfolio of Action Plan projects totals well over a hundred initiatives with more than half assigned to the Council for a leadership role. The capacity and capability to manage such a large portfolio with a small team should be kept under review.

Inspire projects make up just 16 actions in the portfolio. There is perhaps more that can be added to the Inspire category especially as the decarbonisation and adaptation actions need to be undertaken by many different actors.

Future action plans could to be accompanied by a critical appraisal of progress and identifying barriers to completion. Movement of actions between Prepare, Develop, Implement need to be reported and where possible accompanied by the programme carbon saving to date, the total saved in the year of reporting, any gap between target and actual and the future reduction target for each year to 2030 disaggregated by sector and GHG scope. In recommending such an approach it is understood that South Gloucestershire Council do not have the powers or levers to enact this change alone but a combination of the Council's role in low carbon place making and the collaboration of LSP members could provide a test bed for such an approach.

Confidence will be built by a commitment to transparent reporting consequently the estimated carbon savings from each action, where possible, need to be identified and the assessment methodology made public. It is accepted that some actions may be challenging to quantify but in such cases a 'likely impact score' could be assigned. The impact of the action will then show up in future BEIS emissions data reports, thus indicating if the overall plan is on target.

Communication and behaviour change messaging needs to be enhanced and LSP members encouraged to act as a champions within their own organisations and with stakeholders.

Adaptation is under represented in the Action Plan and further attention is recommended in subsequent Action Plans.

A greater emphasis in year 2 on community engagement and actions for citizens is desirable and this could link to a local citizen's assembly and /or local COP 26 activity.

Offsetting or carbon compensation/ Carbon balancing requires further consideration exploring both the potential and the timing of when such actions should be undertaken. This would be both a direct action for the council and an Inspire activity. Consideration should be given to promoting a WECA wide project with a managed fund established from the proceeds of offsetting and dedicated to reinvestment in verifiable offsetting or carbon management / adaptation projects.

Consideration should be given to insetting opportunities on council owned land and opportunities for offsetting on the agricultural land within the District, estimated to be 64% of the area.

5) What year on year reduction in emissions needs to be achieved?

In order to meet the zero target of 2030 a reduction of more than 34% per annum is required from a 2020 baseline of 1048.5 kt CO_2e.

It is important to 'bank' emission savings early in the decade to 2030. If reduction actions are planned for implementation in later years but for whatever reason are delayed or only partially successful then this runs the risk of overshooting the target year. An additional risk from planning major reductions later in the decade arises from any failure of earlier year actions to deliver the expected savings. In such a case the missed part of the reduction must be added to future years and increases the difficulty of achieving the annual targets for future years. Higher targets, plus supporting actions, in years 2 -5 will bank carbon savings and reduce this risk.

In the absence of legal and economic instruments the Council will need to demonstrate through its own actions that it is leading by example. This will need to be backed up by strong behaviour change messaging to all sectors.

In order to reach zero by 2030 South Gloucestershire will need to achieve an annual percentage reduction in emissions of some 34% per year. From a 2020 baseline (assumed to be Regen's district wide estimate of 1,048,500 tonnes CO_2e) such an annual reduction leaves an offset / compensation requirement of about 2% of the baseline. With pathway such as this where an equal reduction is assumed for each actions in the early years will remove much larger tonnages but by the last few years the amount to remove is a fairly small amount of a small emissions

Recently an interesting series of reports for local authorities have been released by the Tyndall Centre, including one for South Gloucestershire. The report on 'Quantifying the implications of the United Nations Paris Agreement for South Gloucestershire' was published in October 2020 (see Question 9 and Appendix 1 for more details) and this estimates that South Gloucestershire's emissions should fall by an average of 13.8% per year each year to 2050 in order to be consistent with South Gloucestershire's fair contribution to the Paris Agreement. Thereafter carbon emissions are zero per annum. The reduction per annum assumes that the district of South Gloucestershire is responsible for 0.5% of the UK emissions. These conclusions apply to CO_2 emissions from the energy system only. The calculation method used by the Tyndall Centre is described in Appendix 1. It should be noted that this report does not consider the target of 2030.

An annual reduction of the magnitude recommended by the Tyndall Centre will achieve near zero by 2050 consistent with the UK target but 20 years after the South Gloucestershire target year. According to the Tyndall pathway projection method South Gloucestershire's emissions of CO_2 in 2030 will be 330 kt.

In order to reach the Council's own target of net zero by 2030 additional reduction efforts will be required over and above the recommendations of the Tyndall Centre. (See https://carbonbudget.manchester.ac.uk/reports/E06000025/).

In respect of the Action Plan for Year 2 attention should be given to budget setting. This could include the following steps:

1) Calculate an indicative carbon budget for each year to 2030 that will achieve the Net Zero ambition and ensure that the project portfolio of planned or funded projects can deliver the required reductions.
2) Consider how the emission savings achieved with the actions implemented in Year 1 and 2 can be calculated or estimated.
3) Develop and test the method for calculating the estimated savings from implemented actions.
4) Develop and test the method for calculating the predicted savings for each year off action to 2030.
5) Begin to develop the opportunity and scope for carbon balancing on land in South Gloucestershire, linked to the Green South Gloucestershire fund to be launched in December 2020

6. **What areas of focus should be prioritised in the Year 2 plan?**

EMISSIONS

An annual emission baseline is required to show both progress and gap remaining. The emission targets need to be disaggregated by key sectors and enterprises assessed using the BEIS emissions data.

1) Calculate an indicative carbon budget for each year to 2030 that will achieve the Net Zero ambition and ensure that the project portfolio of planned or funded projects can deliver the required reductions.

2) Consider how the emission savings achieved with the actions implemented in Years 1 and 2 can be calculated or estimated.

3) Develop and test the method for calculating the estimate savings from implemented actions.

4) Develop and test the method for calculating the predicted savings for each year off action to 2030.

5) Begin to develop the opportunity and scope for carbon balancing on land in South Gloucestershire and consider how the Green South Gloucestershire fund, to be launched in December 2020, can assist this action.

SCOPE 3

A net zero declaration should consider Scope 3 emissions from the consumption of goods and services. Projects should be identified that inspire others to undertake action directed at reducing the embedded carbon in such purchases. The possibility of using GDP to undertake this task should be assessed. LSP members should be encouraged to undertake Scope 3 assessments.

JOINING UP CLIMATE AND ROUTINE COUNCIL BUSINESS

Chief Officers to ensure embedding of climate action into all policies/ plans / strategies and actions

Council decisions incorporate carbon budget considerations.

ECOLOGICAL EMERGENCY

Clearer linkage between ecological solutions and wider benefits of biodiversity enhancement in the district - tree planting, peatland restoration, and green infrastructure

TRAINING

For councillors and for council and LSP staff

COMMUNICATION STRATEGY

Greater encouragement in the Year 2 Strategy for the key sectors and residents to mitigate and adapt. The strategy could enhance its behaviour change messaging to encourage home working, cycling and walking. The messaging could be reinforced by using trusted sources such as GPs /Schools/ Parish Council/ Youth Groups/Guides/ Scouts etc.

A public Climate Commitment targeted at major employers and third sector organisations could enhance visibility of the actions and increase awareness and action by the target group.

There are considerable opportunities to be had from sharing information and aligning activities across the West of England. Economies of scale may be secured by collaborative action amongst West of England authorities.

ADAPTATION

The climate will change adversely over the coming decades and greater attention is needed to assess the risks to health, wellbeing and infrastructure (domestic, commercial, industrial and transport) within the District.

Assessment of the vulnerability of different groups and communities in the district to climate risks.

Heat risk survey. In the second week of August 2020 as temperatures in the south of England exceeded 33C for almost a week the excess death rose by 300.

Management plans, advice and guidance for coping in extreme weather events such as extreme heat, intense rainfall, surface flooding, including identification of 'cool place locations' for heat respite purposes, especially for the elderly and those with pre-existing health conditions.

Energy supply network analysis to identify priority areas for climate proofing

Build on the existing work by South Gloucestershire Council to assess the risks to the transport network and to identify priority areas for climate proofing

Adaptation requirements need a baseline of building stock to be adapted, infrastructure to be climate proofed and progress targets identified.

Development of advice and guidance on adaptation measures for Council activities and those of enterprises and residents in order to enhance resilience?

Assessment of the vulnerability of infrastructure – roads, railways, electricity supply, gas supply, to drought, heat stress, surface flooding, storms and high winds in the district.
Development of mitigation plans for identified risks to people and infrastructure.

OUTREACH

Planning local COP 26 activity for residents/enterprises

In all of the above consider framing by audience, priority, urgency and partnership opportunity

The new Green Homes Grant Scheme gives generous grants to home-owners and landlords for green home energy upgrades undertaken between now and March 2012 see (https://www.gov.uk/guidance/apply-for-the-green-homes-grant-scheme) The Centre for Sustainable Energy has produced a simple guide to the scheme at https://www.cse.org.uk/advice/funding/grants.

The Green Homes Grant Scheme is being promoted on the council website and additional resident support is available from Severn Wye Energy Agency (https://severnwye.org.uk/)

Good quality advice for householders alongside grant support is only part of the retrofit story. There needs to be sufficient numbers of well qualified and experienced contractors to implement low carbon retrofit schemes and this will require a programme of training for builders and other contractors.

7. **What recommendations do you make for improving partnership work and increasing area wide engagement on Climate Emergency across the area?**

The Action Plan success is predicated on partnership working with major enterprises, third sector bodies and pubic bodies who together comprise the Local Strategic Partnership (LSP). Table 7.1 summarises the current position of LSP members in respect of climate action.

Table 7.1 Summary of LSP Members' Current Climate Emergency Position, as of September 2020

Data supplied by South Gloucestershire Council from a survey of LSP members.

Local Strategic Partnership	**Details of any Climate Emergency and or/ Ecological Emergency declaration**	**Climate Emergency/Change targets**
Bristol North Somerset & South Gloucestershire Clinical Commissioning Group	Support for Bristol City Council ecological emergency https://news.bristol.gov.uk/news/bristol-declares-ecological-emergency Development of Climate Change Adaptation Plan as part of the Healthier Together partnership.	To be confirmed as part Climate Change Adaptation Plan
University of the West of England	Declared a Climate and Ecological Emergency (declaration on website: https://www2.uwe.ac.uk/services/Marketing/about-us/pdf/Policies/UWE-Bristol-Board-of-Governors-Declaration-of-Climate-and-Ecological-Emergency-v3.pdf Strategy 2030 commits UWE 'to work to address the urgency of the climate and ecological emergency and strive to fulfil our role in the achievement of the United Nations' Sustainable Development Goals.' www.uwe.ac.uk/about/values-vision-strategy/strategy-2030 UWE routinely reports its carbon dioxide emissions for each scope of the GHG protocol. Data for 2018/19 Total carbon emissions: 75,005 tCO_2e Scope 1: 6,175 tCO2e Scope 2: 36 tCO2e Scope 3: 68,794 tCO2e	• Net Zero by 2030 • Targets and plans to reduce water and energy use, cut waste generation including food waste, and support biodiversity. • Secure year-on-year improvement in sustainable travel. • Work with our students to explicitly address climate change and environmental challenges in the curriculum. • Support research that addresses climate change, environmental challenges and biodiversity. www.uwe.ac.uk/about/values-vision-strategy/strategy-2030
Airbus	1. Airbus in the UK has committed to Net Zero emissions for the aviation industry by 2050 in line with the Paris agreement. 2. In the 2017 Annual report Airbus said "The Company's 2050 ambition is to operating airbus sites without impact on climate change by eliminating greenhouse gas	2050 targets • Airbus Vision 2030 targets as outlined in our 2019 report. • As part of the UK aviation industry Airbus have

	emissions, with zero air and water emissions, zero waste to landfill and minimal natural resources consumption; " https://www.sustainableaviation.co.uk/news/uk-aviation-commits-to-net-zero-carbonemissions-by-2050/ http://let.iiec.unam.mx/sites/let.iiec.unam.mx/files/007-Airbus-Annual_Report_2017.pdf	committed to net zero emissions for all UK departing flights by 2050 • At a Global level Airbus have committed to the ATAG Goals. • Airbus are committed to CORSIA which is a global Carbon Offsetting and Reduction Scheme for international aviation.
Avon and Somerset Constabulary	None pending	By 2021, against a 2015/16 baseline, we aim to: • Reduce carbon emissions from our buildings by 20% • Reduce the units of electricity and gas we use overall by 20% • Reduce the units of electricity used per employee by 15% • Reduce the units of gas compared to the size of our estate footprint by 15% • Increase the amount of renewable energy we generate by 5% • Reduce amount of water we use per employee by 10
Business West	Climate Crisis Statement approved by Board in March 2020 – has not yet been published owing to the pandemic.	These are incorporated into the Environment Management System ISO14001 - Carbon Emissions – For our main office Leigh Court to be Net Zero Carbon by 2025
Avon Wildlife Trust	Avon Wildlife Trust is leading and championing the call for the declaration of ecological emergency in the West of England. https://www.avonwildlifetrust.org.uk/news/avon-wildlife-trust-makes-case-urgent-action-tackle-ecological-emergency-across-region	

Southern Brooks Partnership	Declaration delayed due to Covid -19. Climate Emergency is a key part of the forthcoming green strategy. Launch date to be agreed	Draft strategy includes actions: • To improve carbon footprint and encourage others to do so • To encourage climate change adaption and resilience, both internally and within communities • To address the ecological crisis and work with communities and partners to improve nature recovery Targets to be agreed.
CVS South Gloucestershire	Included as part of the strategic plan - https://www.cvs-sg.org.uk/our-strategic-plan/	High level commitment 'to promoting lasting social, environmental and economic change' under the Social Justice section. Specific actions and targets not identified.

Not all LSP members have responded to the request from South Gloucestershire Council to provide data on their Climate Emergency actions. Responses above, with the exception of Southern Brooks Partnership, do not mention adaptation and resilience.

It is recommended that:

- Efforts should continue to enhance the response rate, quality of information provided including details of the anticipated carbon saving from the actions specified.
- The routine LSP agenda should contain an item to update progress by members in responding to the Climate Emergency.
- The LSP should discuss and agree an approach to carbon budget setting.
- Any actions agreed at LSP meetings should include quantification of the impact of a decision on the Net Zero target and the carbon budget for the period to 2030. This could be expressed as the percentage share of the annual carbon budget that implementing the decision will expend.
- LSP members should be encouraged to discuss and agree actions that will adapt their business and build resilience in the face of climate change.

UWE Support for Enterprises in South Gloucestershire

UWE's student body provides a resource to support LSP member organisations in understanding and addressing climate emergency matters. Work based learning, student placements, group projects Live Briefs (from enterprises for discussion and recommendation by a student group) and dissertation topics are all means by which students can provide support.

Higher levels of support could be provided by bidding for KTP projects (see https://www.uwe.ac.uk/business/business-services/innovation-and-funding/knowledge-transfer-partnerships for details of UWE's KTP office.

Innovate UK provides a range of financial support for UK business, many schemes can be accessed by a joint bid from an enterprise and a university. See https://www.uwe.ac.uk/business/business-services for how to details of UWE support for business including grants, training, business consultancy and collaborative research.

UWE provides a range of CPD courses to support enterprises. See https://www.uwe.ac.uk/courses/professional-development and https://www.uwe.ac.uk/courses/find-a-course/courses-by-subject/geography-and-environmental-management or https://www.uwe.ac.uk/courses/find-a-course/courses-by-subject/construction-property-and-surveying for examples of short courses.

CPD and short courses can be developed to meet the specific training or development need of an enterprise.

To access UWE business support use the contact details at https://www.uwe.ac.uk/business/business-services/business-enquiries

Each year some 7000 highly skilled new graduates leave UWE to access the work force. These graduates are highly employable and have the skills that enterprises in South Gloucestershire will need to build and adapt their business to a changing climate. To recruit the next generation of talent see https://www.uwe.ac.uk/business/business-services/recruiting-talent

UWE Community Engagement can provide services to the local community including student volunteers, student placements/internships, provision of specialist advice by academics, provision of specialist skills, mentoring, life-long learning, free consultancy and other support. For further details see https://www.uwe.ac.uk/business/community-engagement

8. Strategic Context (Political, Environmental, Social, Technical, Legal, Economic) analysis

Political. Good political support at the Council level and WECA, South Gloucestershire's target is more ambitious than the UK target of 2050. National actions to support recovery from Covid-19 and to promote COP 26 will provide greater momentum in the next year.

Environmental. Emissions are falling but not at the rate needed to meet the UK carbon budget. Adverse weather conditions (rainfall, storm condition, extreme temperatures) are becoming more common with significant public health costs, damage to infrastructure and insurance costs.

Social. Public concern about climate change is growing with the younger demographic particularly concerned. Impacts are not equally distributed with the elderly, the poor and the young most at risk from adverse weather conditions.

Technical. The technical understanding of the options for mitigation and adaptation are robust and the technologies are available to make significant cuts to emissions and to adapt buildings and infrastructure.

Legal. The UK Climate Change Act 2008 and the 2019 amendment set out the legal underpinning of the UK's action on climate change.

Economic. The costs of mitigation and adaptation need to be considered in the light of the recurring health costs and the infrastructure damage costs. The Stern Review on the Economics of Climate Change, released in 2006, demonstrated that the benefits of early action on climate change far outweigh the costs of not acting. The co benefits of action include significant job creation to adapt buildings and protect infrastructure.

9. How does our approach compare with other unitary local authorities of a similar size?

Comparison can be made with UK data via https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018

286 local authorities have declared a climate emergency. Full list at https://www.climateemergency.uk/blog/list-of-councils/ accessed 9/9/20

278/408 (68%) of District, County, Unitary & Metropolitan Councils have declared a Climate Emergency to date. 8 Combined Authorities/City Regions also have declared. Some details of the declaration and actions also available via links on the above website.

Four unitary authorities have been identified by South Gloucestershire Council as a group of authorities to compare current and proposed climate actions. Each of the local authorities has declared a climate emergency. The selected comparison set vary in population size, area, GDP (where available) and in annual carbon dioxide emissions. Table 9.1 summarises key statistics for the comparison set. Table 9.2 provides a further level of analysis of the comparative emissions from each local authority.

Table 9.1. Comparative Data for the Five Selected Local Authorities

Authority	Population	Area	GDP	Carbon emission
South Gloucestershire	282, 600	53, 664.7 ha	£12.8 billion	1048.5kt CO2e from Council publication. Territorial emissions 1737.1kt from Gov.UK
Plymouth	262,100	8,000 ha	£6 billion https://www.centreforcities.org/city/plymouth/	Territorial emissions 878.9 kt from Gov.UK
Wiltshire	500,024	325, 534 ha	N.A.	Territorial emissions 2694.5 kt from Gov.UK
Oxford	152,450	5000 ha	£6 billion https://www.centreforcities.org/city/oxford/	718 kt of CO_2 from Council publication Territorial emissions 878.9 kt from Gov.UK
North Somerset	215,100	37, 550 ha	N.A.	1434 kt CO_2e from Council publication. Territorial emissions 1179.1 kt from Gov.UK

Data Sources

- South Gloucestershire https://www.southglos.gov.uk/council-and-democracy/census/key-facts-and-figures/
- Plymouth http://www.dataplymouth.co.uk/keyfacts
- Oxford City https://www.oxford.gov.uk/info/20122/statistics

- North Somerset https://www.n-somerset.gov.uk/council-democracy/statistics-data
- Wiltshire https://www.wiltshireintelligence.org.uk/
- Population data: ONS mid-year estimates 2019 except South Gloucestershire which is for 2018.
- Emissions data UK local authority and regional estimates of carbon dioxide emissions. Territorial emissions https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018

Table 9.2. Comparative Emission Data for the Five Selected Local Authorities

Local Authority	Per capita emission	Per hectare emission	Per million of GDP
South Gloucestershire	6.1t	19.5t	144.7t
Plymouth	3.3t	109.8t	146.4t
Wiltshire	5.4t	8.3t	N.A
Oxford	5.8t	175.8t	146.4t
North Somerset	5.4t	31.4t	N.A

Gov.UK territorial emissions https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018

South Gloucestershire has the second largest population of the 5 authorities identified for comparison, the second largest area and the largest GDP of the three data points available for comparison. Its area is more than 10 times that of Oxford CC, more than 6 times that of Plymouth but it is only 1/6th the size of Wiltshire.

Where published data are available carbon emissions from a council's own publication are presented alongside the estimated territorial emission of carbon dioxide published on the Gov.uk website. South Gloucestershire has the second highest territorial emission of the five authorities. Of the three authorities providing their own estimate of emissions South Gloucestershire's is the second largest. Difference is the territorial and Council own estimates will be due to methodological differences and data access and quality control considerations either allowing or removing data sources from the estimate.

South Gloucestershire has the highest per capita emission of the five local authorities. Emissions per hectare are highest in the smallest two local authorities and least in the largest authority. South Gloucestershire's emission per hectare is approximately two thirds that of North Somerset. The three local authorities for which GDP estimates are available have very similar emissions of carbon dioxide per million pounds of GDP despite South Gloucestershire's GDP being equal to the combined GDP of Plymouth and Oxford.

Comparing sources of emission

The UK National Atmospheric Emissions Inventory (NAEI) provides an interactive map of carbon dioxide emissions (expressed as carbon) https://naei.beis.gov.uk/emissionsapp/. The map of emissions has a function to add point sources and to overlay local authority boundaries. The most recent data available from the NAEI is for the year 2018.

Emissions from significant point sources in South Gloucestershire mapped in the NAEI are from UWE Bristol, Rolls Royce, Airbus UK and Ibstock Brick. Managing emissions from point sources requires collaboration with the emitting party. Collaborative approaches to emission reduction actions will be assisted by the declining carbon intensity of power delivered by the National Grid. This indicates the

importance of the collaborative approach taken by South Gloucestershire. The emission map highlights the importance of the motorway and trunk road network as a source emissions.

Table 9.3. Significant Point and Line Sources of Emission in the five Local Authorities

Local Authority	Point Sources	Line Sources
South Gloucestershire	UWE Bristol, Rolls Royce, Airbus UK & Ibstock Brick.	The M5, M4 and the road network are in the highest emission category mapped by the NAEI.
Wiltshire	Cereal Partners UK, Cooper Tyre and Rubber & SSE Generation.	Sections of the M4 in Wiltshire as well as sections of trunk roads are in the highest emission category mapped by the NAEI.
North Somerset	Yeo Valley, Smart Systems & ETEX Building Performance.	The M5, local roads and Bristol Airport are all in the highest emission category mapped by the NAEI.
Plymouth	Devonport Dockyard & Plymouth Hospitals NHS Trust.	The local road network is in the highest emission category mapped by the NAEI.
Oxford	BMW, Oxford Radcliffe Hospitals NHS Trust, Oxford University Hospitals NHS Foundation Trust & University of Oxford.	The dense road network in Oxford has emissions in the highest category mapped by the NAEI.

In October 2020 the Tyndall Centre at the University of Manchester, produced a carbon budget for South Gloucestershire Council (https://carbonbudget.manchester.ac.uk/reports/E06000025/). The report provides South Gloucestershire with budgets for carbon dioxide (CO_2) emissions and from the energy system for 2020 to 2100 and has been produced using the Science Based Target method (https://www.wri.org/our-work/project/science-based-targets-initiative) to meet South Gloucestershire's share of the targets enshrined in the Paris Agreement (https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement).

The report provides:

- a long-term carbon budget for South Gloucestershire from 2020 to 2100;
- a sequence of recommended five-year carbon budgets;
- a date of 'near zero'/zero carbon for the area.

Table 9.4. Periodic Carbon Budgets for 2018 for South Gloucestershire.

Carbon Budget Period	Recommended Carbon Budget (Mt CO_2)
2018 - 2022	7.2
2023 - 2027	3.5
2028 - 2032	1.7
2033 - 2037	0.8
2038 - 2042	0.4
2043 - 2047	0.2
2048 - 2100	0.2

Source: https://carbonbudget.manchester.ac.uk/reports/E06000025/

The Tyndall report for South Gloucestershire makes the following recommendations

1. Stay within a maximum cumulative carbon dioxide emissions budget of 10.6 million tonnes ($MtCO_2$) for the period of 2020 to 2100. At 2017 CO_2 emission levels, South Gloucestershire would use this entire budget within 6 years from 2020.
2. Initiate an immediate programme of CO_2 mitigation to deliver cuts in emissions averaging a minimum of -13.8% per year to deliver a Paris aligned carbon budget. These annual reductions in emissions require national and local action, and could be part of a wider collaboration with other local authorities.
3. Reach zero or near zero carbon no later than 2041. This report provides an indicative CO_2 reduction pathway that stays within the recommended maximum carbon budget of 10.6 $MtCO_2$. At 2041 5% of the budget remains. This represents very low levels of residual CO_2 emissions by this time, or the Authority may opt to forgo these residual emissions and cut emissions to zero at this point. Earlier years for reaching zero CO_2 emissions are also within the recommended budget, provided that interim budgets with lower cumulative CO_2 emissions are also adopted.

The calculation method used by the Tyndall Centre is described in Appendix 1.

The Tyndall Centre report produces a budget to 2010 but most of the emissions are assumed to have been reduced by 2050. South Gloucestershire have set a target of achieving carbon neutrality by 2030. Thus there is greater urgency to achieve large and early carbon emission reductions over and above those identified by the Tyndall Centre. Simply following the Tyndall carbon budget recommendation will be insufficient to achieve the target.

Summary of Actions by Oxford City Council

In January 2019, Oxford City Council unanimously declared a climate emergency in Oxford and agreed to create a Citizens' Assembly to consider new carbon targets and additional measures to reduce emissions. In April, the Council set a vision to reduce its own emissions to net zero by 2030 at the latest. In December 2019 the City Council responded to Oxford Citizens' Assembly on Climate Change and committed £19m as a climate emergency budget. Appendix 2 sets out the detail of the Council's response.

Key websites outlining Oxford's actions are as follows

- https://www.oxford.gov.uk/climate-emergency
- https://www.oxford.gov.uk/downloads/file/6660/climate_emergency_strategy_support_report_2019
- https://www.oxford.gov.uk/downloads/download/779/heat_networks_for_oxford_-_city_centre_feasibility_study
- https://www.oxford.gov.uk/downloads/file/6871/oxford_citizens_assembly_on_climate_change_report_-_november_2019

In October 2020 the Tyndall Centre at the University of Manchester, produced a carbon budget for Oxford City Council **(**https://carbonbudget.manchester.ac.uk/reports/E07000178/). The report provides Oxford with budgets for carbon dioxide (CO_2) emissions and from the energy system for 2020 to 2100 and has been produced using the Science Based Target method **(**https://www.wri.org/our-work/project/science-based-targets-initiative**)** to meet Oxford's share of the targets enshrined in the Paris Agreement **(**https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement**).**

The report provides:

- a long-term carbon budget for Oxford from 2020 to 2100;
- a sequence of recommended five-year carbon budgets;
- a date of 'near zero'/zero carbon for the area.

Table 9.8: Periodic Carbon Budgets for 2018 for Oxford.

Carbon Budget Period	Recommended Carbon Budget (Mt CO_2)
2018 - 2022	2.8
2023 - 2027	1.5
2028 - 2032	0.8
2033 - 2037	0.4
2038 - 2042	0.2
2043 - 2047	0.1
2048 - 2100	0.1

Source: https://carbonbudget.manchester.ac.uk/reports/E07000178/

Summary of Actions by Wiltshire Council

https://www.climateemergency.uk/blog/wiltshire-council/ https://www.wiltshire.gov.uk/green-economy-climate-emergency

Wiltshire Council Carbon Reduction Update on Council's Response to the Climate Emergency July 2020 https://cms.wiltshire.gov.uk/documents/s179523/Carbon%20Reduction%20Report.pdf

'In February 2019 we resolved to acknowledge a climate emergency and to seek to make the county of Wiltshire carbon neutral by 2030. A Climate Emergency Task Group was set up to gather evidence and come up with recommendations on achieving net zero. Our Cabinet subsequently committed to also make the council carbon neutral by 2030. A new carbon reduction strategy will be prepared to enable us to meet these commitments. The plan will be evidence and data led and a baseline assessment will be undertaken to assist in identifying needs and determining priorities.

It is proposed that the plan will include a community led approach which engages, empowers, enables and communicates with Wiltshire communities and businesses. Carbon reduction will be a key theme in the council's recovery from COVID-19. A new post of Head of Carbon Reduction created to provide capacity and leadership and facilitate the development of a strategy for Wiltshire. An annual staff and operational budget of £350k has been allocated to drive carbon reduction within the council and through working with partners'.

Appendix 3 provides further details of Wilshire's plans and intentions.

In October 2020 the Tyndall Centre at the University of Manchester, produced a carbon budget for Wiltshire Council (https://carbonbudget.manchester.ac.uk/reports/E06000054/). The report provides Wiltshire with budgets for carbon dioxide (CO_2) emissions and from the energy system for 2020 to 2100 and has been produced using the Science Based Target method (https://www.wri.org/our-work/project/science-based-targets-initiative) to meet Wiltshire's share of the targets enshrined in the Paris Agreement (https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement).

The report provides:

- a long-term carbon budget for Wiltshire from 2020 to 2100;
- a sequence of recommended five-year carbon budgets;
- a date of 'near zero'/zero carbon for the area.

Table 9.5. Periodic Carbon Budgets for 2018 for Wiltshire.

Carbon Budget Period	Recommended Carbon Budget (Mt CO_2)
2018 - 2022	11.5
2023 - 2027	5.8
2028 - 2032	2.8
2033 - 2037	1.4
2038 - 2042	0.7
2043 - 2047	0.3
2048 - 2100	0.3

Source: https://carbonbudget.manchester.ac.uk/reports/E06000054/

Summary of Actions by North Somerset Council

'We declared a climate emergency at the beginning of 2019. Since then, we've been looking at ways to become carbon neutral. Our climate emergency strategy and action plan Baseline evidence reports. We have produced two emissions inventory reports – one for the council's own activities and one which covers emissions for the whole of North Somerset. Emissions data in these reports will be updated each year. They will be used to monitor progress against our climate emergency target. '

'Actions to Tackle the Climate Emergency

North Somerset Council News 19 November 2019

(https://www.n-somerset.gov.uk/news/actions-tackle-climate-emergency)

A series of initiatives, projects and policy changes have been devised by North Somerset Council to help tackle the climate emergency. The measures are set out in the council's Climate Emergency Strategy and Action Plan. The council declared a climate emergency in February this year and set a target of North Somerset becoming carbon neutral by 2030. Since then a cross-party group of councillors has been working with officers to produce a strategy and action plan aimed at achieving this target.

"Carbon neutrality in North Somerset by 2030 will only be achieved with radical behavioural adjustments across the area," said Alex Hearn, the council's assistant director – placemaking and growth.

"The council has been recognised as one of the better performing local authorities in the country at responding to climate change and it's important that we continue to show leadership and work with our local communities, businesses, schools and partners to tackle the climate emergency.
"However, we will need substantial support from the government to achieve this target and we'll be lobbying ministers and civil servants for help."

The strategy and action plan are both live documents that will be regularly reviewed and updated. The documents set out seven key principles and a raft of actions aimed at addressing the causes and consequences of climate change.

The key principles are:

Become a net zero carbon council Actions include:

- reduce the carbon footprint of the council's workforce by supporting home and flexible working and promoting sustainable travel choices
- ensure the council's electricity supply is provided by 100 per cent renewably generated sources and replace all street lighting with low energy LED units

An energy efficient built environment Actions include:

- aim for all new homes to be zero carbon or net carbon plus
- lobby government over decisions that have limited the council's ability to demand the highest standards of energy efficiency and use of renewable energy from new buildings

Replenish our carbon stores Actions include:

- implement a rewilding programme on council-owned land across the district to increase wildlife and biodiversity
- support local communities with their rewilding projects

Adapting to climate change Actions include:

- ensure the council's Emergency Management Plan is properly resourced
- ensure work around flood defences considers climate change and any local and regional effects

Renewable energy regeneration Actions include:

- pass a motion declaring North Somerset a frack free zone to discourage the exploration and production of shale gas
- encourage residents to consider 100 per cent renewable energy by helping them to access grant
- funding where available

Reduce emissions from transport Actions include:

- secure funding to increase the walking and cycling network across the district and provide an electric charging hub in Portishead
- ensure all schools have a travel plan maximising the number of students walking, cycling or travelling sustainably to school

Repair, reuse, reduce and recycle Actions include:

- zero kerbside waste to landfill with an increasing percentage recycled and the remainder used as energy from waste
- encourage composting and rewilding.

The strategy and action plan can be viewed on the climate emergency pages'.

North Somerset key documents

- https://www.n-somerset.gov.uk/my-services/nuisances-pollution-environmental-issues/climate-emergency
- https://www.n-somerset.gov.uk/sites/default/files/2020-02/North%20Somerset%20climate%20emergency%20strategy%202019.pdf
- https://www.n-somerset.gov.uk/sites/default/files/2020-02/North%20Somerset%20climate%20emergency%20action%20plan.pdf

Appendix 4 provides further details of North Somerset's plans and intentions.

In October 2020 the Tyndall Centre at the University of Manchester, produced a carbon budget for North Somerset Council https://carbonbudget.manchester.ac.uk/reports/E06000024/). The report provides North Somerset with budgets for carbon dioxide (CO_2) emissions and from the energy system for 2020 to 2100 and has been produced using the Science Based Target method (https://www.wri.org/our-work/project/science-based-targets-initiative) to meet North Somerset's share of the targets enshrined in the Paris Agreement (https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement).

The report provides:

- a long-term carbon budget for North Somerset from 2020 to 2100;
- a sequence of recommended five-year carbon budgets;
- a date of 'near zero'/zero carbon for the area.

Table 9.7. Periodic Carbon Budgets for 2018 for North Somerset.

Carbon Budget Period	Recommended Carbon Budget (Mt CO_2)
2018 - 2022	4.7
2023 - 2027	2.3
2028 - 2032	1.1
2033 - 2037	0.5
2038 - 2042	0.2
2043 - 2047	0.1
2048 - 2100	0.1

Source: https://carbonbudget.manchester.ac.uk/reports/E06000024/

Summary of Actions by Plymouth City Council

Key documents

- https://www.climateemergency.uk/blog/plymouth/
- https://www.plymouth.gov.uk/sites/default/files/PlymouthsClimateEmergencyActionPlan01.pdf

How we're tackling climate change

'The City Council recognises that it has a significant part to play in tackling climate change. On 18 March 2019 Plymouth City Councillors voted unanimously to declare a climate emergency and pledged to make Plymouth carbon neutral by 2030. Delivering on this pledge is a significant challenge and we do not underestimate the changes that will need to be made. In order to explore these changes we have produced a Climate Emergency Action Plan.

The Climate Emergency Action Plan sets out how we intend to respond to the city-wide climate emergency. It outlines Plymouth's current carbon emissions, the challenges associated with becoming carbon neutral and why the 2030 target is so important to tackling climate change. It sets this against the timescale of current national policy, recognising that not all the solutions to tackling climate change currently exist.

This Action Plan has been produced under the leadership of Plymouth City Council, but its successful delivery requires collective action across the city, from organisations and individuals. A city-wide collaborative effort is required if we are going to meet this enormous challenge head on and leave a positive legacy for our city.

It is a huge challenge, but it is not impossible. We have confidence that collectively we can deliver more of the things we already do well, faster, to reduce emissions and identify new and innovate ways to do more. We also need to use our collective power to ensure that Government provides us with more tools and resources to help stabilise our climate on our accelerated timeframe.

The City Council recognises its responsibility and has developed a Corporate Carbon Reduction Plan to sit alongside this city-wide Climate Emergency Action Plan. As an organisation, the City Council's emissions account for approximately 1% of the city's overall greenhouse gas emissions. Whilst these emissions have been reducing year-on-year, the pledge to make Plymouth carbon neutral by 2030 has accelerated the work to do more, more quickly, to reduce the Council's own emissions. The Corporate Carbon Reduction Plan sets out actions that will be taken focusing upon the activities that are under the direct influence of Plymouth City Council as part of our business, such as buildings and vehicle fleet. The document also outlines actions that relate to policies, governance and behavioural changes that contribute to the City Council's carbon emissions that need to be addressed. We cannot solve the global climate change crisis alone, but we will play our part. We will think big and act quickly.'

Appendix 5 provides further details of Plymouth's plans and intentions.

In October 2020 the Tyndall Centre at the University of Manchester, produced a carbon budget for Plymouth City Council (https://carbonbudget.manchester.ac.uk/reports/E06000026/print/). The report provides Plymouth with budgets for carbon dioxide (CO_2) emissions and from the energy system for 2020 to 2100 and has been produced using the Science Based Target method (https://www.wri.org/our-work/project/science-based-targets-initiative) to meet Plymouth's share

of the targets enshrined in the Paris Agreement (https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement).

The report provides:

- a long-term carbon budget for Plymouth from 2020 to 2100;
- a sequence of recommended five-year carbon budgets;
- a date of 'near zero'/zero carbon for the area.

Table 9.6. Periodic Carbon Budgets for 2018 -2100 for Plymouth.

Carbon Budget Period	Recommended Carbon Budget (Mt CO_2)
2018 - 2022	3.7
2023 - 2027	2.0
2028 - 2032	1.0
2033 - 2037	0.5
2038 - 2042	0.3
2043 - 2047	0.1
2048 - 2100	0.1

Source: https://carbonbudget.manchester.ac.uk/reports/E06000026/print/

10. **How does it fit with the national policy direction and what implications do these have in terms of our approach to achieving our goal (potential barriers/ lobbying that is required)**

National Actions

In June 2019, parliament passed legislation requiring the government to reduce the UK's net emissions of greenhouse gases by 100% relative to 1990 levels by 2050. (The Climate Change Act 2008 (2050 Target Amendment) Order 2019 is available at www.legislation.gov.uk/uksi/2019/1056/contents/made) Doing so would make the UK a 'net zero' emitter. Prior to this, the UK was committed to reducing net greenhouse gas emissions by at least 80% of their 1990 levels, also by 2050. Net zero refers to achieving a balance between the amount of greenhouse gas emissions produced and the amount removed from the atmosphere. There are two different routes to achieving net zero, which work in tandem: reducing existing emissions and actively removing greenhouse gases.

In 2019 the Committee on Climate Change submitted two progress reports to Government 1. Reducing UK emissions, and 2. Progress in preparing for climate change.

The Government responses to these reports can be seen at

- **https://www.gov.uk/government/publications/committee-on-climate-changes-2019-progress-reports-government-responses#:~:text=The%20government%20response%20to%20the%20report%20on%20'Progress%20in%20preparing,people%20and%20the%20built%20environment**

My summary of this is that progress is slow, lacks urgency and puts at risk various legal obligations in the 2008 Act and makes it more difficult to achieve the ambition of the Paris agreement.

The executive summary of the Government response is as follows 'In July 2019, the Committee on Climate Change (CCC) published its annual report on progress in reducing UK emissions, assessing the government's climate change mitigation activity.
It also published its biennial report on progress in preparing for climate change. This provided a first assessment of progress in implementing the government's second National Adaptation Programme (NAP), published in July 2018. The NAP covers England and Reserved matters.

The government response to the 'Reducing UK emissions' report – Leading on Clean Growth – sets out:

1. the progress made towards meeting UK carbon budgets
2. plans for further policy action to deliver on the commitments in the Clean Growth Strategy
3. the response to the recommendations in the CCC's report on reducing emissions

The government response to the report on 'Progress in preparing for climate change' addresses the CCC's 12 recommendations on preparing for the impacts of climate change. It covers:

- overall adaptation progress, including activity in the natural environment, infrastructure, people and the built environment
- business sectors under the second National Adaptation Programme (2018 to 2023)

The NAP follows on from the UK's second Climate Change Risk Assessment.'

This was published on Published 15 October 2019

Committee on Climate Change

In June 2020 the Committee presented a new analysis and expanded on its May 2020 advice to the Prime Minister in which it set out the principles for building a resilient recovery. In its new report, the Committee has assessed a wide set of measures and gathered the latest evidence on the role of climate policies in the economic recovery. Its report highlights five clear investment priorities in the months ahead:

1. Low-carbon retrofits and buildings that are fit for the future. There are vital new employment and reskilling opportunities across the country if Governments support a national plan to renovate buildings and construct new housing to the highest standards of energy and water efficiency, to begin the shift to low-carbon heating systems, and to protect against overheating. Roll-out of 'green passports' for buildings and local area energy plans can begin immediately.
2. Tree planting, peatland restoration, and green infrastructure. Investing in nature, including in our towns and cities, offers another quick route to opportunities for highly-skilled employment, and outcomes that improve people's lives. By making substantial changes in our use of land, which are needed to meet the UK's Net Zero target, we will bring significant benefits for the climate, biodiversity, air quality, and flood prevention.
3. Energy networks must be strengthened for the net-zero energy transformation in order to support electrification of transport and heating. Government has the regulatory tools to bring forward private sector investment. New hydrogen and carbon capture and storage (CCS) infrastructure will provide a route to establishing new low-carbon British industries. Fast-tracked electric vehicle charging points will hasten the move towards a full phase out of petrol and diesel cars and vans by 2032 or earlier.
4. Infrastructure to make it easy for people to walk, cycle, and work remotely. Dedicated safe spaces for walking and cycling, more bike parking and support for shared bikes and e-scooters can help the nation get back to work in a more sustainable way. For home working to be truly a widespread option, resilient digital technology (5G and fibre broadband) will be needed.
5. Moving towards a circular economy. Within the next five years, we can not only increase reuse & recycling rates rapidly but stop sending biodegradable wastes to landfill. Local authorities need support to invest strategically in separated waste collections and recycling infrastructure and to create new regional jobs.

There are also opportunities to support the transition and the recovery by investing in the UK's workforce, and in lower-carbon behaviours and innovation:

1. Reskilling and retraining programmes. The net-zero economy will require a net-zero workforce, able to install smart low-carbon heating systems and to make homes comfortable; to design, manufacture and use low-carbon products and materials; and to put carbon back, rather than taking carbon out, from under the North Sea. Now is the time to build that workforce and to equip UK workers with vital skills for the future.
2. Leading a move towards positive behaviours. There is a window for Government to reinforce the 'climate-positive' behaviours that have emerged during the lockdown, including increased remote working, cycling and walking. The public sector must lead by example by

encouraging remote working. It also needs to innovate in order that customer service can be provided effectively remotely.

3. Targeted science and innovation funding. Kick-starting research and innovation now in low-carbon and adaptation technologies will facilitate the changes needed in the decades ahead and build UK competitive advantage. The COVID-19 crisis has highlighted the importance of research if we are to understand fully the threats and learn how to manage them.

Achieving the UK's climate goals and rebuilding the economy fit naturally together. Each makes the other possible. Success demands that we do both. The actions recommended by the CCC will deliver an improved economy, better public health, improved biodiversity and access to nature, cleaner air, more comfortable homes and highly productive and rewarding employment.

See: https://www.theccc.org.uk/2020/06/25/covid-19-can-be-an-historic-turning-point-in-tackling-the-global-climate-crisis/

These principles can be applied to the local level and inform the decisions about the shape and urgency of the Year 2 Climate Action Plan.

The Committee on Climate Change has responded to a question on the 'role of local authorities in getting the UK to Net Zero'.

See: https://www.theccc.org.uk/2020/07/17/2020-progress-report-to-parliament-your-questions-answered/

The Committee responded as follows:

'Local authorities can support key priorities identified in our Progress Report through:

- Building community consensus on plans for decarbonising heating and delivering retrofit across all housing tenures – social housing, council housing;
- Transport planning, including providing high-quality infrastructure for walking and cycling, provision of charging infrastructure for electric vehicles;
- Putting in place plans to ensure local areas are resilient to the future impacts of climate change.

There are many challenges to effective delivery of Net Zero at a local level, including inconsistent reporting across the country and a lack of resources which can mean that climate change is lost amongst many competing priorities.

The Government should incentivise, support and enable local authorities to deliver emissions reductions and climate adaptation measures at a local level. Cities need to be enabled to collaborate, scale up programmes and share lessons learned, such as successful experiences of retrofitting Victorian terraced houses.

The Committee is considering the positive role that Local Authorities, city regions and combined authorities can play and expect to publish further advice on this as part of our work on the Sixth Carbon Budget later this year.'

WECA

The West of England Combined Authority has declared a Climate emergency and like South Gloucestershire has committed to net zero by 2030. WECA have commissioned consultants WSP to support their actions in respect of the declaration. An action plan is expected to be published in October 2020. Areas of alignment with the WECA Action Plan and possible funding sources should be explored as part of Year 2. WECA's current position is set out at https://www.westofengland-ca.gov.uk/helping-to-tackle-the-climate-emergency/

'The climate emergency is at the heart of everything WECA does – including our plans for economic growth and recovery following the Covid-19 outbreak. Our recovery taskforce has a low carbon business group providing advice on green growth that benefits every resident'. WECA has committed significant investment to innovation, low carbon public transport, walking and cycling, renewable energy generation and supporting businesses to transition to low carbon ways of doing things. Actions include West of England Low Carbon Challenge Fund – supporting small and medium-sized businesses, funding walking and cycling measures, supporting public transport and investing in the Institute for Advanced Automotive Propulsion Systems.

The Joint Local Transport Plan will address action against climate change and clean growth is central to the Local Industrial Strategy.

COP26

COP26, the UN climate conference, which will now take place between 1 and 12 November 2021 in Glasgow. COP26 President Alok Sharma set out the UK's ambition for the meeting as one in which there is increasing ambition towards a climate-resilient, zero-carbon economy.

(See https://www.gov.uk/government/speeches/increasing-ambition-towards-a-climate-resilient-zero-carbon-economy). The COP President said that the UK's COP Presidency will focus efforts on five areas: clean energy, clean transport, nature-based solutions, adaptation and resilience, and finance.

South Gloucestershire's target is more ambitious than the UK's 2050 target.

In order to achieve the UK legal target national actions to decarbonise transport, and energy supply will need to be prioritised in the next half decade. These actions will support South Gloucestershire own actions but on their own they will be insufficient to meet the target.

South Gloucestershire will need to deliver larger reductions at a faster rate than the UK as a whole.

COP 26 will provide a major stimulus for action. South Gloucestershire should carefully consider how best to use the COP opportunity to add further momentum to their already impressive actions.

Summary, Conclusions and Recommendations

South Gloucestershire Council asked UWE' University Advisory Group to review Year One of the Climate Emergency Action Plan. In doing so the Council posed 10 questions for UWE to answer in critically assessing the Action Plan.

Q1. Climate Emergency Process – Please provide an assessment of the process to advise if any expected steps have been missed out that need to be picked up?

The process is robust from a policy and planning perspective. The approach encompasses a declaration of a climate emergency with all party support. This is underpinned by a clear strategy with actions delegated to appropriate entities in a task and finish model. A governance structure is in place which loops back to the Cabinet via the Cabinet Report. Responsibility is shared with members of the Local Strategic Partnership.

Q2. Baseline – Is this robust? Is further baselining/research required?

- The Baseline is robust enough for actions to be planned and executed. However, continuing action to enhance the accuracy and precision of the baseline is recommended.
- It may require updating to ensure that new knowledge about emission sources and rates is incorporated in the base year estimate. This action will be consistent with the way in which the National Atmospheric Emissions Inventory operates.
- The baseline should be accompanied by a robust plan to reduce direct emissions year on year.
- Consideration should be given to setting a target annual carbon budget and percentage reduction required for remaining years until 2030.
- The existing baseline position has been identified through an external consultancy using acceptable and sector recognised methods to determine the baseline.

Q3. Climate Emergency Year 1 Action Plan: What reflection can be made on this foundation Year 1 plan to tackle the Climate Emergency?

Policy and plans are in place and the challenge is to ensure that all actors are aware and acting on the signals in the Action Plan. Evidence from a survey of LSP members does not suggest that the major employers are fully engaged in this task.

The Year 1 Action Plan identified a suite of priority projects split into two groups. Those projects already funded through existing budgets and those for which funding will be sought from within the £1.7 million over the 4 year Medium Term Financial Plan (MTFP), in addition to the £85k allocated to early Climate Emergency investments in October 2019 and investments through the Capital Programme. It is not clear how much of the intended investment in climate action has been secured for use.

The Action Plan contains projects in 7 categories described as Prepare, Develop, and Implement, these terms should be defined.

Q4. **What gaps do you identify in the content of the Year 1 plan that need to be addressed in subsequent plans?**

- Mitigation of Scope 1 and 2 emissions
- Further consideration of Scope 3 emissions both Council and District wide.
- Integration of climate considerations into routine council business
- Action to enhance co benefits of ecological recovery and climate action.
- Training of staff
- Communications Strategy
- Acceleration of Adaptation consideration and moving to implementation actions
- Outreach activity to win hearts and minds, link to local COP 26 activity.

Q5. What year on year reduction in emissions needs to be achieved?

In order to meet the zero target of 2030 a reduction of 34% per annum is required from a 2020 baseline of 1048.5 kt CO_2e

It is important to 'bank' emission savings early in the decade to 2030.

If reduction actions are planned for implementation in later years but for whatever reason are delayed or only partially successful then this runs the risk of overshooting the target year. An additional risk from planning major reductions later in the decade arises from any failure of earlier year actions to deliver the expected savings. In such a case the missed part of the reduction must be added to future years and increases the difficulty of achieving the annual targets for future years.

There must be confidence that the project portfolio of planned or funded projects can deliver the required reductions in emissions from Council and District wide sources.

Q6. What areas of focus should be prioritised in the Year 2 plan?

- Mitigation of Scope 1 and 2 emissions
- Further consideration of Scope 3 emissions both Council and District wide.
- Emissions from the consumption of goods and services need to be considered and projects to inspire others to undertake action directed at reducing the embedded carbon in such purchases. The possibility of using GDP to undertake this task should be assessed. LSP members should be encouraged to undertake Scope 3 assessments.
- Integration of climate considerations into routine council business
- Action to enhance co benefits of ecological recovery and climate action.
- Training of staff within the Council and LSP member organisations.
- Further development of a Communications Strategy
- Acceleration of adaptation consideration and moving to implementation actions
- Exploration of collaboration opportunities with WECA and local councils to identify early implementation opportunities and possible economies of scale for shared actions.
- A greater emphasis in year 2 on community engagement and actions for citizens is desirable and this could link to a local citizen's assembly and /or local COP 26 activity.
- Offsetting or carbon compensation/ Carbon balancing requires further consideration exploring both the potential and the timing of when such actions should be undertaken. This would be both a direct action for the council and an Inspire activity. Consideration should be given to

promoting a WECA wide project with a managed fund established from the proceeds of offsetting and dedicated to reinvestment in verifiable offsetting or carbon management / adaptation projects.
- Consideration should be given to insetting opportunities on council owned land and opportunities for offsetting on the agricultural land within the District, estimated to be 64% of the area.

Q7. What recommendations do you make for improving partnership work and increasing area wide engagement on Climate Emergency across the area?

- Efforts should continue to enhance the response rate from the LSP survey, improve the quality of information provided including details of the anticipated carbon saving from the actions undertaken by LSP members.
- The routine LSP agenda should contain an item to update progress by members in responding to the Climate Emergency.
- The LSP should routinely discuss the challenge of actions to deliver net zero
- Actions decided at LSP meetings should include quantification of the impact of a decision on the Net Zero target and the carbon budget for the period to 2030. This could be expressed as the percentage share of the annual carbon budget that implementing the decision will expend.
- LSP members should be encouraged to discuss and agree actions that will adapt their business and build resilience in the face of climate change.

Q8. Strategic Context (Political, Environmental, Social, Technical, Legal, Economic) analysis

A PESTLE analysis has been performed. Challenges, barriers and opportunities have been incorporated into the response to each question by South Gloucestershire Council.

The PESTLE analysis should be repeated each year to ensure currency and alignment of the Action Plan.

Q9. How does our approach compare with other unitary local authorities of a similar size?

The actions of four local authorities have been compared with South Gloucestershire.
- Plymouth City Council
- Oxford City Council
- North Somerset Council
- Wiltshire Council

Each of these has declared a Climate Emergency. Each has unique circumstances and has chosen the range of actions appropriate for those circumstances. Where comparison is valid it is clear that South Gloucestershire's approach is at least as ambitious and as clearly targeted as any in the comparison set.

It is recommended that the actions being undertaken by the comparison set should be kept under review

Q10. How does it fit with the national policy direction and what implications do these have in terms of our approach to achieving our goal

- South Gloucestershire's target is more ambitious than the UK's 2050 target.
- In order to achieve the UK legal target national actions to decarbonise transport, and energy supply will need to be prioritised in the next half decade.
- These actions will support South Gloucestershire own actions but on their own they will be insufficient to meet the target. South Gloucestershire will need to deliver larger reductions at a faster scale than the UK as a whole.
- COP 26 will provide a major stimulus for action. South Gloucestershire should carefully consider how best to use the COP opportunity to add further momentum to their already impressive actions.

Appendix 1

The text below is taken from the Tyndall Centre report on a carbon budget and pathway for South Gloucestershire. It describes the method of calculating the budget using the SCATTER model and a Science Based Target method. The report produces a budget to 2010 but most of the emissions are assumed to have been reduced by 2050.

Please note that South Gloucestershire have set a target of carbon neutrality by 2030. Thus there is greater urgency to achieve large and early carbon emission reductions over and above those identified by the Tyndall Centre.

Setting Climate Commitments for South Gloucestershire.

Quantifying the implications of the United Nations Paris Agreement for South Gloucestershire

Tyndall Centre Method

The Setting City Area Targets and Trajectories for Emissions Reduction (SCATTER) project funded by the Department for Business Energy and Industrial Strategy (BEIS) developed a methodology for Local Authorities to set carbon emissions targets that are consistent with United Nations Paris Climate Agreement. This report uses the SCATTER methodology with revised global carbon budgets, based on the latest IPCC Special Report on 1.5°C and updated CO_2 emissions datasets, to downscale global carbon budgets to South Gloucestershire. This methodology has been successfully piloted with Greater Manchester Combined Authority and is being made available nationally to support all local authorities and groupings of local authorities.

Step 1: A global carbon budget of 900 $GtCO_2$ is taken from the Intergovernmental Panel on Climate Change (IPCC) Special Report on 1.5ºC. This global carbon budget represents the latest IPCC estimate of the quantity of CO_2 that can be emitted and still be consistent with keeping global temperatures well below 2ºC with an outside chance of stabilising at 1.5 ºC. This budget assumes no reliance on carbon removal technologies.

Step 2: A 'global overhead' deduction is made for process emissions arising from cement production (60 $GtCO_2$). Cement is assumed to be a necessity for development. We also assume that there is no net deforestation at a global level (2020 to 2100) so none of the global carbon budget is allocated to this sector. This will require a significant global effort to rapidly reduce deforestation and significantly improve forestry management as well as increase rates of reforestation and potentially afforestation.

Step 3: A share of the global carbon budget is allocated to "developing country parties" assuming a trajectory for those countries from current emissions to a peak in 2025 then increasing mitigation towards zero emissions by around 2050. The remaining budget is allocated to "developed country parties" which includes the UK. This approach of considering developing countries first, is guided by the stipulation of equity within the Paris Agreement (and its earlier forebears, from Kyoto onwards).

Step 4: The UK is apportioned a share of the 'developed country Parties' budget after Step 3 to provide a UK national carbon budget. The apportionment is made according to "grandfathering" of emissions for the most recent period up to the Paris Agreement (2011 to 2016).

Step 5: Aviation and shipping emissions are deducted. Assumptions and estimates are made about the level of future emissions from aviation, shipping and military transport for the UK. These

emissions are then deducted from the national budgets as a 'national overhead" to derive final UK energy only carbon budgets. Emissions from aviation including military aircraft are assumed to be static out to 2030, followed by a linear reduction to complete decarbonisation by 2075. The total CO_2 emissions of this path are >25% lower than Department for Transport central forecast followed by reduction to zero by 2075. Shipping emissions are based on Walsh et al 'big world' scenario out to 2050 followed by full decarbonisation from this sector by 2075. These aviation and shipping emissions (1,518 $MtCO_2$) are then deducted as a 'national overhead' from the UK budget to derive the final carbon budgets for the UK, from which local authority budgets are subsequently derived. The budgets provided are therefore aligned with "well below 2°C and pursuing 1.5°C" provided that aviation and shipping emissions do not exceed the pathway assumed in our analysis. Failure to hold aviation and shipping emissions within the outlined allocation will reduce the carbon budget for UK regions, including for South Gloucestershire.

Step 6: South Gloucestershire is apportioned a part of the remaining UK carbon budget. Our recommended budget is based on sub-national allocation through 'grandfathering'. A grandfathering approach allocates carbon budgets on the basis of recent emissions data. The most recent annual CO_2 emissions for South Gloucestershire up to the Paris Agreement (2011-2016) is averaged and compared to averaged data for the whole UK [13] over the same period. The carbon budget (2020-2100) for South Gloucestershire is then apportioned based on South Gloucestershire's average proportion of UK CO_2 emissions for the 2011-2016 period. CO_2 emissions in the carbon budget include emissions from fossil combustion within the region and a share of the emissions from national electricity generation (relative to the South Gloucestershire area's end-use electricity demand).

Step 7: Carbon emission pathways. The carbon budgets for South Gloucestershire are related to a set of illustrative emission pathways. These pathways show projected annual CO_2 emissions from energy use in South Gloucestershire and how these emissions reduce over time to stay within the budget. The energy-only CO_2 emissions for 5-yearly interim carbon budget periods are calculated in line with the framework set out in the UK Climate Change Act. It is the cumulative carbon budget and the 5 year interim budgets that are of primary importance as opposed to a long term target date. The combination of a Paris-compliant carbon budget and the projected emissions pathways can however be used to derive an indicative near zero carbon target year for South Gloucestershire. The near zero carbon year of 2041 is defined here as the point at which, on the consistent reduction rate curve, less than 5% of South Gloucestershire's recommended budget remains. Annual CO_2 emissions at this point fall below 0.06 $MtCO_2$ (CO_2 levels >96% lower than in 2015 – a Paris Agreement reference year).

Text above copied from Kuriakose, J. Chris Jones, C., Anderson, K., Broderick, J. & Carly McLachlan, C. (2020) Setting Climate Commitments for South Gloucestershire. Quantifying the implications of the United Nations Paris Agreement for South Gloucestershire

https://carbonbudget.manchester.ac.uk/reports/E06000025/print/

The Tyndall report does not provide a non-CO_2 emissions reduction pathway. 'However the global carbon budget in the IPCC Special Report on 1.5ºC, that their analysis is based on, assumes a significant reduction in the rate of methane and other non-CO_2 emissions over time. Therefore to be

consistent with carbon budgets South Gloucestershire should continue to take action to reduce these emissions.'

The Department of Business Energy and Industrial Strategy's Local Authority emissions statistics do not at this time provide non-CO_2 emissions data at the regional level. Given the absence of robust non-CO_2 emissions data, any non-CO_2 emissions inventory at scope 1 and 2 for South Gloucestershire may form the basis of monitoring and planning for these emissions. The Tyndall Centre recommend considering the adoption of a Land Use, Land Use Changes and Forestry (LULUCF) pathway that includes CO_2 sequestration sufficient to help compensate for non-CO_2 emissions within South Gloucestershire's administrative area.

Appendix 2. Oxford City Council Climate Emergency

Oxford City Council has responded to the Oxford Citizens' Assembly on Climate Change.

https://www.oxford.gov.uk/news/article/1275/city_council_responds_to_oxford_citizens_assembly_on_climate_change_and_outlines_19m_climate_emergency_budget#:~:text=Oxford%20City%20Council%20has%20responded,Zero%20Carbon%20Council%20and%20city.

In response to the report of the Citizens' Assembly, the City Council will:

- Set a Climate Emergency Budget that commits over £1 million additional operational funding and £18 million of capital investment to address the climate emergency – on top of £84 million of ongoing investment to tackle the climate emergency in Oxford and countywide
- Become net zero as a Council in 2020.
- Respond directly to the recommendations of the Citizens' Assembly through raising the energy efficiency of new homes and community buildings, cutting transport emissions, boosting renewable energy installation, expanding biodiversity across the city, and increasing public engagement with recycling.
- Hold a Zero Carbon Oxford summit in the early new year – involving the major organisations responsible for the majority of emissions in the city to see how we can work together to will be to develop a shared vision, forum, and plans to set a course towards a Zero Carbon Oxford.
- Establish a Zero Carbon Oxford Partnership and influence partners to do more.
- Creation of new carbon budgets for the city to step down to zero
- Provide support to individuals and communities to tackle the climate emergency.

Throughout its programme the City Council will also have full regard to the concerns clearly expressed by both councillors and Assembly Members that the programme to cut carbon emissions in Oxford neither disadvantages low-income households in the city, or sacrifices residents' standard of living. In fact, the City Council has an opportunity to enhance residents' standard of living, especially those who are most vulnerable and have low-incomes, through its climate action.

Actions to be taken are as follows

2020/2021 Budget allocation

The City Council will commit over a £1 million of additional operational funding and £18 million of capital investment to the climate emergency. This is on top of £84 million of ongoing investment in measures across Oxford and Oxfordshire. The Council will also explore additional sources of funding, including Government grants, investment by business and individual households, and fundraising by community groups.

City Council response to Assembly recommendations

Buildings

The City Council will move towards a zero carbon building system across eight areas – Council buildings, Council housing, new homes, community buildings, commercial buildings, private rented sector, planning standards, and building standards.

Council buildings: From October 2020, the Council will procure all its gas from certified renewable gas producers. A new contract will be agreed for the provision of green electricity, with offsetting - linked to certified sustainable tree planting in south east England - to cover the remaining emissions. The council is also considering an additional fund - Salix+ - to support delivery of energy efficiency and renewable energy related projects.

Retrofitting council housing: The Council will complete an assessment of the energy efficiency of its housing stock in 2020. Following this assessment, proposals will be presented for the additional investment to deliver greater carbon reduction of Council housing, prioritising the worst performing first. Residents will be consulted on a retrofit investment programme.

New build homes: The Oxford City Housing Limited (OCHL) is developing a plan to progress all new build to above Part L of Building Regulation standard and without gas heating. The Council will also demonstrate net zero or PassivHaus homes, to generate local interest. In time, as acceptance of PassivHaus homes among tenants and buyers increases, and the incrementally higher costs of this form of housing narrows, it is anticipated that this will be the norm for OCHL construction.

Community buildings: A full audit of all the Council's community assets is underway, which includes an appraisal of their energy efficiency. A further assessment is set to be commissioned to identify options and costs for retrofitting. All new City Council buildings will draw on best practice examples such as Rose Hill Community Centre, which has a One Planet Living Action Plan. The Council will also achieve zero carbon through working in partnership with stakeholders, identifying external funding opportunities, and lobbying the Government for changes to national policy and standards in areas such as building standards, commercial buildings, and in the private rented sector.

Transport

The Council will examine the City Council fleet, supporting electric vehicle take-up and charging infrastructure, supporting and incentivising electric buses and taxis, lobbying for a vehicle standards and scrappage scheme, investment in cycling, and development of both the Zero Emission Zone and Connecting Oxford proposals.

City Council fleet: The City Council's wholly-owned direct services company, Oxford Direct Services' (ODS) has committed to electrifying at least 25% of their fleet by 2023. ODS is also working in partnership with Pivot Power on the £40m Energy Superhub Oxford project (ESO) which will enable superfast charging of vehicles at its depot and support the shift of the fleet to zero.

Electric vehicle take-up and charging infrastructure: Oxford City Council has secured funding for the implementation of around 400 electric vehicle charging points across the city. Wider implementation will require additional funding, and could be underpinned by the £40 million Project Leo smart grid, being developed in the city with partners.

Electric buses and taxis: The City Council has reached agreement with bus operators that all buses within the city will be zero emission capable by 2035. For taxis, new licensing standards will require

all taxis licensed in Oxford to be zero emission capable by 2025, which the City Council is incentivising the Black Cab fleet to be zero-emission capable.

Cycling: The City Council is continuing to invest in provision of extra cycle parking in the city and is working with Oxfordshire County Council on proposals to fund the creation of cycle greenways into the city.

Vehicle standards and scrappage scheme: The City Council will actively lobby the Government to bring the end of the sale of all new petrol and diesel cars and vans by 2030.

Oxford City Council and Oxfordshire County Council are working in partnership to introduce a zero emission zone from 2020, which aims to cover the whole city by 2035. Both councils are also working to develop proposals for a workplace parking levy and access restrictions to reduce congestion and improve walking, cycling, and public transport facilities.

The Council will also continue to support the electrification of the rail network, with particular reference to the extension of electrification of the western region to Oxford and beyond.

Offsetting:

The Council will ensure offsets are used only in addition to other actions. The City Council will prioritise offsetting measures within the city to also allow wider socio-economic opportunities.

City Council Offsetting: The City Council will follow best practice explore the potential for a locally based offsetting scheme, based on the natural capital resource management principles and linked in to our biodiversity programmes.

Recycling and Waste:

City Council waste: Projects are currently underway to reduce water usage and increase recycling of waste from the Council's own office accommodation and operations and eliminate waste to landfill.

Recycling target: The City Council is working with other Districts and the County Council to deliver an Oxfordshire-wide Join Municipal Waste Management Strategy (JMWMS). The JMWMS aims to keep household waste growth to zero (per person per year), increase the amount of household waste recycled to 70% by 2030, and to end less than 3% of household rubbish to landfill by 2020.

The Council is also helping to revitalise a countywide Oxfordshire Environmental Partnership to drive behaviour change around waste reduction and recycling.

Public information: The City Council budget for 2020/21 will also allow for dedicated public information and communications around recycling and waste reduction through expanding public events such as a zero-waste festival which was trialled in 2019.

Renewable Energy

City Council renewables installation: From December 2019, Oxford City Council will have completed the installation of one of the UK's largest solar carports at the city's Pool and Leisure Centre in Blackbird Leys. A canopy over 48 car-parking spaces will deliver up to 100,000 kilo-watt hours of green electricity to the pool and leisure centre per year, enough to power 25 homes.

Supporting others to install renewables: The Council will continue to support the installation of renewable energy in and around the city, particularly where this links to local energy balancing and retaining money within the local economy, through working with organisations such as the Low

Carbon Hub. The Council will continue to review investment and opportunities to support community energy network in and around the city.

Establishing a Zero Carbon Oxford Partnership and influence partners

The Citizens' Assembly highlighted the importance of the Council working with partnership to achieve a significant reduction in carbon emissions. The City Council is able to convene, inform, and influence others to take action – including other statutory bodies, businesses, voluntary organisations in the city, and neighbouring local authorities and central Government.

The Council estimates it has the potential to influence up to 66% of Oxford's total greenhouse gas emissions. This will be achieved through:

Oxford Climate Change Summit: The City Council will host an Oxford Climate Change Summit in early 2020, which will join key individuals from key organisations and businesses responsible for most of Oxford's greenhouse gas emissions. The summit aims to develop a shared plan towards a Zero Carbon Oxford.

Zero Carbon Oxford Partnership: A relaunch of the existing Low Carbon Oxford Partnership as the Zero Carbon Oxford Partnership. The partnership will encourage emitting organisations across the city to agree target and action plan for Oxford to become a zero-carbon city.

Retrofit Summit: Oxford City Council will explore with others the opportunity to establish a retrofit summit, to bring together manufacturers, contractors, and designers in the domain of retrofitting.

Supporting individuals and communities

The City Council is keen to encourage individuals and communities to drive change, especially in areas such as Oxford's biodiversity and increasing flora and fauna in the city.

Key developments include:

Community grants: The Council's £1.5 million per annum community grants programme will be reviewed to include objective of increasing the promotion of community-led projects and organisations which are taking action on climate change.

School curriculum programme: The Council's outreach and curriculum programme with Oxford schools will be expanded to cover broader climate change issues. To achieve this, the Council will also work with Oxfordshire County Council - the city's Local Education Authority.

Oxford Climate Change Youth Board: The creation of a youth board to provide for the views of young people in the city. The board will work with the City Council to produce a Youth Climate Action Summit, to give young people a chance to express their views on climate change.

Other methods of supporting individuals include, creating a wider volunteer network in the city, and engaging younger people in climate issues.

Strengthening Council's climate communications and influence

Assembly Members asked for greater awareness around initiatives to tackle climate change in Oxford, and the roles played by local and national Government.

The Budget 2020/21 makes provision for expenditure around public information and engagement to raise the awareness of climate change. Alongside this, the Council will achieve this through:

Carbon targets: The Council will measure progress at 5-yearly intervals, linked to notional carbon budgets for the city, which will be proposed in the upcoming Sustainability Strategy

Oxford to Zero: The creation of an 'Oxford to Zero' brand by the City Council, which can be used by groups and to build awareness of projects relating to the climate emergency. This includes a microsite which will showcase action, and signpost key sources of information.

Lobbying for change: The Council will lobby to seek changes to the national framework around buildings, planning, transport, waste and biodiversity to unlock Oxford's potential to do more.

A Council-wide approach

Every aspect of the Council's work will need to be approached through the lens of the climate emergency. Current steps to raise internal commitment includes: a formalised internal governance on the Council's response to the climate emergency, internal communications and engagement, and an audit of all current activity to inform decisions on corporate prioritisation.

Appendix 3. Wiltshire Climate Emergency
https://www.wiltshire.gov.uk/green-economy-climate-emergency

Overview

'In February 2019 we resolved to acknowledge a climate emergency and to seek to make the county of Wiltshire carbon neutral by 2030. A Climate Emergency Task Group was set up to gather evidence and come up with recommendations on achieving net zero. Our Cabinet subsequently committed to also make the council carbon neutral by 2030. A new carbon reduction strategy will be prepared to enable us to meet these commitments. The plan will be evidence and data led and a baseline assessment will be undertaken to assist in identifying needs and determining priorities. It is proposed that the plan will include a community led approach which engages, empowers, enables and communicates with Wiltshire communities and businesses. Carbon reduction will be a key theme in the council's recovery from COVID-19.'

What are we doing to tackle the problem?

'Since the climate emergency was confirmed in Wiltshire, we have progressed the following areas, recognising that this is the start of a journey:

- Committed to invest £5.2m to make its buildings more energy efficient
- Hosted a number of well-attended special climate change-themed area board meetings
- Secured all the electricity on our corporate contract from a green tariff from April 2020
- Supported the bid and invested to bring electric buses to Salisbury
- Bid for significant funding to improve public transport and cycle networks
- Set up Stone Circle Energy Company and committed to invest £3.5 million in sustainable energy projects across the county
- Committed to develop 1000 new council homes to a zero carbon standard
- Funded a climate change team in the 2020/21 budget and appointed a Head of Carbon Reduction
- Committed to invest £12m on a major public highway LED light replacement project which is projected to reduce carbon emissions by 83% compared with 2013/14
- Joined forces with other councils through the Countryside Climate Network to ensure that the rural voice on climate action is listened to in Westminster
- Established that climate change and renewable energy is the top priority for residents surveyed in 2019
- Worked with partners to develop the vision for a green infrastructure network in Wiltshire
- Encouraged the public to make a Green Pledge
- In October 2019 we were named the most climate-friendly council in England and Wales by Friends of the Earth.

'Carbon reduction will be a key theme in our recovery from COVID-19. As well as developing a new carbon reduction strategy, we are carrying out a review of the Local Plan and developing our fourth Local Transport Plan. Carbon reduction will be an integral theme within these documents. We are currently developing a Green Infrastructure Strategy. From this we will develop a woodland and tree planting policy. We are also engaging with other public sector organisations through the Wiltshire Public Service Board and with businesses through the

Swindon and Wiltshire Local Enterprise Partnership (SWLEP). The SWLEP has published its emerging Local Industrial Strategy which includes commitments to improving the strategic energy infrastructure, decarbonising our economy and helping to deliver the national climate change targets. We will continue to engage with communities to work collaboratively towards achieving the country's decarbonisation goal.'

Make the Wiltshire Green Pledge today

We need your help to make Wiltshire as environmentally friendly as possible. There are many small changes you can make in your everyday life that can have a big positive impact on the environment. Such as:

- Leave the car at home and walk more
- Take shorter showers and turn off taps when brushing teeth
- Try and use as little single-use plastic as possible
- Use a reusable cup
- Use bags for life
- Recycle as much as you can
- Turn off lights when not using them
- Install a smart meter to help you manage energy use

Those are just some suggestions but there's so much more you can do. So, we want you to have a think about the changes you can make...starting today. Please make the Wiltshire Green Pledge today and do what you can. Making your pledge should only take a couple of minutes.

Appendix 4. North Somerset Council Climate Emergency

- https://www.n-somerset.gov.uk/sites/default/files/2020-08/NSC%20Climate%20Emergency%20-%20report%20on%20area%20baseline%20evidence.pdf
- https://www.n-somerset.gov.uk/my-services/nuisances-pollution-environmental-issues/climate-emergency

'The **North Somerset Climate Emergency Strategy** is a live document which outlines our seven key principles for how we will address the causes and consequences of climate change, with the aim to be carbon neutral by 2030. The Strategy is supported by the accompanying Climate Emergency Strategic Action Plan and Data Dashboard. The Strategy is owned by the cross-party member Climate Emergency working group and will link in with the developing North Somerset Corporate Plan 2020-2025, our Medium Term Financial Plan, and other strategic plans including the Economic Plan and the Joint Local Transport Plan. The Climate Emergency Strategy and Action Plan will be reviewed annually to confirm our principles and to analyse our progress.'

The strategy sets out key principles (see below), defines the scope of actions, explains how the actions will be taken forward under headings of avoid, reduce, mitigate and storage. Sets out governance arrangements and stakeholder involvement. It concludes with a statement on how progress will be measured.

North Somerset Key principles

- Become a net zero Council
- Energy efficient built environment
- Renewable energy generation
- Replenish carbon stores
- Reduce emissions from transport
- Repair, reuse, reduce and recycle
- Adapting to climate change

Scope of Actions

'North Somerset Council only has direct control over a small proportion of the total carbon emissions of the area. Analysis is ongoing to confirm this proportion but it is believed to be less than 2%. Reducing these emissions will form our work around becoming a net zero carbon council. For our other key principles, the council will take a leadership role. Part of this role will be considering our matrix of influence to identify actions that we can help to enable, support and influence both locally and nationally. The council will also seek to understand how our work will reduce differently scoped emissions in North Somerset. These include scope one: all direct emissions from activities within our area, scope two: all indirect emissions from energy production/ use in our area, and scope three: all other indirect emissions from activities within our area, occurring from sources we do not own or control.'

'The **North Somerset Climate Emergency Strategic Action Plan** is a live document which lists a series of over-arching actions that we will explore in North Somerset to address the causes and consequences of climate change. Each action could contribute towards our aim of being a carbon neutral council and a carbon neutral area by 2030. The actions are aligned to the seven key principles within our Climate Emergency Strategy.'

'The actions listed are subject to further exploration and in some cases, targeted business cases. Some actions fall under more than one principle and where that is the case they have been listed under the 'primary principle'. A more detailed working plan that informs the work programme for North Somerset Council and partners includes additional detail on calculations for carbon emission reductions, quantity of greenhouse gas removals of each action, financial estimates, ease of delivery, and specific targets for each year to 2030. '

Actions directed at each of the principles

- Net zero Council
- Energy efficient built environment
- Renewable energy generation
- Replenish carbon stores
- Reduce emissions from transport
- Repair, reuse, reduce and recycle
- Adapting to climate change

N Somerset estimates that 42% of emissions are from transport, 25% are domestic, 25% non-domestic (industry, commerce etc.) % from land use and livestock and 3% from solid and liquid waste.

Total emission estimated at 1434 kt CO_2e https://www.n-somerset.gov.uk/sites/default/files/2020-08/NSC%20Climate%20Emergency%20-%20report%20on%20area%20baseline%20evidence.pdf

Appendix 5. Plymouth Climate Emergency

https://www.plymouth.gov.uk/environmentandpollution/climatechangeandenergy/howweretacklingclimatechange#:~:text=On%2018%20March%202019%20Plymouth,Plymouth%20carbon%20neutral%20by%202030.&text=It%20outlines%20Plymouth's%20current%20carbon,important%20to%20tackling%20climate%20change.

'The City Council recognises that it has a significant part to play in tackling climate change. On 18 March 2019 Plymouth City Councillors voted unanimously to declare a climate emergency and pledged to make Plymouth carbon neutral by 2030. Delivering on this pledge is a significant challenge and we do not underestimate the changes that will need to be made. In order to explore these changes we have produced a Climate Emergency Action Plan.

The Climate Emergency Action Plan sets out how we intend to respond to the city-wide climate emergency. It outlines Plymouth's current carbon emissions, the challenges associated with becoming carbon neutral and why the 2030 target is so important to tackling climate change. It sets this against the timescale of current national policy, recognising that not all the solutions to tackling climate change currently exist.

This Action Plan has been produced under the leadership of Plymouth City Council, but its successful delivery requires collective action across the city, from organisations and individuals. A city-wide collaborative effort is required if we are going to meet this enormous challenge head on and leave a positive legacy for our city.

It is a huge challenge, but it is not impossible. We have confidence that collectively we can deliver more of the things we already do well, faster, to reduce emissions and identify new and innovate ways to do more. We also need to use our collective power to ensure that Government provides us with more tools and resources to help stabilise our climate on our accelerated timeframe.

The City Council recognises its responsibility and has developed a Corporate Carbon Reduction Plan to sit alongside this city-wide Climate Emergency Action Plan. As an organisation, the City Council's emissions account for approximately 1% of the city's overall greenhouse gas emissions. Whilst these emissions have been reducing year-on-year, the pledge to make Plymouth carbon neutral by 2030 has accelerated the work to do more, more quickly, to reduce the Council's own emissions. The Corporate Carbon Reduction Plan sets out actions that will be taken focusing upon the activities that are under the direct influence of Plymouth City Council as part of our business, such as buildings and vehicle fleet. The document also outlines actions that relate to policies, governance and behavioural changes that contribute to the City Council's carbon emissions that need to be addressed.

We cannot solve the global climate change crisis alone, but we will play our part. We will think big and act quickly.'

Plymouth Climate Action Plan published December 2019
https://www.plymouth.gov.uk/sites/default/files/PlymouthsClimateEmergencyActionPlan01.pdf

The Action Plan covers the need for a declaration and the target year of 2030, before discussing emission trajectories and challenges including resources. Specific actions cover the City Council's own emissions, power and heat generation, building stock, the domestic sector, new homes, non-domestic sector, mobility, waste, engagement and responsibility and ends with a call to action. To support the Council's own corporate carbon reduction a plan has been produced cover these emissions.
https://www.plymouth.gov.uk/sites/default/files/PCCCorporateCarbonReductionPlan20192021.pdf

The Action Plan is described as a framework for taking action, securing further funding and lobbying national government. The emissions from the city area have been estimated by Exeter University as arising as follows.

- 31% emissions from buildings,
- 28% from transport,
- 22% from power (including industrial power consumption),
- 10% from waste,
- 8% from F gases including emissions from industrial refrigeration and electrical switchgear and
- 1% from industry (mostly asphalt and concrete).

The Action Plan makes good use of statistics to illustrate current actions and the scale of the future challenge. Examples include

'For Plymouth to achieve its 2030 target we need to act three times faster than envisaged by the current government policies.'

'Plymouth City Council is developing a district heating and cooling system utilising low carbon heat pump technology.'

'Currently the city consumes 910 Gigawatt hours of electricity per year. Approximately 15% of this total is generated within the city from renewable and waste related sources (142 GWh). The potential for renewable and waste related generation is estimated to be 279 GWh, which in part includes an additional 34,000 solar installations on the available south facing roofs.'

'Investing in solar power will offer a positive return for the City Council, providing up to £1.4 million that would otherwise have been spent on fuel bills.'

'Over 70,000 boilers will need replacing with heat pumps in Plymouth's homes by 2030 as part of the solution. Currently only 18,000 are installed nationally each year.'

The Action Plan offers a useful vision of how Plymouth will look in 2030, e.g. '*all of Plymouth's heat and power will come from renewable or zero carbon sources', 'ferries and boats will be battery powered', 'we will achieve maximal energy efficiency in all buildings'*

Appendix 6

Global Warming of 1.5°C IPCC Special Report. Summary Report for Policymakers

The IPCC Special Report set out the latest scientific understanding of the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission. The 2018 report sets out the urgency of acting in the decade to 2030 if the global temperature increase is to be kept to 1.5C and was the catalyst for the many declarations of a climate emergency from public, private and third sector bodies around the world.

https://www.ipcc.ch/sr15/chapter/spm/.

Appendix 7

A Note on Terms

"CO2" is sometimes used as a shorthand expression for all greenhouse gases, however, this can cause confusion, and a more accurate way of referring to a number of GHGs collectively is to use the term "carbon dioxide equivalent" or "CO2e"

"Carbon dioxide equivalent" or "CO2e" is a term for describing different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO2e signifies the amount of CO2 which would have the equivalent global warming impact. A quantity of GHG can be expressed as CO2e by multiplying the amount of the GHG by its GWP.

"CO2e" is a very useful term for a number of reasons: it allows "bundles" of greenhouse gases to be expressed as a single number; and it allows different bundles of GHGs to be easily compared (in

"Carbon" is sometimes used as a shorthand for referring to CO2, or greenhouse gases in general, and it can also be used to express CO2 emissions in terms of the amount of carbon in the CO2.

The atomic weight of a carbon atom is 12 and the atomic weight of oxygen is 16, so the total atomic weight of CO2 is 44 (12 + (16 * 2) = 44). This means that a quantity of CO2 can be expressed in terms of the amount of carbon it contains by multiplying the amount of CO2 by 0.27 (12/44). E.g. 1kg of CO2 can be expressed as 0.27kg of carbon, as this is the amount of carbon in the CO2.

From https://ecometrica.com/white-papers/greenhouse-gases-co2-co2e-and-carbon-what-do-all-these-terms-mean

All web sites accessed in September and October 2020

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