

Stroud District Council

Implementation of Climate Change emergency Motion:

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1. INTRODUCTION

- 1.1 A Climate Emergency was announced by the Stroud District Council Administration on 16th November 2018 which pledged to “do everything within the Council’s power to make Stroud District Carbon Neutral by 2030“(Appendix 1).
- 1.2 This public call for action was followed up by a motion to the Environment Committee on 13th December 2018 which, after a minor amendment regarding timing of agreeing funding, was passed with unanimous support from all political parties (Appendix 2). This motion set out seven actions:
- 1 To set out a Plan of Action, including clear targets and transparent reporting, to develop District wide Locally Determined Contributions to complement National Determined Contributions in line with the Paris Agreement to limit global warming to 1.5C.
 - 2 To include planning and support in the District for adaptation to the climate change that is already happening.
 - 3 To develop a strategy for Stroud District Council to play a leadership role in promoting community, public and business partnerships for this Carbon Neutral 2030 Commitment throughout the District, County and region.
 - 4 To work with partner bodies across the county to ensure that the climate emergency is adequately reflected in the development and implementation of all county wide strategies and plans, including Gloucestershire 2050, the Gloucestershire Industrial Strategy, Gloucestershire Energy Strategy and Gloucestershire Transport Plans.
 - 5 To investigate all possible sources of external funding and match funding to support this commitment.
 - 6 To work with key partner organisations within the County and region to secure external funding.
 - 7 To report back on an annual basis to Council on progress made.
- 1.3 The Environment Committee at which this motion was approved was probably unique in the history of Stroud District Council in terms of the number of local citizens attending the meeting in support of the Council rather than in opposition of something the Council was doing.
- 1.4 The Annual Budget and Satisfaction telephone survey asks both SDC residents and businesses for their opinions on the Council’s priorities and progress on improving the environment. This is a statistically robust survey carried out by an independent organisation.
- 1.5 The 2018 survey has reaffirmed the past 5 years of outstanding results -86% residents and 90% of businesses agreeing our priority to ‘*Help the community to minimise its carbon footprint adapt to climate change and recycle more*’, with 78% of both residents and businesses agreeing that SDC is working to improve the environment.
- 1.6 Stroud District Council is unique by having become, in December 2015, the first local authority in Europe to become Carbon Neutral in terms of its own operations.

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- 1.7 (<https://www.stroud.gov.uk/media/208649/agenda.pdf>) and Appendix 3). This was achieved by the ongoing activities of the Council dating back to the late 1990's with updated programmes of work and targets set by different administrations with strong cross political party support.
- 1.8 To become a Carbon Neutral District by 2030 is a considerably more ambitious target as set out in the approved motion which will require the Council to work in partnership with a wide range of partners and all the citizens of the District. This creates great opportunities and the potential to realise significant economic, social and environmental benefits as well as minimising future litigation risks.
- 1.9 Both the UK Government and the Committee on Climate Change consider that this shift to a very low carbon energy future represents the best course for the UK's economic development. There is also a statement in the final text from COP 24 in Poland (Annex 1-part 4a1 December 2018) on how to assess Nationally Determined Contributions that refers to preparing implementation plans to include *"4. Planning processes: Information on the planning processes that the Party undertook to prepare its nationally determined contribution and, if available, on the Party's implementation plans, including, as appropriate: (I) Domestic institutional arrangements, **public participation and engagement with local communities** and indigenous peoples, in a gender-responsive manner."* This statement gives a much greater role to local Councils and Regional bodies in the UK and around the world.
- 1.10 Carbon neutral means to that while some emissions are still being generated by a process/building/area these emissions are being offset somewhere else making the overall net emissions zero. This is different from Zero carbon means that no carbon emissions are being produced from a product/service e.g. zero-carbon electricity could be provided by a 100% renewable energy supplier.

2. BENIFITS

- 2.1 Many of the steps required to become carbon zero by 2030 will significantly contribute to a lower risk of fuel poverty and its associated health impact while others can reduce the air pollution associated with emissions from vehicles and heating systems. Cutting energy through energy efficiency measures is the most effective long-term method of reducing fuel poverty. To enable walking and cycling to become the primary mode of transport for short distances is the most effective means of reducing local air pollution and promoting numerous health benefits and community development.
- 2.2 Putting Stroud District on a course to securing these benefits for its businesses and residents will require purposeful effort from many different stakeholders in the district, county and region acting across many different fronts with a shared purpose. GFirst LEP (the Local Enterprise Partnership) and Gloucestershire County Council are in the process of developing a new Energy Strategy for Gloucestershire and both will be key partners in delivering Stroud District Council's ambitious plan.
- 2.3 There are very significant economic gains from moving to a low carbon economy. More than two thirds of the value of the District's current expenditure of over £0.16 billion a year on electricity, gas, oil, coal, petrol and diesel is exported from the county. Improving the energy performance of buildings and equipment in the county and shifting to EVs for transport could

reduce the district's energy bill by £10 million (releasing the money for more locally beneficial expenditure) and create an energy productivity gain for its businesses of some 20%.

- 2.4 If the energy performance improvements are undertaken by companies based in the county, the potential Gross Value Added (GVA) gains are significant. For example: improving all the District housing to an EPC of C requires an investment of £0.4 billion and could generate £0.2 billion GVA for the District and County's building and heating engineering businesses. Similarly, the required investment of about £ 0.4 billion in new renewable energy capacity by 2030 could result in some £80 million of GVA if the focus is on using District/ County-based engineering, construction, legal and financial expertise. If the investment was sourced from local and community sources, the long-term value of the investment (typically an annual return of 6 – 7%) would also be retained within the County, increasing the investment's local economic multiplier effect.
- 2.5 By taking a lead nationally in developing the understanding, skills, techniques and technologies to deliver fossil-free heat (through an 'ultra-low carbon thermal energy cluster' which creates a focal point for interested parties) Gloucestershire's and Stroud's businesses will be in prime position to gain the GVA from heat decarbonisation both within the county and by exporting technologies and services to other parts of the UK as they address this challenge.
- 2.6 Delivering on the ambitions outlined in this strategy also offers wider environmental benefits and strong health and social benefits. These particularly arise from reducing air pollution through the switch to EVs and by tackling fuel poverty through improving the energy performance of Stroud's housing stock.
- 2.7 This document begins to set out a draft strategy with some indicative targets. However, there will need to be specific measurable targets. This should be considered as an evolving strategy but one that is focussed on those targets that are both technically viable immediately and generate significant gains.

3. ADAPTION TO CLIMATE CHANGE

- 3.1 Adapting to the changing climate is a dynamic policy area for government. Plans and strategies to deal with the changing climate are being developed by several government agencies and are brought together in **The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting: Making the country resilient to a changing climate (Defra July 2018)**. The key risks and adaptations currently considered appropriate are outlined below:

Flooding and coastal change risks to communities, businesses and infrastructure is a high risk now and is expected to remain a high risk in the future.

Actions required:

- make sure everyone is able to access the information they need to assess any risk to their lives, livelihoods, health and prosperity posed by flooding and coastal erosion;
- bring the public, private and third sectors together to work with communities and individuals to reduce the risk of harm – particularly those in vulnerable areas;
- make sure that decisions on land use, including development, reflect the level of current and future flood risk;

- boost the long- term resilience of our homes, businesses and infrastructure;
- take action to reduce the risk of harm from flooding and coastal erosion including
- greater use of natural flood management solutions;
- include flood risk as a key feature of adaptation reporting from infrastructure

3.2 Stroud District will therefore need to:

- Regularly update the Disaster Management Plan for the district and in partnership with the County Council
- Ensure the Local Plan reflects the level of current and future flood risk
- Continue to work with the Environment Agency and Internal Drainage Board to minimize the long-term risk of flooding to the Vale
- Continue to install natural flood management measures (NFM) in river catchments within the District. Currently, 21% of the Frome catchment flows through NFM structures and this will need to be increased to as close to 100% as is practical.

Risks to health, well-being and productivity from high temperatures are also a high risk now and are expected to remain a high risk in the future.

Actions required:

- work with infrastructure operators included in the third cycle of adaptation reporting to outline risks posed to their productivity from climate impacts
- deliver more, better quality and well -maintained local Green Infrastructure
- adapt our health systems to protect people against the impacts of climate change, such as ensuring all clinical areas in NHS Trusts have appropriate thermal monitoring in place

3.3 Stroud District Council will therefore need to;

- Ensure the installation and maintenance of Green Infrastructure via the Local Plan and suitable conditions or Section 106 agreements in subsequent developments

Risk of shortages in the public water supply for agriculture, energy generation and industry.

Actions required

- work to restore natural processes within river systems to enhance water storage capacity;
- work towards setting challenging and ambitious goals to reduce water leakage

3.4 Stroud District Council will:

- Continue to implement NFM measures through the District to moderate water flows and support recharge of aquifers

Risk to natural capital including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity.

Actions required

- introduce a new Environmental Land Management scheme which will deliver environmental outcomes
- develop and start to implement a Nature Recovery Network, linking habitat restoration and creation to improved access, flood protection and water quality
- incentivise good soil management practices that enhance soil's ability to deliver environmental benefits through future environmental land management schemes
- introduce a sustainable fisheries policy as we leave the Common Fisheries Policy and prepare marine plans that include policies for climate adaptation
- build ecological resilience on land, in our rivers and lakes and at sea
- Protect soils and natural carbon stores.

3.5 Stroud District Council will

- Implement the Severn Estuary and Cotswold Grassland SAC Management Schemes
- Ensure the Local Plan provides for linking habitat restoration and creation to improved access, flood protection and water quality

Risk to domestic and international food production and trade.

Actions required:

- Ensure a food supply chain which is resilient to the effects of a changing climate
- Review and publish the updated UK Food Security Assessment

3.6 Stroud District can through the Local Plan:

- Protect the most productive agricultural land to allow conversation to production of crops for local consumption
- Support development of horticultural business
- Support glass houses and poly tunnel for growing of crops for local production
- Ensure appropriate housing for agricultural and horticultural workers

Risk of new and emerging pests and diseases and invasive non-native species affecting people, plants and animals.

Actions required:

- Manage existing plant and animal diseases and lower the risk of new ones;
- Tackle invasive non-native species.

3.7 Stroud District Council will:

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- Through the Environment Health function, work to prevent importation of pest, diseases and non-native species through Sharpness Docks
 - Ensure eradication of non-native plants on council owned or council managed land
 - Work with appropriate to tackle threats to humans from non-native animals
- 3.8 The effects of the changing climate are already impacting on Stroud District and adaption measures are already being implemented. Many of these are considered in the existing Stroud District Local Plan (2015) and the Emerging Strategy (2018). As a result of flooding in 2007 Stroud District Council, in partnership with the Environment Agency and several key partners, has developed a nationally recognised Natural Flood Management programme.
- 3.9 The planning for adaptation that is already taking place in the District should be extended by encouraging and enabling local communities to discuss local impacts and adaptation measures. The most effective way of doing this requires further consideration. One option may be to organise a workshop for local community groups, and Parish and Town Councils, focusing on local resilience building. Thought will need to be given to how this sort of initiative links with actions to mobilise stakeholders to engage with carbon reduction measures (see para 6.2).

4. CHANGES REQUIRED TO BECOME A CARBON NEUTRAL

- 4.1 The changes required over the next 12 years to become carbon neutral are already well understood. They are, by and large, the changes required nationally and across every other part of the UK to move to a low carbon economy, as documented in official Government national strategies and plans as well as in various reports by NGOs. These fall into several broad categories as set out below;

i. a complete shift to very low or zero carbon electricity generation, mostly renewable and much of it decentralised;

ii. smarter and more flexible management of electricity demand, including storage, to enable higher penetration of variable renewable generation and to optimise electricity system operation;

iii. huge reductions in energy demand by improving significantly the energy performance of our buildings (across all sectors and all tenures) and the equipment and processes within them;

iv. decarbonisation of heat (i.e. stop relying on fossil fuel gas and oil) for buildings, hot water and industrial processes;

v. dramatic steps to cut the carbon emissions of road transport by switching to walking, cycling, efficient mass transport (not powered by fossil fuels) and a huge rise in the use of electric vehicles;

vi. ensuring new build developments achieve their full low carbon potential and contribute effectively to a smarter energy system;

vii. a dramatic reduction in emissions from agricultural food production and land use

viii. a huge reduction in the generation of waste and a dramatic increase in low carbon means of dealing with waste;

ix. A dramatic increase in the capture of carbon particularly, but not necessarily exclusively, through tree planting and land management.

- 4.2 It is clear that not all these ambitious targets can be realised by local government acting alone; it will require concerted effort from national government, national network operators, national and local business and finance working together. However, there are several roles that Stroud District Council can play working in partnership with the citizens of the District, key statutory and non-statutory partners and, most importantly, with businesses across the District. These include: leadership & delivery, coordination, engagement, policy and planning.
- 4.3 It needs to be recognised that delivery will require dramatic changes which are likely to lead to resistance from various quarters and it will be important to remain focussed and purposeful whilst avoiding being distracted by potential conflict.

5. ACTIONS IN STROUD DISTRICT

A complete shift to very low or zero carbon electricity generation, mostly renewable and much of it decentralized;

- 5.1 The current total use of electricity in Stroud District is 545 GWh per annum. Nationally, approximately 29% of electricity is generated from renewable sources. Within Stroud District approximately 12% of energy is generated from renewable sources, the majority (78%) from solar PV.
- 5.2 Much of the increase in renewable energy will be due to an end to coal generation and the growth in offshore wind and increased onshore wind energy in Scotland and large scale solar throughout the UK.
- 5.3 But more will need to be done within the District, both to reflect the potential here and to make a reasonable contribution to achieving the national target.
- 5.4 A district target for generating renewable energy by 2030 will need to be agreed. However, if 45% of electricity consumed in the District for renewable generation would represent roughly a quadrupling of current within-district generation from new onshore wind, solar PV and hydro schemes.
- 5.5 The Stroud valleys were traditionally powered by over 50 watermills and studies during the 1990's identified at least 12 sites which may be suitable for the installation of new turbines. The installation of natural flood management throughout many of the catchments is likely to moderate water flows through the year which, combined with the development of new efficient low head systems, and the requirement of virtual power plants for reliable power purchase agreements (PPAs) may enable the future development of more hydro. Based the original Hebe study (1997) these could generate at least 1GWh. However, with the exception of the small scheme on the canal at Dudbridge, there has been limited progress to date.

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- 5.6 Currently 1 in 19 houses within Stroud District have PV panels, there are 2 field-scale schemes and an increasing number of businesses have installed roof-mounted PV panels. Stroud District Council has installed a PV system on Stratford Park Leisure centre, the Pulse at Dursley and on 590 council houses.
- 5.7 Recent changes in the feed-in tariff and the stopping of the domestic sale of energy to the grid have provided a negative message to the domestic market. However, developments in home battery storage, increased uptake of EV, smart home energy systems, energy storage systems, commercial power purchase agreements, and continued decline in PV panel prices, combined with effective communication, are likely to ensure continued uptake.
- 5.8 Whilst much of this can be accommodated on existing roofs, there will be a need for new field - scale schemes, probably directly linked to end users. Enabling 1 in 5 houses to install roof-top solar panels by 2030 would add at least 20 GWh of new solar PV electricity generation. Assuming a further 20GWh on commercial roofs, this would leave a further 498ha of ground mounted solar (just over 1 % of the land area of Stroud District).
- 5.9 Subsidy-free onshore wind is likely to be viable with appropriate grid capacity, a direct end user and, under current planning guidance, overwhelming public support. This requires a significant change in the political appetite for onshore wind in the district. The most favourable wind within the District, on the top of the Cotswold scarp, is currently within the AONB so would require an exception to national planning guidance. To generate 50% of the predicted electricity requirement outside the AONB and within the Vale would require a further 39 four MW (150 blade tip) turbines. Whilst technically feasible this would need further strengthening of grid capacity as well as strong public and political support.
- 5.10 However a combination of technologies along with further energy efficiencies in homes and industry would suggest a target of a further 10 large turbines and 249 ha of ground mounted if combined would with the rapid expansion of roof mounted solar would approach 50 % of renewable electricity generation within the district by 2030.
- 5.11 Current grid capacity is a current constraint in large areas of the District. Therefore, it will be important to work with Western Power Distribution to identify areas for large scale deployment of new renewable electricity generation capacity to allow appropriate grid strengthening and or deployment of large-scale energy storage
- 5.12 Stroud District Council will play a key role in promoting future uptake and development of new renewable electricity generations by:
- taking a lead in development of PV, battery storage and smart power systems in new-build Council housing;
 - installation of PV, battery storage and smart grid technology on appropriate Council owned buildings;
 - Considering investing new field-scale solar developments potentially combined with grid scale energy storage and sleeved PPA to optimise revenues. This may be in partnership with a community energy group (and therefore attract significant community investment);
 - developing new guidance for the development of Neighbourhood Plans that actively supports new renewable energy developments;

- actively working with Western Power Distribution to ensure grid capacity for new renewable energy generation and deployment of energy storage;
- using the development of appropriate policies in the Local Plan review to:
 - Introduce appropriate policy guidance to encourage the installation of PV panels (combined with battery storage) on existing housing including listed buildings and in conservation areas;
 - Introduce appropriate policy guidance to encourage the installation of PV panels (combined with battery storage) on commercial buildings throughout the District including those within the AONB;
 - Allocation of suitable areas of land within the District following paragraph 151 of the NPPF for renewable energy including onshore wind and large field-scale solar developments;
 - development of appropriate policies to encourage the development of new hydro power schemes through the District;
 - development of appropriate policies to encourage new small and medium scale tidal power schemes within the District

5.13 There will be a very significant role for individual citizens in the development of new renewable energy generation through:

- installation of new roof-mounted PV on their own properties potentially with battery storage & linked to EV charger, with a PPA to an energy company, as part of a large virtual power plant or with a smart system to allow peer to peer selling and buying of power;
- active support of new largescale renewable energy developments;
- investment in community renewable energy generation and storage projects;
- Purchase of power from energy companies that invest in new renewable energy generation (not just those trading in existing renewable energy).

5.14 However, the level of citizen involvement will be dependent on a number of factors which will include national Government policy and incentives; mortgage companies and the capacity and viability of commercial installers. Community energy groups and Stroud District Council can play a role through appropriate accurate communication and support for early adopters. Stroud District Council can also play a crucial role through supportive planning policies.

5.15 The development of new solar generation will be dependent on the financial viability and capacity of business to install new PV arrays and, for roof installation, the availability of scaffolding. This will be linked to demand for new installation and, perhaps more importantly, consistent national policy. However, the development of supportive planning policies and energy performance requirements of new-build by Stroud District Council will contribute to supporting local installers.

5.16 Business and commercial organisations not directly involved in renewable energy will need to be encouraged to install new renewable generation on their own buildings. However, these will need attractive PPA arrangements, commercial partners, supportive planning policies, grid capacity and citizen support.

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- 5.17 Community energy groups have the potential to play a vital role in the development of new renewable energy generation particularly through new investment facilities to fund new schemes and return surplus income to support projects to combat fuel poverty.

Smarter and more flexible management of electricity demand, including storage, to enable higher penetration of variable renewable generation and to optimize electricity system operation;

- 5.18 The development of smart flexible energy management and battery storage will be dependent of several factors particularly technology development and national guidance and grid capacity which are largely outside the remit of Stroud District Council
- 5.19 However, there is potential for the use of Council land for the installation of battery storage and for installation of battery storage combined with PV in all new Council houses, which may provide new commercial opportunities for income generation for the council or investment opportunities for community energy groups.
- 5.20 The Local Plan Review will need to include policies which will require all new developments to be zero carbon and smart-enabled. Community groups and influential citizens can play an important role in being early adopters of installation of home battery storage.

Huge reductions in energy demand by improving significantly the energy performance of our buildings (across all sectors and all tenures) and the equipment and processes within them;

- 5.21 The Government Clean Growth Strategy sets a target of all fuel-poor homes to be upgraded to Energy Performance Certificate (EPC) Band C by 2030 and an aspiration is for as many homes as possible to be EPC Band C by 2035 where practical, cost-effective and affordable. It also sets a long-term trajectory to improve the energy performance standards of privately rented homes, with the aim of upgrading as many as possible to EPC Band C by 2030 where practical, cost-effective and affordable.
- 5.22 To meet a carbon neutral target will require retrofit activities on the vast majority of Stroud housing stock and of non-domestic buildings which are currently below a C rating. This should be subject to appropriate consideration of the character and construction fabric of buildings of recognised heritage value and also reflect the need to avoid overheating as the risk of summer heatwaves increases.
- 5.23 At current energy prices and household income levels, there are very few households in England in C rated homes which are officially fuel poor (under the 'Low Income High Costs' definition). Achieving this target would therefore also help to ensure that fuel poverty in the District was effectively addressed.

Making these improvements will reduce energy bills because, even though the price per unit of energy is expected to increase, the more energy efficient homes will be using fewer units. It will also reduce the scale of heat demand sourced from oil or gas which will not be decarbonised by national policies until 2040.

- 5.24 There are a large number of older Redbrick and Cotswold stone properties within the District, both rented and privately owner. These are often the least energy house within the District. For

homeowners, there are often very significant cost savings on energy by elimination of draughts, insulation of lofts and walls as well secondary glazing.

- 5.25 In the rented sector, period properties retrofitted to achieve modern standards of insulation (while preserving the character and beauty) tend to make for happy tenants who are able to pay more for rent and remain in the property longer.
- 5.26 Given the timescales and the current state of the housing stock (as from the County EPC data), this target requires a very high rate of homes being improved to a C rating each year. The rate of refurbishment is therefore probably not the issue; it is the fact that the refurbishment currently being undertaken is not focused on improvements which lower carbon emissions and improve the energy performance of the building.
- 5.27 The local authorities, with the County and Health Service, are working together to tackle fuel poverty, marshalled by Severn Wye Energy Agency (SWEA) through the Warm and Well programme. SWEA also has a track record in delivering energy advice and low carbon housing retrofit initiatives across the County and has established a network of local retrofit contractors (Link to Energy) which could provide the foundation for a more concerted programme to increase low carbon retrofit rates.
- 5.28 Minimum Energy Efficiency Standards (MEES) apply to all rented properties for domestic and commercial use in UK. The Government has legislated that from April 2018, rented properties are required to have an EPC rating of E. This is expected to rise to D in 2023 and C in 2030.
- 5.29 Effective enforcement of the Private Rented Sector Minimum Energy Efficiency Standards (PRS MEES) is needed to secure greater investment by private landlords in improving the least energy efficient housing. This will not happen under the current arrangements whereby, as the top tier local authority, GCC Trading Standards holds the formal responsibility for enforcement yet has other priorities and significant resource constraints. This responsibility needs to be transferred to District Council private sector housing teams (as requested by Stroud DC) so that they can: (a) integrate the enforcement of MEES alongside their other engagement with landlords and with Warm and Well, and; (b) apply for funds where available to support delivery.
- 5.30 The community energy sector in the County is of relatively modest scale and impact but has recently re-galvanised its efforts and is starting to organise county-wide with a view to increasing its effectiveness and impact.
- 5.31 Green Open Homes activities in Stroud have been led by community organisations seeking to normalise low carbon retrofit and inspire households to upgrade their own homes; they have continued to be active after nationally available grant support ended. However, the limited supply chain for low carbon housing retrofit (already busy on normal refurbishment activity) means that enthused householders can find it difficult to obtain quotes and initiate work. The local 'low carbon contractor finder' scheme, Link to Energy, is relatively low profile and there are significant opportunities to develop this.

Decarbonisation of heat (i.e. stop relying on fossil fuel gas and oil) for buildings, hot water and industrial processes;

- 5.32 The Committee on Climate Change has indicated that by about 2040 the UK will need to stop relying on carbon-based fuels (coal, oil and gas) to generate heat to keep buildings warm or produce hot water or steam for industrial processes) in order to be on target to meet national carbon emission reduction targets for 2050. While the detail of how this will be done remains unclear, there are several different approaches which will need to be considered:
- (a) Reducing demand for heat in existing and new buildings;
 - (b) Optimising the roll-out of heat networks in urban centres and delivery of zero carbon heat supplies through them using waste heat and/or renewable heat;
 - (c) Identifying and realising opportunities to recover waste industrial heat to supply heating locally (thus displacing other fuels);
 - (d) overcoming barriers to increase take up of renewable heat technologies and/or fuels including air-, water- and ground- source heat pumps (because electricity will be very low carbon by then), biomass and bio-wastes in buildings and industrial processes;
 - (e) Generating and using green gas locally, either directly or via the gas network and
 - (f) Injecting hydrogen into the gas network to displace fossil fuel gas (whilst ensuring the hydrogen production is zero carbon rather than derived itself from fossil fuels through reforming natural gas).
- 5.33 The incinerator at Javelin Park and other industrial processes in the District (e.g. Muller at Stonehouse) will be producing significant amounts of heat which is currently wasted. There are opportunities for heat networks in new developments linked to industrial processes throughout the District.
- 5.34 Within Stroud District, in addition to the reduction in overall heat demand, there are significant opportunities for the development of Anaerobic Digestion to inject bio methane into the gas grid network from existing water treatment works, waste food, farm waste and use of purpose grown crops such as grass and herbal lays grown on marginal grassland or as temporary ley of arable land infected with blackgrass.

Dramatic steps to cut the carbon emissions of road transport by switching to walking, cycling, efficient mass transport (not powered by fossil fuels) and a huge rise in the use of electric vehicles;

- 5.35 Transport and transport planning do not fall within the strict remit of the District Council. However, the District Council is providing financial support for the development of strategic cycle routes within the District and has a role through the planning process in the strategic location of new developments and the installation of appropriate infrastructure that will enable walking, cycling and mass transport to be the preferred option for travel via appropriate policies within the revised Local Plan. The rise in EV vehicles is currently very rapid, driven largely by the development of technology and market forces, with their registration doubling every year. It is expected that by or before 2028, every second new car will be an EV vehicle. It appears that with increasing range of batteries, the greatest demand for EV charging points will be in

domestic homes. The demand for home charging points will increase rapidly and, whilst grid capacity provision will be a role for the Western Power Distribution (WPD), there is likely to be a role for suitable planning policies to facilitate installation of EV charging points on listed buildings and in conservation areas and all new- build houses as well as potentially on lamps. The provision of EV charging points for staff and Council vehicles will need to be considered along with the need for EV charging points in Council carparks. By 2030 the provision of suitable facilities and planning policies for driverless cars will need to be considered.

Ensuring new build developments achieve their full low carbon potential and contribute effectively to a smarter energy system;

- 5.36 Unless new build developments achieve zero net carbon emissions, the planned growth of 12,500 homes will increase total carbon emissions if they are built to current building regulations. Following this approach rather than imposing more stringent energy performance targets would result in larger carbon emission reductions being required from other areas of action – which may not be possible given the challenging contributions these other areas are already expected to make.
- 5.37 Therefore, Stroud District Council has crucial role to play in including policies within the revision of the Local Plan that set sufficiently high energy performance criteria for all new-build housing from the time of adoption of the revised Local Plan in 2021. The District Council can also set an example by ensuring that all new housing built on council-owned land and council housing is built to a standard that ensures zero net carbon emissions. This may be through modular construction and would probably include PV, energy storage and enable smart home technology.

A dramatic reduction in emissions from agricultural food production and land use;

- 5.38 Agricultural policy is largely outside the remit of the District Council although, through planning policy and the implementation of green infrastructure requirements, there may be some opportunities to influence land management. A key role will however be in the promotion of low carbon food through Council facilities and communication. This will need to involve the active promotion of vegan and vegetarian diets and, where meat is included in the diet, ensuring it is from extensive farming systems. Stroud District already boasts one of the best local food farmers' markets in the UK, vegetarian restaurants, a vegan school food Production Company and the world's only vegan football club. Therefore, the implementation of this will need to build on this unique and strong foundation.

A huge reduction the generation of waste and a dramatic increase in low carbon means of dealing with waste;

- 5.39 Since the introduction of the new collection scheme, Stroud District has already seen the greatest increase in recycling rates by any English Authority and now has the least amount of residual waste to landfill. Recycling and sending food waste to an anaerobic digester (AD) at Bishops Cleeve to be turned into bio methane and injected into the gas grid network to replace fossil fuel gas are currently the most effective means of reducing carbon emissions from waste. However, there is still a significant amount of waste generated in the District and a significant amount not being recycled or food waste sent to the AD plant.

A dramatic increase in the capture carbon, particularly but not necessarily exclusively through tree planting and land management;

- 5.40 The potential role and funding of commercial industrial-scale carbon capture is set out in the Government Clean Growth Strategy (Beis 2017). These are likely to be large scale plants close to energy intensive industry. However, it may be appropriate for the District Council to consider developing appropriate supportive policies within the revision of the Local Plan, should small scale commercially viable technology be developed both for new build and retrofitting (e.g. Javelin Park incinerator).
- 5.41 The Government Committee on Climate Change has recently (November 2018) published a report on Biomass in a Low-Carbon Economy which recommends increasing the woodland cover in England from 13% to 16% and potentially to 19% by 2050 to increase storage of carbon and the sustainable production of timber for low carbon construction methods (particularly use of cross laminated timbers). Stroud District covers some 460 sq. km. Current woodland cover is relatively low (circa 10%). There is significant potential for greater sequestration through better woodland management and the production of biochar.
- 5.42 The planting of a further 10% of the District with broad leaf trees (4,600 ha) would be the equivalent of an additional store of 24Gt tonnes of CO₂ per annum. However much of the commercial unproductive land within the District is internationally important as coastal grazing marsh or chalk grassland and thus will require careful strategic planning.

6. GOVERNANCE STRUCTURES AND PARTNERSHIP WORKING

- 6.1 The development and implementation of these changes will require a focussed action by a range of organisations working together in a genuine an effective partnership that can respond quickly to opportunities. It will require a can-do attitude, highly effective communication with minimum bureaucracy, excellent networking mechanisms between delivery partners and businesses to carry out this work. It will need to involve or link to developers, installers, funders, services providers, and community energy groups, Severn Wye Agency, GFirst LEP, and Gloucestershire County Council. However, it will be very important not to duplicate the Gloucestershire Sustainable Energy Partnership and a close working relationship with the emerging Gloucestershire Sustainable Energy Delivery Group will be required.
- 6.2 In order to work in effective partnership, and develop a strong sense of shared purpose, it will probably be necessary to establish some form of district-focused, purpose-driven governance body, and to organise initial workshops to mobilise and involve stakeholders. Recent papers from Transition Stroud make suggestions which should be reviewed alongside the points above to identify an appropriate approach in Stroud District. (Ref 'Thoughts on Expenditure to Support Scoping and Delivery of the Stroud District Carbon Neutral 2030 Commitment' 5 December 2018, and 'Mobilising Local Stakeholders for Carbon Neutral Stroud', 4 January 2019.)
- 6.3 To ensure the District Council is effectively focussed on the carbon neutral by 2030 and adaption actions it will be important that this is clearly articulated in future corporate delivery plans and budgets. Clear officer and committee responsibilities need to be allocated. It may be appropriate to include a new box in the standard committee paper format to check each proposal's compatibility with the carbon neutral and adaptation commitments of the council.
- 6.4 There are already a small number local area-based climate change action group which should be encouraged and potentially expanded. Street based climate change action groups

particularly where there are older, or period properties of similar design and construction may also provide opportunities cost effective retro fit programmes.

7. TARGET SETTING AND MONITORING

- 7.1 Carbon emissions per capita in Stroud have reduced by 26% between 2005 and 2016 (Table 1), broadly in line with national reductions, and are now 38% less than in 1990. These reductions have been largely delivered by decommissioning of coal-fired power stations, closure of heavy industry, significant improvements in the efficiency of road vehicles, the significant UK growth of renewables and by gains from energy efficiency improvements in buildings and equipment (boilers, appliances and lighting).
- 7.2 In 2016 the total emissions from Stroud District was 778 million tonnes per annum (6.6 tonnes per person carbon equivalent per annum).
- 7.3 However the total emissions over which local authorities may be expected to exert some influence were 555.9 MtCO₂e per annum (4.8 tonne per person per annum). The Government's legal commitments under the Climate Change Act 2008 are likely to reduce UK emissions by a further 25% (1.2 tCO₂e per person per year or 138.9 MtCO₂e) by 2030 leaving something in the region of the equivalent of 3.6 tCO₂e per person per year (417 MtCO₂e per annum). To reach the agreed target of a carbon neutral District by 2030 will require setting targets for reduction, capture and offsetting significantly over and above the nationally agreed targets.

8. IMPLEMENTATION PLAN

- 8.1 Many of the activities required for Stroud District to become Carbon Neutral are not within the direct control of the Council. The Implementation Plan will need to be rapidly developed in partnership with the citizens and a wide range of partners. A crucial role of the Council will be to provide leadership to enable the dramatic changes required.

9. BASELINE DATA

Year	Total		Local authority potential influence	
	2005	2016	2005	2016
Industry and Commercial Total Mt CO ₂ e	282.8	186.9	281.9	186.9
Agriculture Total Mt CO ₂ e	17.8	15.7	14.1	13.6
Domestic Total Mt CO ₂ e	290.3	194.8	290.3	194.8
Transport Total Mt CO ₂ e	433.4	419.1	177.3	171.7
Grand Total Mt CO₂e	993.3	778.5	763.5	566.9
Population ('000s, mid-year estimate)	110.1	117.5	110.1	117.5
Per Capita Emissions (t CO₂e)	9.0	6.6	6.9	4.8

Table 1: 2005 and 2016 Carbon Emissions for Stroud District

Beis 2018 (<https://www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics>)

Local Authority potential Influence: These figures are derived from BEIS published data on local and regional carbon emissions. These column uses subset of data which excludes large industrial plants (i.e. those included by the EU Emissions Trading Scheme) and motorway transport. This is designed to reflect those emissions over which local authorities and regions may be expected to exert some direct influence. These figures also do not include the emissions from products consumed in the District but manufactured elsewhere. Nor do they cover emissions from flights by district residents and businesses.

GWh			kWh					
Domestic	Non-Domestic	All	Domestic		Non-domestic		All	
Total	Total	Total	Mean	Median	Mean	Median	Mean	Median
225	320	545	4,239	3,267	67,183	8,788	9,424	3,366

Table 2 Annual Electricity Consumption per meter (for each domestic property there is normally one meter in each house)

(Beis 2017) (<https://www.gov.uk/government/statistical-data-sets/regional-and-local-authority-electricity-consumption-statistics>)

Sales (GWh)	Averages (kWh)		
	Domestic	Non-domestic	All

Domestic consumption	Non-domestic consumption	Total consumption	Mean consumption	Median consumption	Mean consumption	Median consumption	Mean consumption	Median consumption
582	247	829	13,476	11,712	480,119	122,469	18,978	11,807

Table 3 Gas Consumption 2017 per meter (for domestic properties there is normally one meter per house)

(Beis) <https://www.gov.uk/government/collections/sub-national-gas-consumption-data>

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Appendix 1

Press release: Stroud District Council Cooperative Alliance sets target to be carbon-free by 2030.

The leaders of Stroud District Council's cooperative alliance have issued a joint statement declaring a climate emergency following the recent IPCC report which warned that humanity has only 12 years to take emergency action in order to prevent global warming greater than 1.5°C.

'We need to declare a climate emergency,' the statement says from the Labour, Green and Liberal Democrat leaders who jointly run the council in a cooperative alliance. 'Central government is failing to act fast enough on reducing carbon emissions so local government has to take the lead. Stroud District Council was the first carbon neutral council in Europe. Now we need to commit to getting a zero-carbon district by 2030, before it is too late. We will work with our public sector partners in Gloucestershire to commit to a target to become a zero-carbon county as part of Gloucestershire Vision 2050. We will also work locally in partnership with our communities and the public and private sector, to make our fair contribution to limiting global temperature rises to below 1.5C in line with the Paris Climate agreement.'

'Our government is failing to do enough,' said council leader Doina Cornell, leader of the Labour group. 'The country is even going backwards in some areas like the promotion of fossil fuel extraction like fracking. A zero-carbon district by 2030 is ambitious and will need everyone not just politicians to be involved, but we owe it to the future to do this. Time is running out and we need to be bold and brave.'

Green Group leader Martin Whiteside adds 'Our Council can't do this alone. We will work with residents, business, public sector partners and central Government to achieve this bold plan. It will be a tough challenge, but there will also be tremendous benefits of sustainable local jobs and quality of life.

Cllr Ken Tucker, Liberal Democrat Group Leader said 'SDC were delighted in 2015 to become the first local council in Europe to obtain carbon neutral status and it is therefore opportune that we should now take the lead to achieve the same throughout the whole of Stroud District. Although this will not be easy, I believe that residents and businesses appreciate the environmental benefits of reducing carbon emissions and that their support in achieving the 2030 target will be essential in halting the rise in global temperatures that we are now experiencing.'

Stroud District Council has been run by a cooperative alliance of Labour, Green and Liberal Democrat since 2012.

Appendix 2

Motion for SDC Environment Comment 13 December 2018

Proposer: Cllr Simon Pickering

Seconder: Cllr George Butcher

ACHIEVING STROUD DISTRICT CARBON NEUTRAL 2030 COMMITMENT

Humans have caused irreversible climate change, the impacts of which are being felt around the world. Global temperatures have already increased by 1 degree Celsius from pre-industrial levelsⁱ. Atmospheric CO₂ levels are above 400 parts per million (ppm)ⁱⁱ. This far exceeds the 350-ppm deemed to be a safe level for humanity. In order to reduce the chance of runaway global warming and limit the effects of climate breakdown, it is imperative that we as a species reduce our CO₂ equivalent (carbon equivalent) emissions from their current 6.5 tonnes per person per year to less than 2 tonnes as soon as possible. The latest information gives us 12 years to take emergency action in order to prevent global warming greater than 1.5°Cⁱⁱⁱ.

The Intergovernmental Panel on Climate Change (IPCC) recently released a report focussing on the impact that 1.5°C would have on the planet compared to 2°C. Above 1.5°C, the risks to humanity of floods, droughts, extreme heat and poverty become much greater. At current levels, the world is on course for 3°C of warming^{iv}.

In addition to the IPCC report, the World-Wide Fund for Nature (WWF) has called for government leadership to make the changes necessary to reduce carbon emissions. According to the WWF Living Planet Report 2018, "*Earth is losing biodiversity at a rate seen only during mass extinctions*". The losses in vertebrate species - mammals, fish, birds, amphibians and reptiles - averaged 60% between 1970 and 2014^v.

Stroud District, and other local and regional authorities, has a role in contributing towards achievement of national, legally binding, carbon emissions reduction targets, as agreed at the 23rd Conference of the Parties to the United Nations Framework Convention on Climate Change^{vi}.

In Gloucestershire, the consequences of no action include:

- Increased risk of flash flooding and the resulting damages to buildings, crops, farmland and infrastructure as a result of more extreme rainfall events.
- Health problems due to increased heat stress, particularly for vulnerable adults and children.
- Increased costs associated with changes to crops and biodiversity.
- Higher energy costs.
- Crop failures associated with extreme heat, such as was experienced in 2018^{vii}.

There are significant economic, social and environmental benefits to be secured from these changes. Both the Government and the Committee on Climate Change believe the shift to a very low carbon energy future represents the best course for the country's economic development while lowering the risk of fuel poverty and reducing air pollution^{viii}.

The Committee acknowledges:

- That individuals cannot be expected to make carbon emissions reductions on their own. Society needs to change its laws, taxation and infrastructure to make low carbon living easier and the new norm.
- That greenhouse gas emissions result from both production and consumption.
- That Stroud District Council has already shown foresight and leadership when it comes to addressing the issue of climate breakdown, having met its corporate carbon reduction targets and in becoming the first Carbon Neutral Council in Europe.
- That the consequences of global temperature rising above 1.5°C are so severe that preventing this from happening must be humanity's number one priority.
- That the time for business as usual is over, as acknowledged by the recent action by Gloucestershire County Council, creating an additional cabinet role with responsibility for overseeing the authority's approach to prevention of, mitigation of and adaptation to climate change.
- Bold climate action can deliver local social and economic benefits in terms of new jobs, economic savings and sustainable livelihood opportunities, as well as improved wellbeing.

The Committee resolves:

- To ask Stroud District Council to endorse the 'Climate Emergency' announced by the administration on 16 November 2018^{ix} and pledge to do everything within the Council's power to make Stroud District carbon neutral by 2030.
- *Original wording in brackets* {"To recommend to the Strategy and Resources Committee that initial funding of £200,000 from the business rate pilot gain, (expected to be a minimum of £500,000, and which has not been included in the base budget for expenditure^x) is ring-fenced to support scoping and delivery of the Stroud District Carbon Neutral 2030 Commitment^{xi}."} *was replaced by an amendment as set out in square brackets*

"[The Environment Committee requests S&R to consider setting aside initial funds via the normal budget setting budget process in order to fund the scoping and delivery of the "Stroud Carbon Neutral Commitment ". Further the commitment will be added as a piece of work to the committees work program and work will include the items listed from 1 to 7 below]"

These funds will support action:

1. To set out a Plan of Action, including clear targets and transparent reporting, to develop District wide Locally Determined Contributions to complement National

Determined Contributions in line with the Paris Agreement to limit global warming to 1.5C.

2. To include planning and support in the District for adaptation to the climate change that is already happening.
 3. To develop a strategy for Stroud District Council to play a leadership role in promoting community, public and business partnerships for this Carbon Neutral 2030 Commitment throughout the District, County and region.
 4. To work with partner bodies across the county to ensure that the climate emergency is adequately reflected in the development and implementation of all county wide strategies and plans, including Gloucestershire 2050, the Gloucestershire Industrial Strategy, Gloucestershire Energy Strategy and Gloucestershire Transport Plans.
 5. To investigate all possible sources of external funding and match funding to support this commitment.
 6. To work with key partner organisations within the County and region to secure external funding.
 7. To report back on an annual basis to Council on progress made.
- To call on Central Government to provide additional powers and resources to support local and national action towards the 2030 target.

ⁱ <https://climateanalytics.org/briefings/global-warming-reaches-1c-above-preindustrial-warmest-in-more-than-11000-years/>

ⁱⁱ <https://e360.yale.edu/features/how-the-world-passed-a-carbon-threshold-400ppm-and-why-it-matters>

ⁱⁱⁱ <https://www.bbc.co.uk/news/science-environment-45775309>

^{iv} <http://www.ipcc.ch/report/sr15/>

^v <https://www.worldwildlife.org/publications/living-planet-report-2018>

^{vi} <http://www.cities-and-regions.org/cop23/wp-content/uploads/2017/11/bonn-fiji-commitment-of-local-and-regional-leaders.pdf>

^{vii} https://www.gloucestershire.gov.uk/media/2266/080709_corporate_climate_change_strategy_annexes_published-30432.pdf

^{viii} <https://www.gov.uk/government/publications/clean-growth-strategy/clean-growth-strategy-executive-summary>

^{ix} <https://www.stroudnewsandjournal.co.uk/news/17243256.climate-emergency-declared-how-councillors-plan-to-tackle-it/>

^x <https://www.stroud.gov.uk/media/970448/item-7b-iv-budget-strategy-2019-20-to-2022-23.pdf>

^{xi} Subject to confirmation of the funds being received at the end of the financial year 2018/19

Appendix 3

Council first to go carbon neutral

Published: Monday, 21 December, 2015

At a meeting of its environment committee held last night, councillors endorsed a report stating that Stroud District Council has become a carbon neutral council. It is thought to be the first council in Europe to announce that the carbon dioxide emissions from its operations have been outweighed by the reduction in emissions from energy efficiency measures and renewable energy installations it has put in place. The announcement comes just a week after the historic agreement on climate change was reached at the UN Climate Change Conference, in Paris.

Councillor Simon Pickering, chair of the committee, said:

“This is a tremendous achievement, which has been delivered through a multi-pronged strategy focused on households, businesses and community buildings, as well as reducing the council’s own operational emissions. We have brought in over £36m investment into county allowing us to create jobs, cut heating bills and, of course, reduce carbon emissions. It’s been a win-win approach to tackling climate change, helping households and stimulating the local economy.

“Carbon offsetting is a long-established and accepted practice and is usually something associated with multi-national companies. Quite often they’ll do something such as plant trees in another part of the world to offset their carbon footprint. From our perspective we’ve been able to make hands-on improvements in our immediate environment.”

The council’s environmental audit for 2014/15 has revealed that its estimated CO₂ emissions from its operations of 2,925 tonnes have been outweighed by the 3,275.6 tonnes saved by its environmental initiatives.

As part of keeping its own house in order, council buildings have seen significant solar panel arrays installed, lighting upgrades, and insulation and air tightness improvements. On top of these has been a programme of behavioural change encouraging staff to become more energy efficient. Village and community halls have also received funding to make them environmentally friendly and businesses across the district have also taken part in initiatives to help them reduce their emissions.

However, the greatest contribution by far comes from the council’s work with households which have contributed to 75% of the carbon savings. The council was instrumental in setting up and supporting the Gloucestershire Warm and Well Partnership. Working with Severn Wye Energy Agency, its advice and support to households on energy efficiency projects saved 2,468.6 tonnes of CO₂. It has helped thousands of households across the district with support and guided them to funding initiatives towards energy efficiency improvements and renewable energy measures such as ground source heat pumps, air source heat pumps, solar panels and solar heating. At the same time the council has been instrumental in establishing a network of registered installers to carry out installations to ensure that supply could meet the demand for work.

Councillor Geoff Wheeler, leader of Stroud District Council, added:

“Over several years the council has been implementing its programme to reduce emissions and this year saw the cumulative effect of those measures take us carbon neutral. Households and organisations across the district have benefitted from energy efficiency and renewable installations and, as a social housing provider with over 5,000 homes, we have been able to make major improvements for many of our tenants, helping them to reduce their emissions and furthermore reduce fuel poverty.”