



SHROPSHIRE CLIMATE CHANGE STRATEGY FRAMEWORK

A Route Map to a Zero Carbon Shropshire

Shropshire Climate Change Task Force

19th December 2019

Climate Change Strategy Framework

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1 Introduction

- 1.1 This purpose of this document is to provide a framework for the development of a strategy and action plan to reduce Shropshire Council's carbon footprint and promote adaptation measures and increase the resilience of the Council's services. The Strategy Framework identifies the risks posed by the current climate crisis to Shropshire and to the Council specifically, our current carbon footprint and the initiatives which are already being planned and implemented in response. The document also identifies a set of clear objectives and principles to guide future corporate actions and a description of the process and programme through which the Council will take its response to the Climate Emergency forward.
- 1.2 Measures to reduce Shropshire Council's carbon footprint and adapt service delivery to address the impacts of extreme weather events will significantly reduce financial risk and generate very real savings to the public finances as well as delivering on our corporate responsibilities to the environment and our communities. Placing the initial focus on our corporate performance will also allow the Council to 'lead by example', using its direct and indirect influence to foster positive changes by other public and private sector organisations, communities and individual residents in Shropshire.

2 The Impact of Global Heating

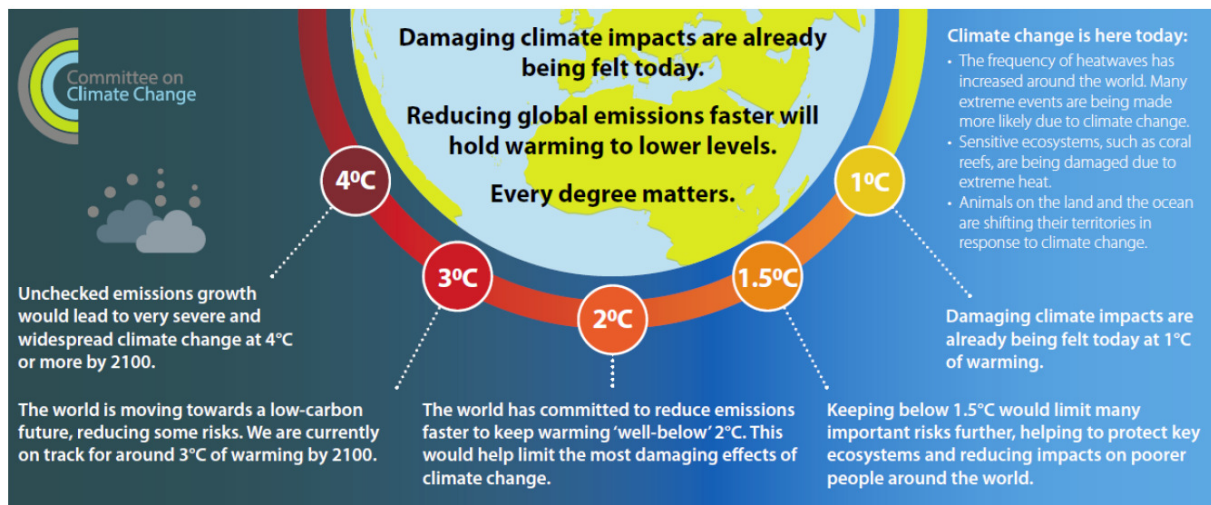


Figure 1 –Climate Change Impact (Committee for Climate Change May 2019)

- 2.1 The actual impacts of the climate crisis are very real now. Although perhaps not formally recognised, financial costs from flash flooding, water damage, surface water drainage and road maintenance costs already represent a significant financial risk to Council budgets and the wider Shropshire community and economy. These direct physical impacts are supplemented by exacerbated unmanaged costs such as travel costs, health and wellbeing and staff productivity.
- 2.2 There is scientific consensus that human activity has already caused approximately 1.0 °C of global heating above pre-industrial levels. However, global temperatures are likely to rise to 1.5 °C above pre-industrial levels

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between 2030 and 2052 if the current rate of change continues. A rise of 2 °C will have a significant impact on public health, food security, water supply, livelihoods and economic growth (globally and locally).

- 2.3 Global heating is expected to generate a significant rise in sea-levels, above the 20cm already experienced, and more pronounced and frequent episodes of extreme weather effects. Within 50 years there is a global threat to food supply chains and economic systems. The much greater frequency of extreme weather events will significantly increase insurance risks and may make many property assets un-insurable. UK insurers alone hold over £1.8 trillion in invested assets and recent studies identify a high risk that the next global downturn could be triggered by insurance claims. In addition to financial impacts, continued access to adequate energy, water, food and housing are all essential human necessities which affect the health, wellbeing and future resilience of our communities.
- 2.4 The climate crisis threatens continued access to adequate energy, water, food and housing, which are all essential human requirements which affect the health, wellbeing and future resilience of all our communities. Children are likely to be particularly vulnerable because a heated and unstable climate exposes them to more infectious diseases and poor air quality that hinders the development of their lungs. Children's diets are also at risk, with under nutrition and malnutrition set to rise as the climate crisis threatens current food production.
- 2.5 Impacts of a hotter and more unstable climate on our natural environment and wildlife represents a significant risk to the maintenance of healthy, diverse and resilient ecosystems. The health of our natural environment underpins the delivery of a wide range of services and long-term natural capital benefits for people and places in Shropshire, such as flood protection, agricultural food production, recreation and water and air quality. Land management practices can have a significant direct impact on carbon performance in Shropshire. For example, significant losses of soil carbon occur with conversion of pasture to arable land, losses of soil from farmland into rivers, or, perhaps most significantly, the draining of wetlands. A potential danger for Shropshire is that drying peat bodies will start to emit more carbon than they currently soak up. As an example, the moss-lands of Fenn's and Whixall National Nature Reserve stores millions of tons of carbon, some of which could potentially be released if temperatures rise to the point that we can't keep these sites permanently wet. When dry these sites are also at risk of burning that further increases the emission of carbon dioxide.
- 2.6 Further changes to the climate are inevitable, and the frequency of extreme weather is likely to increase. This means that the Council's physical assets and staff will require investment to allow its services to adapt and become more resilient in the face these changes. The return on such investment needs to be evaluated in the context of the projected financial risks and costs of the climate emergency.

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3 Policy Context

- 3.1 The Climate Change Act 2008 is the basis for the UK's approach to tackling and responding to climate change. It requires that emissions of carbon dioxide and other greenhouse gases are reduced from 1990 levels by 45% by 2025, rising to 100% by 2050 and that risks associated with the climate emergency are prepared for. The Act also establishes the framework to deliver on these requirements. Government expects local authorities to lead by example by tackling their own emissions and by encouraging other local organisations to follow suit. The national Clean Growth Strategy (2018) supports the shift towards a Low Carbon Economy across all sectors and is recognised as a key Government driver to secure jobs and mitigate utilities costs. The objectives of these national policies have informed the aspirations of our Economic Growth Strategy (2017-2021) and the Marches Local Enterprise Partnership (LEP) Strategic Economic Plan which recognise that energy infrastructure, both supply and demand, are key to unlocking future clean growth potential.
- 3.2 The Shropshire Council Corporate Plan brings together corporate strategies and information and sets out how we're responding to the challenges which it identifies from Shropshire. The Plan identifies clean growth and energy efficiency, together with sustaining our natural capital, including water supply and quality and raw materials as well as flood management, as key challenges.

4 Shropshire's Carbon Performance

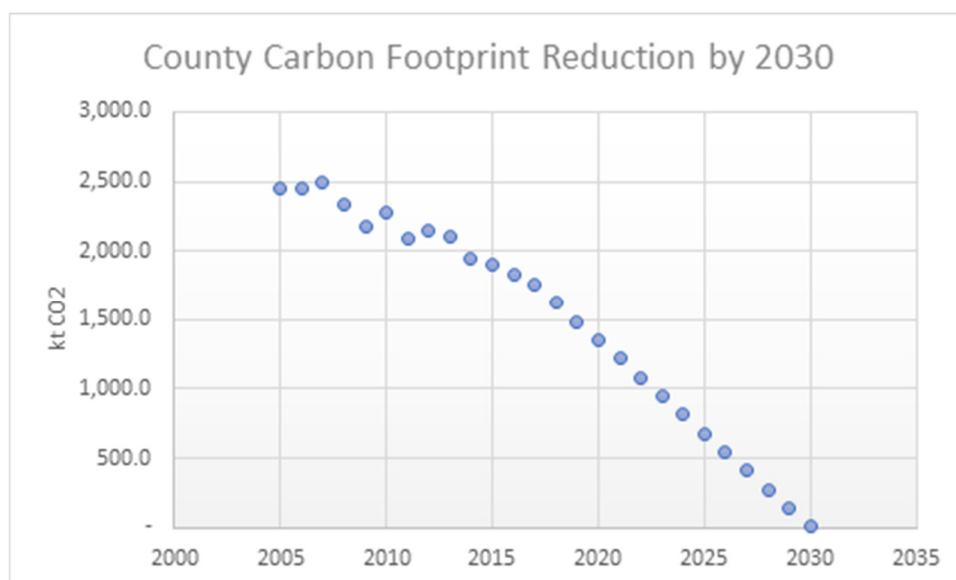


Figure 2 - Shropshire's Carbon Footprint Projection (thousand tonnes CO2e) (DBEIS, 2015)

- 4.1 National Government data for Shropshire indicates that total greenhouse gas emissions amounted to 1.76 million tonnes CO2e in 2017. The level of emissions has reduced by around 18% between 2012 and 2017. As a county we would need a year on year reduction of 7.7% or 135,000 tonnes per year to reach carbon neutrality by 2030. The average annual emissions per person

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in Shropshire has reduced from 8 tonnes CO₂e (2008) to 6.5 tonnes CO₂e (2015) and 5.5 tonnes (2017), although the actual footprint may be higher in reality due to the limited availability of information about local consumption habits, food, and air travel. Good progress has also been made in commerce and industry and the domestic sector. Recent trends and the scale of the remaining challenge are illustrated in Figure 2 above.

- 4.2 Analysis of data on a range of relevant issues by Friends of the Earth has allowed comparative performance between similar local authorities as part of a league table. Shropshire's performance is currently in the mid-range at 68% and is joint 6th of 33 local authorities in the West Midlands.

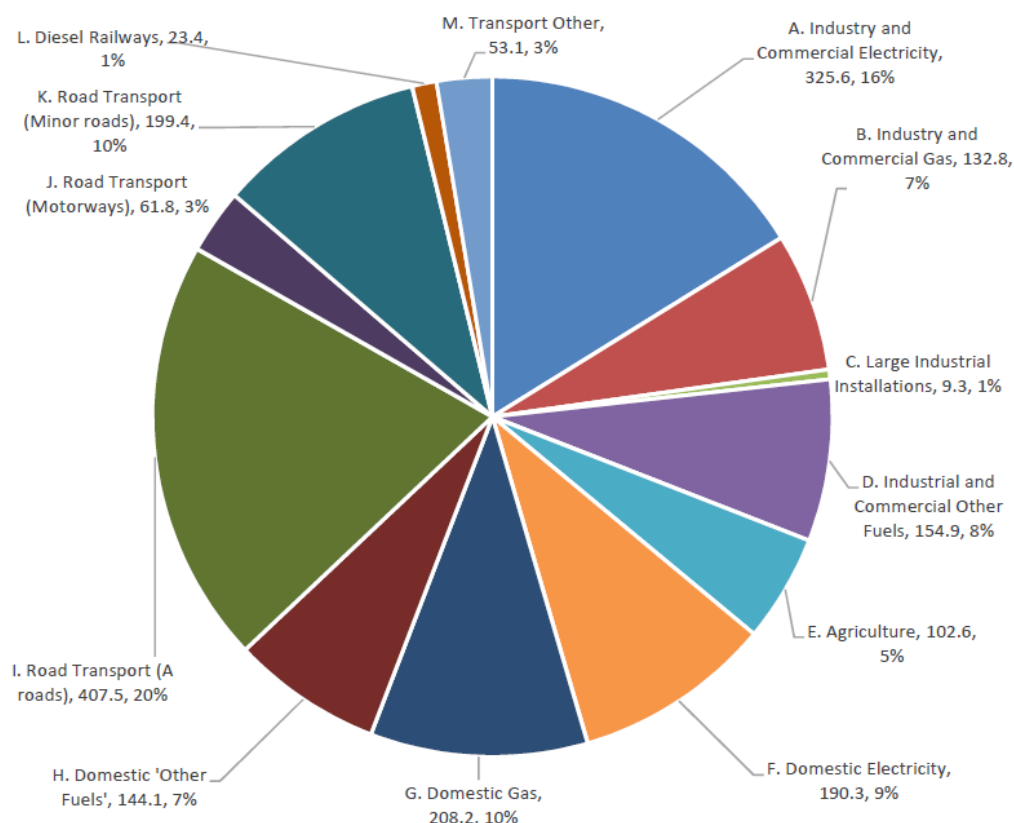


Figure 3 – Sources of Shropshire's Carbon Footprint (thousand tonnes CO₂e) (DBEIS, 2015)

Shropshire Council's Carbon Performance

- 4.3 The best available data suggests that Shropshire Council's own carbon footprint has fallen from around 31,000 tonnes in 2012 to around 23,000 tonnes in 2017. Whilst this represents only around 1.3% of Shropshire's total carbon footprint, more work is needed to establish an accurate picture. A breakdown of the main sources of carbon and forecasts for future performance are shown in Table 1 and Figure 4 below:

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Year	Total (tCO ₂ e)	Building Assets	Street Lighting	Fleet Transport	Staff Business Travel	Housing
2008 Baseline	91,303	38,991	6,000	11,889	695	33,728
2012/13	30,822	23,909	4,952	1066	895	n/a
2016/17	22,765	18,396	3,000	597	771	n/a
2020	13,659	11,038	1,800	358	463	n/a
2025	9,106	7,358	1,200	239	308	n/a
2030 (net zero)	0	0	0	0	0	n/a

Table 1 - Shropshire Council's 2008/9 baseline carbon footprint and annual carbon accounting across a 5-year period, plus future projections to 2030.

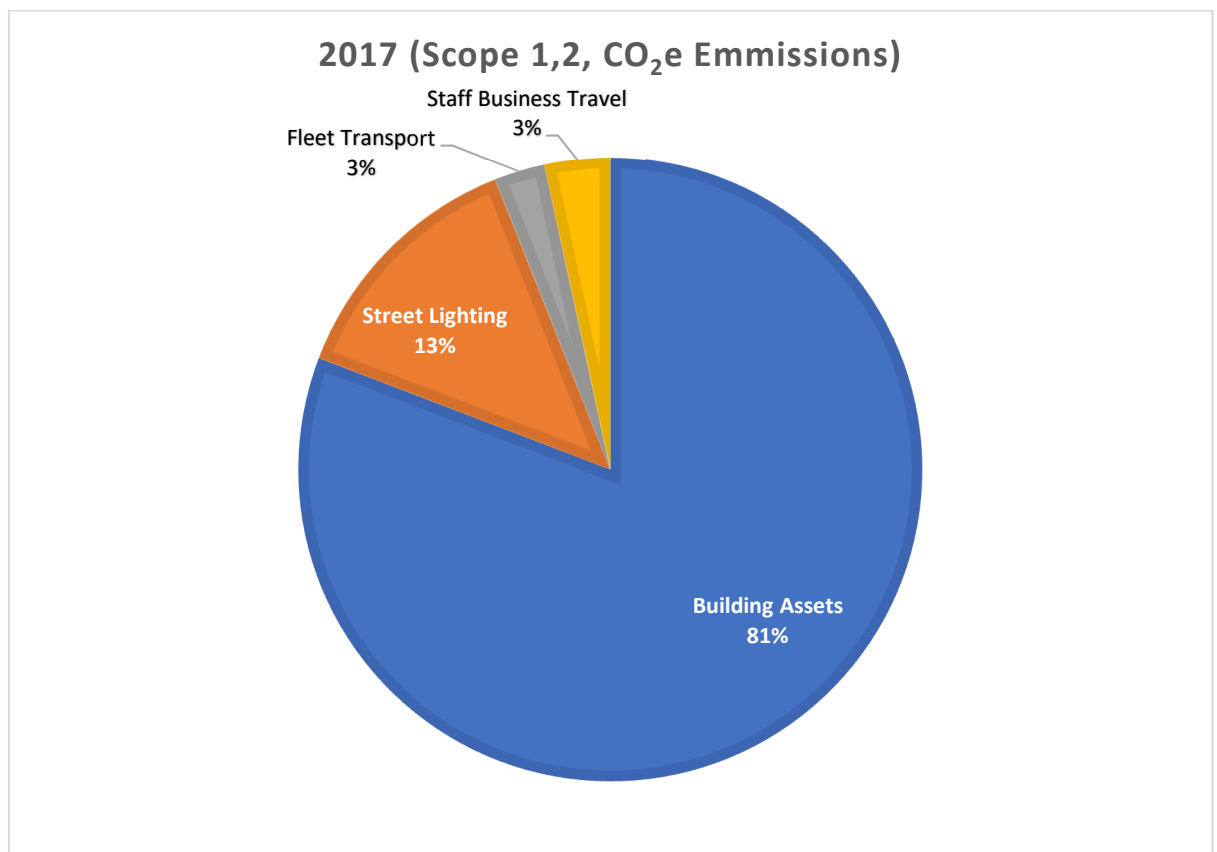


Figure 4 – Sources of Shropshire's Carbon Footprint 2017 (%) (SC 2019)

- 4.4 Shropshire Council's carbon performance between 2008 and 2012 has been affected by significant changes to the Council's assets. For example, what was termed Council Housing became a connected but independently managed housing operation; several public owned properties were sold and many schools have changed to become academies. These changes mean that housing and schools are not shown in scope for either the baseline or update calculations.

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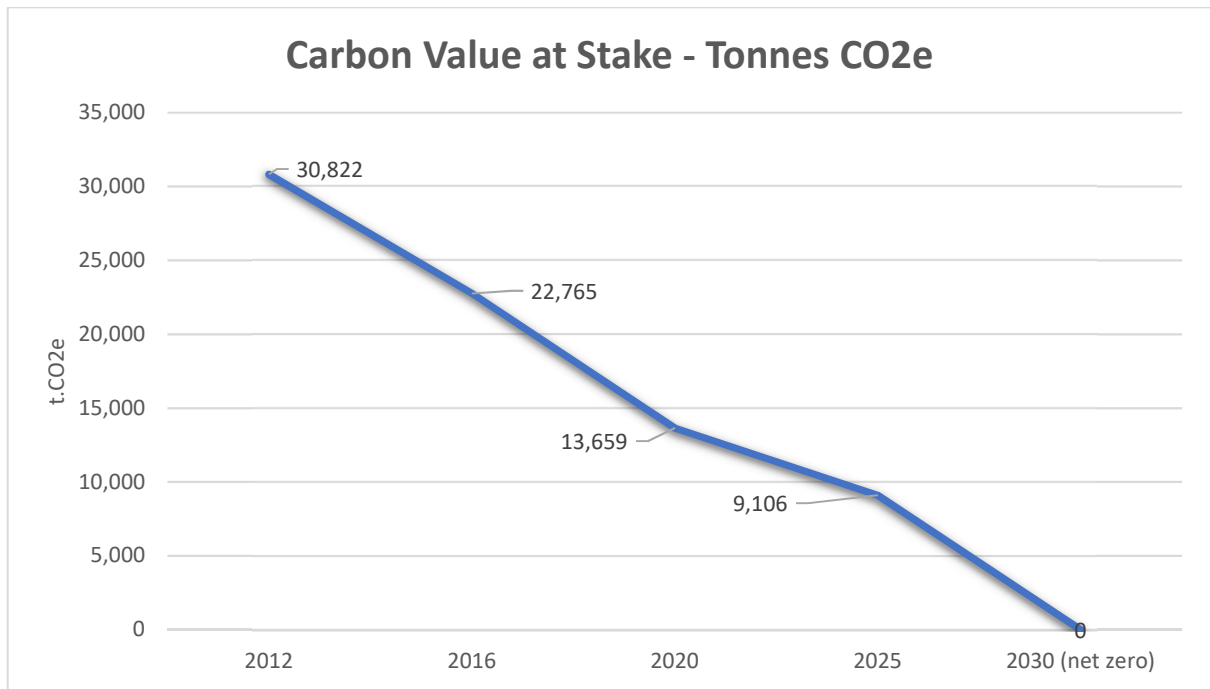


Figure 5 – Shropshire Council's Carbon Footprint Projection (thousand tonnes CO2e) (SC 2019)

5 Climate Emergency Objectives and Principles

Key Objective:

Reduce Shropshire Council's greenhouse gas (GHG) emissions to net carbon zero by 2030 (GHG Scope 1,2 & 3)

- 5.1 We recognise the impacts an unstable climate is already having on our services and our duty to reduce our footprint both locally and globally. We are in the early stages of developing our Climate Strategy and so have not yet developed a costed action plan. Targets on emissions are not straightforward because the causes of emissions are not straightforward and there isn't yet a full understanding of the impacts that such targets would have on the economy and the health and wellbeing of our population. However, there is an urgent need to achieve significant emission reductions and the transition to a low carbon economy will generate many economic, health & wellbeing, and environmental benefits. Taking early action on what we can directly control is likely to prove a more effective approach than expending significant effort in planning and target setting.
- 5.2 Our current emissions reduction trajectory, for direct emissions (scope 1 & 2), demonstrates that we are on course for net zero by 2030 and we know that net zero GHG emissions by 2030 is theoretically possible for both direct and indirect emissions. In these circumstances we have opted to set ourselves the

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goal of achieving net zero for direct and indirect GHG emissions by Shropshire Council by 2030. This is not a legally binding target and may be subject to change based on future evidence, but it is a challenging goal commensurate with our recognition of a climate emergency. The achievement of this goal will require extensive support in both financial and policy terms if it is to be delivered in practice and Council has already resolved to write to the Secretary of State for the Environment, Food and Rural Affairs to encourage Government to be ambitious in its plans for carbon reduction targets.

- 5.3 Shropshire Council will use its experience to work with others and provide community leadership to help reduce Shropshire's overall carbon footprint. Much more work and evidence is needed before a target date can be identified for net zero GHG emissions for the county as a whole.

5.4 ***Focus for action:***

- Greenhouse Gas (GHG) emission reductions;
- GHG sequestration;
- Resilience and adaptation to the climate crisis.

Key Principles:

5.5 ***Prioritise Actions:***

- a. We need to stop adding to the problem whilst recognising that work on sequestration and adaptation is also critical.
- b. It is already too late to 'fix' the climate crisis just by reducing emissions, so we will need to adapt by putting place physical and operational adaptation measures to mitigate risks to our assets and services from extreme climate events.
- c. 81% of Shropshire Council's direct (scope 1 & 2) GHG emissions in 2017 were generated from energy use in its buildings and a further 13% was generated by street lighting, so these will be priorities for early intervention.

5.6 ***Support Clean and Inclusive Growth***

- a. Our county needs to grow while our emissions shrink. The transition to a green economy can provide significant growth opportunities for businesses as well as providing a cleaner and more inclusive future;
- b. We want the Shropshire economy to shift to one which is zero carbon and abides by circular economy principles, whilst enabling our communities to build and enjoy their prosperity. The choices we make now will determine whether we can deliver on our obligations, and the extent to which we can do so in a way which is also socially progressive;

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- c. We will support skills and training which allow our communities and businesses to benefit from Shropshire's transition to a low carbon economy.

5.7 *Invest in Climate Action*

- a. Significant investment will be required if Shropshire Council is to achieve its goal of becoming net carbon zero by 2030. Once drafted, Shropshire's Climate Action Plan will estimate the level of investment required and present an initial programme for the most effective areas for investment and intervention. There is no evidence that the significant investment required to achieve net zero GHG emissions will have a detriment impact on the economy.
- b. The business case for individual investment projects will also demonstrate the potential for a financial saving in both the short and long terms. Shropshire Council has already invested in a range of low carbon technologies that have provided a return on investment.
- c. Shropshire Council is under severe financial pressure and the Climate Action Plan will therefore prioritise interventions which generate a positive and direct return on investment. Within these investments we will try to prioritise investments that benefit those members of public of greatest need first, for example energy efficiency measures installed in affordable and social housing.
- d. Some Climate Action investments may not generate returns that are easily quantifiable in financial terms and others are just very complicated to calculate. Some returns may be beneficial for carbon reduction but may have negative impacts in other areas, for example planting trees on habitats with high wildlife value. Measures which generate co-benefits (e.g. cost saving and improved environmental and social performance) are particularly attractive.
- e. We will report on savings achieved through low carbon measures and consider ring-fencing these savings for future investment in mitigation and adaptation measures. Investment in mitigation and adaptation will require an approach which recognises a longer term and potentially indirect return on investment.

5.8 *Work with others*

- a. We are on a shared journey and will need to work with others, learn from them and make use of external resources to help us, and the wider community, to achieve net carbon zero while also dealing with the effects of extreme climate events.
- b. We will establish a Climate Action Partnership of stakeholders and the wider community, to work with the Council to provide advice, support and encouragement to our communities, businesses and charitable organisations to help them to mitigate their emissions and adapt to the inevitable impacts of the climate crisis.
- c. The climate crisis is of particular significance for young people who will inherit the consequences of our actions. We will therefore work with

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schools across the county to ensure that the Climate Emergency is integrated as an issue across the curriculum and provide opportunities for schools and young people to contribute directly to the development and implementation of our Climate Emergency Strategy.

- d. Throughout the development and implementation of our Climate Emergency Strategy and Action Plan we will be as open as possible to engage the wider community and provide opportunities for them to contribute.

5.9 *Influence the behaviour of others*

- a. In addition to direct control of our own GHG emissions, we have significant influence over emissions indirectly resulting from our policies, procurement and regulatory functions – these are known as ‘scope 3’ emissions.
- b. We will commission a full analysis of our scope 3 emissions. This should include estimates of the scale of emissions in each area and a review of current and proposed means of reducing these emissions.
- c. Shropshire Council has significant influence through its purchasing power. We will put in place measures to assess the carbon footprint of our procurement choices.
- d. We will lead by example and seek to positively influence the purchasing power or funding allocations of others like the Marches LEP to favour low carbon initiatives and products.

5.10 *Assemble and publish evidence*

- a. Better local evidence is needed to identify the most effective targets for intervention and investment. We have significant gaps in knowledge and this includes the impacts of choosing one net zero carbon deadline over any other. Shropshire’s Climate Emergency Strategy and Action Plan will highlight evidence gaps and prioritise areas of research required. It will also spell out the monitoring requirements that need to be established to fully measure our progress towards zero carbon.

6 Carbon Management Measures

- 6.1 As a Council, we are already seeking to optimise energy efficiency through encouraging the use of electric vehicles, and renewable energy generation at Council buildings. National Grid capacity is already constrained in Shropshire and the Council is therefore exploring opportunities for microgeneration to deliver cost-effective solutions for the distribution of energy generated from local low carbon and renewable energy sources, and options to combine power generation with energy storage. Shropshire Council is also exploring options to promote energy efficiency and the use of renewables in Shropshire through loans for investment in energy efficiency measures and by encouraging local landowners and businesses to install renewable energy generation and storage facilities.

- 6.2 Shropshire already generates a significant amount of energy from renewable sources. In 2017, the total installed renewable capacity for Shropshire was

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172 MWe. In 2019, Government data shows that Shropshire was ranked 5th nationally for installed renewable energy capacity, largely as the result of significant installed solar PV and anaerobic digestion facilities. Shropshire is home to the largest amount of installed capacity of anaerobic digestion, in all amounting to around 16 MW or over 5% of the total UK installed capacity. Solar PV farms make up 157 MW of a total 230 MW additional capacity which is planned or in development. Further projects are either under construction or have secured planning permission.

6.3 In recent years Shropshire Council has implemented a range of measures to reduce its carbon footprint, including resource and energy efficiency measures, IT management, renewable energy generation and waste re-use. Shropshire corporate sites moved entirely to 'Pure Green' electricity from 1st September 2019. These measures have reduced greenhouse gas emissions and generated financial savings. Further measures to deliver both a reduction in emissions and financial savings are proposed, including:

- a. Development of EV Charging infrastructure that compliments the commercial roll out of EV charging infrastructure across the county, whilst ensuring that any infrastructure is sustainable and in keeping with the development of EV vehicles and other alternatively powered vehicles.
- b. Development of an Active Travel Strategy that promotes walking and cycling wherever possible whether that be for part of or a complete journey.
- c. Reduce the carbon footprint of staff travel on work related journeys, through the promotion of active travel, the use of digital technologies and the further development of the Enterprise car club scheme.
- d. Identify alternatively fuelled vehicles that will reduce the Council's carbon footprint across the breadth of the vehicle fleet that the Council operates, whilst ensuring that service delivery can be maintained at the appropriate levels.

6.4 Further information about recent and proposed carbon reduction measures is provided in Table 2 below.

Measure	Carbon Reduction	Financial Saving
Energy efficiency savings 2012-17	5,513 t.CO ₂ e	£0.96m
Proposed ICT Datacentre refresh project	32.6 t.CO ₂ e	£13,800
Solar Energy (41 Arrays across 28 sites)	3,000 t.CO ₂ e	£1.36m
Warp-it Re-use scheme (1 st 6 months)	15.8 t.CO ₂ e	£35,531
Proposed LED street lighting	794.5 t.CO ₂ e	Up to £900,000

Table 2 - Shropshire Council's recent and proposed carbon reduction measures

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6.5 Table 3 below identified a number of key themes which will provide the opportunity for both direct and indirect future interventions to reduce Shropshire's carbon footprint and improve its resilience to the climate crisis:

Theme	Direct Influence	Indirect Influence	Example Measures
Demand management	<ul style="list-style-type: none"> • SC Buildings • SC Street Lighting • SC ICT systems • SC Housing 	<ul style="list-style-type: none"> • Private Sector Buildings • Public sector Buildings Infrastructure • Utilities 	<ul style="list-style-type: none"> • Physical or technology changes to reduce the consumption of energy and water and the production of waste; • 'Soft' measures such as staff training and optimising control systems;
Transport and travel	<ul style="list-style-type: none"> • SC fleet management • SC business travel 	<ul style="list-style-type: none"> • Regulation • Procurement 	<ul style="list-style-type: none"> • planned distribution of future growth; • SC staff flexible and agile working policy; • Infrastructure which enables the rapid take up of electric and ultra-low emission vehicles;
Renewable Energy Generation	<ul style="list-style-type: none"> • SC Buildings and property; 	<ul style="list-style-type: none"> • Joint ventures with other organisations • Community Energy Schemes • Marches Renewable Energy (MarRE) project 	<ul style="list-style-type: none"> • Potential for solar arrays, wind turbines, hydro-electric power; • Battery or heat storage solutions; • District heating and whole place solutions.
Sustainable land management:	<ul style="list-style-type: none"> • SC land holdings 	<ul style="list-style-type: none"> • Regulatory roles • Working with other landowners 	<ul style="list-style-type: none"> • Carbon capture and storage; • Wildlife gains, • Physical adaptation measures to mitigate risks from extreme climate events;
Clean and inclusive growth:	<ul style="list-style-type: none"> • SC buildings and property 	<ul style="list-style-type: none"> • Procurement; • regulation • Working with others 	<ul style="list-style-type: none"> • Support for low carbon business • investment in low carbon infrastructure • skills investment
Adaptation and resilience:	<ul style="list-style-type: none"> • SC services 	<ul style="list-style-type: none"> • Procurement; • regulation • Working with others 	<ul style="list-style-type: none"> • Physical and operational adaptation measures to mitigate risks from extreme climate events;

Table 3 - Key themes for direct and indirect future intervention measures

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7 Developing and Implementing our Climate Emergency Strategy

- 7.1 Recent guidance to Local Authorities by ARUP¹ on tackling 'climate emergency' commitments will help inform our work. A summary diagram of the nine suggested process stages is presented below:

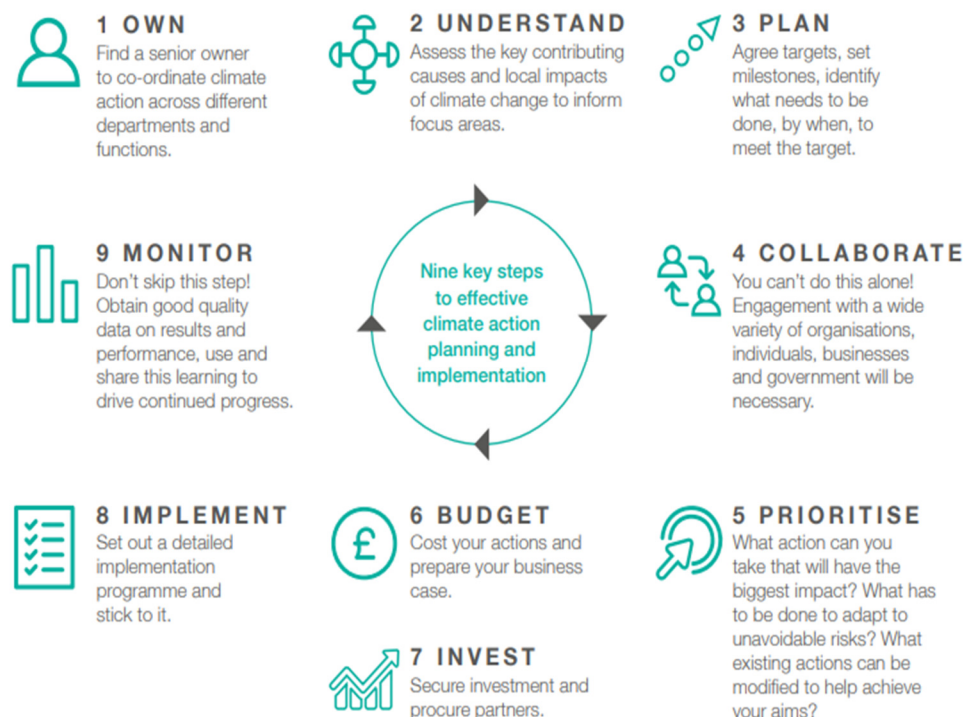


Figure 6 – Suggested process stages for Local Authority responses to Climate Change (ARUP 2019)

- 7.2 While the above diagram is sequential, Shropshire Council will be working on several aspects in parallel while using the structure to keep on track and ensure specific stages are not neglected. The ARUP document suggests a similar approach: “Don’t stop acting just because you’re planning”. Shropshire Council has already made some progress in most of the areas listed in the above diagram, but only point 1 has been completed with the establishment of a Climate Change Task Force, led by a senior manager.
- 7.3 The Climate Change Task Force will use the Strategy Framework to develop and consult on a draft Climate Emergency Strategy. The consultation findings will then be reported to Council, together with a final version of the Strategy. Once adopted, the Strategy will be implemented through a ‘live’ Action Plan which will prioritise the investments and interventions which will prove most effective in reducing Shropshire Council’s carbon footprint and building our resilience to the climate crisis. Taking a flexible approach helps implement the strategy in a way which is adaptable to economic uncertainty and political challenges, whilst still achieving the required performance and resilience. A draft timetable for the next stages of work is identified below.

¹ ARUP (2019). You’ve declared a Climate Emergency... what next? Guidance for local authorities. <https://www.local.gov.uk/sites/default/files/documents/ARUP-Climate-Emergency-What-Next.pdf>

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Draft Climate Emergency Strategy	March 2020
Public Consultation	April-May 2020
Adopted Climate Emergency Strategy	June 2020
Climate Change Action Plan	June 2020 onwards

- 7.4 To inform the preparation of the Climate Emergency Strategy, and to act on its objectives, the Director of Place has assembled a Task Force of key officers who are leading various streams of activity in this area of work across the full range of Council services. The work of the Task Force will be supported by a Climate Change Working Group (CCWG) comprising Council officers with specific skillsets whose role is related to sustainability, energy and the environment and by an external Technical Advisory Group. Oversight will be provided by the cross-party Member Task and Finish Group on Climate Change. The proposed working structure is illustrated in the diagram below:

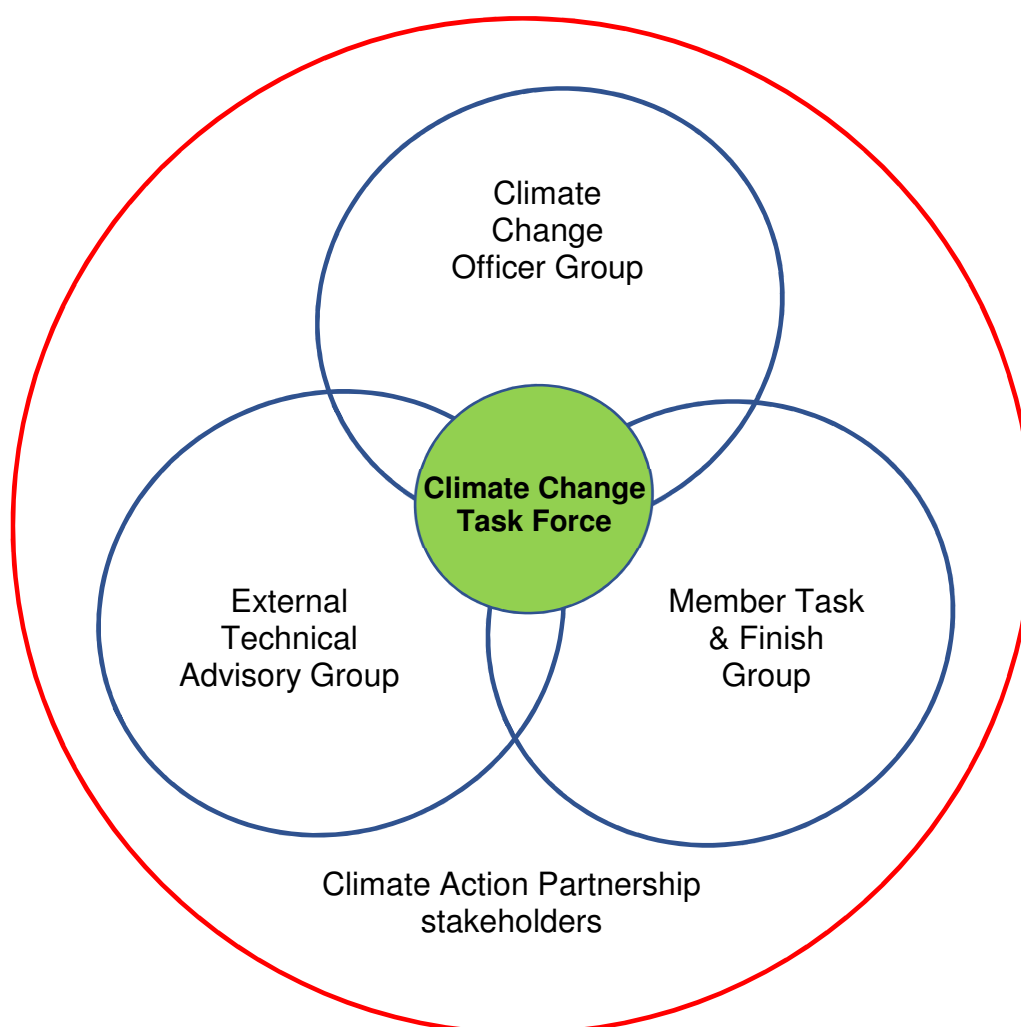


Figure 7 – Climate Change Working Structure

- 7.5 In order to provide updates on our progress, community leadership and to engage Shropshire businesses and communities, the Council will:

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- a. establish a Climate Action Partnership of stakeholders and the wider community as described in 5.6 above;
 - b. Develop a web-based portal to provide regular updates on climate related evidence; case studies; good practice; tips and guidance; FAQ's; events and training opportunities.
- 7.6 The strategy's objectives will also be imbedded in and referenced from other Council plans and strategies right across the organisation. For example, in declaring a Climate Emergency on 16 May, Council also resolved that carbon emission appraisals would be attached to all Policy reports and a template and guidelines are being developed to ensure that, once implemented, future policy reports will provide a short but consistent commentary on the climate change effects of the decision proposed. In addition to this, good practice suggests that Council should commit to the preparation of an annual Carbon Impact Budget which will identify the carbon impacts of Council services and major projects and will report on annual performance trends in parallel with the Council's financial budget.