

Wiltshire Council

Environment Select Committee

13 January 2021

Report of the Global Warming & Climate Emergency Task Group (Part Two)

Purpose of the report

1. To present the findings and recommendations of the task group, relating to its Planning workstream, for endorsement by the committee and referral to the relevant Cabinet Members for response.

Background

2. The Earth's average surface air temperature has increased by approximately 1°C (1.8°F) since 1900. Over half of that increase has occurred since the mid-1970sⁱ. There is now a clear, international scientific consensus that humans are changing the Earth's climate.
3. The International Panel on Climate Change's (IPCC) *Special Report on Global Warming of 1.5°C* (October 2018) concludes that we have until 2030 to act to avoid the worst impacts of climate change. The report concludes that to reduce global warming and limit its effects, CO₂ emissions must be reduced from the current 6.5 tonnes per person per year, to less than 2.0 tonnes by 2030ⁱⁱ.
4. Local authorities around the world have declared a climate emergency and committed to reducing carbon emissions in their local areas. In February 2019, Wiltshire Council acknowledged the climate emergency and pledged to reduce carbon emissions in Wiltshire by 2030. The Council also invited the Environment Select Committee to establish a task group to develop recommendations and a plan for making Wiltshire carbon neutral by 2030. The Environment Select Committee established the task group in April 2019 and the Global Warning & Climate Emergency Task Group began work in June 2019.
5. The task group's terms of reference align with the Wiltshire Council Business Plan 2017-27 priorities of 'growing the economy', 'strong communities' and 'protecting the most vulnerable'.
6. The broad remit of the task group has required investigating a technically complex and inter-related set of themes. It has taken time to undertake a detailed investigation and analysis of the evidence, deliberate and form recommendations. The task group recognises the need to act quickly and has therefore brought forward those recommendations completed, mindful of the areas that remain to be addressed.

7. This report covers the task group's Planning workstream. Its Energy and Transport and Air-quality workstreams were addressed in a [previous report](#), which was endorsed by Environment Select Committee on 22 September 2020. Its remaining workstreams, set out in the terms of reference below, will be addressed in future reports.

Terms of reference

8. The task group's terms of reference were endorsed by the Environment Select Committee on [3 September 2019](#):
 1. Develop recommendations and a plan seek to achieve the target of making the county of Wiltshire, excluding the area administered by Swindon Borough Council, net carbon neutral by 2030;
 2. The task group's work will include, but not be limited to, performing investigations into the following areas:
 - a) Renewable Energy generation, energy use and efficiency
 - b) Planning
 - c) Transport & Air Quality
 - d) Waste
 - e) Land Use
 - f) Business & Industry
 3. Undertake a carbon/renewables audit;
 4. Agree parameters with the relevant Cabinet Member and Portfolio Holder that represent the council impact on the climate that can be accurately reported to council on a regular basis.

Membership

9. The task group comprised the following membership:

Cllr Allison Bucknell (until October 2019)
Cllr Clare Cape
Cllr Tony Deane
Cllr Sarah Gibson
Cllr Tony Jackson (from October 2019)
Cllr Jacqui Lay
Cllr Brian Mathew
Cllr Nick Murry
Cllr Fred Westmoreland
Cllr Graham Wright (Chairman)

Methodology

10. The review was undertaken primarily through desktop research and discussions with witnesses, including local authority officers, Executive members, professionals in relevant industries, interest/campaign groups, national bodies and other stakeholders.
11. Approximately half of the task group's evidence has been collected from interviews with organisations developing or delivering solutions 'on the ground'. The task group has sought to gather an appropriate range of viewpoints.
12. Alongside receiving verbal evidence, the task group considered baseline evidence, best practice and policy from other UK local authorities, trade bodies, thinktanks, commercial and not-for-profit organisations.
13. The task group met on 37 occasions between June 2019 and November 2020.
14. The task group is grateful to the following witnesses for contributing to the task group's review thus far:

Individual	Job title / organisation
Cllr Richard Clewer	Cabinet Member for Corporate Services, Heritage, Arts & Tourism, Housing and Communities
Cllr Ashley O'Neill	Portfolio Holder for Climate Change
Cllr Bridget Wayman	Cabinet Member for Highways, Transport and Waste
Cllr Toby Sturgis	Cabinet Member for Spatial Planning, Development Management and Property
Alistair Cunningham OBE	(former) Executive Director, Wiltshire Council
Sam Fox	Director of Economic Development & Planning, Wiltshire Council
Georgina Clampitt-Dix	Head of Spatial Planning, Wiltshire Council
Geoff Winslow	Planning Team Leader, Wiltshire Council
Lynn Trigwell	Planning Team Leader, Wiltshire Council
Sophie Davies	Senior Planning Officer, Wiltshire Council
Louisa Kilgallen	Senior Ecologist, Wiltshire Council
Paul Robertson	Landscape Officer, Wiltshire Council
Tracy Carter	(former) Interim Waste Management & Carbon Reduction Lead Officer, Wiltshire Council
Rory Bowen	Economic Regeneration, Wiltshire Council
Allan Creedy	Head of Sustainable Transport, Wiltshire Council
Ian Gillard	Energy and Compliance Manager, Wiltshire Council
Ariane Crampton	Head of Carbon Reduction, Wiltshire Council
Victoria Burvill	Carbon Reduction Team, Wiltshire Council
Chris Hogg	Green Spaces Officer, Bradford on Avon Town Council

Rachel Coxcoon	Programme Director, Climate Emergency Strategic Support, Centre for Sustainable Energy (CSE)
Dan Stone	Project Manager (Planning) Centre for Sustainable Energy (CSE)
Ian Preston	Head of Household Energy Services, Centre for Sustainable Energy (CSE)
John Alker	John Alker, Director of Policy & Places, UK Green Building Council (UKGBC)
Mari Webster BSc MA MRTPI	Associate Director, Johns Associates
Nick Hodges	Associate Architect at Feilden Clegg Bradley Studios
Heather Elgar	External Affairs Officer, South West Region, The Woodland Trust
Bill Jarvis	Wiltshire Climate Alliance/ Extinction Rebellion (XR)
Brig Oubridge	Wiltshire Climate Alliance/ Extinction Rebellion (XR)
Christian Lange	Wiltshire Climate Alliance (WCA)/ Salisbury Transition City
Eva McHugh	Wiltshire Climate Alliance (WCA)/ Salisbury Transition City
Andrew Nicholson	Wiltshire Climate Alliance (WCA)
Jessica Thimbleby	Wiltshire Climate Alliance (WCA)
Poppy Taylor	Wiltshire Climate Alliance (WCA) Youth
Adrian Temple Brown	Extinction Rebellion (XR) Chippenham
Myla Watts	Extinction Rebellion (XR) Chippenham
Jeremy Wire	Extinction Rebellion (XR) Bradford
Jane Laurie	Extinction Rebellion (XR) Bradford
Sarah Prinsloo	Extinction Rebellion (XR) Salisbury
Ros Oswald	Carbon Neutral Aldbourne
Ian Mock	Bristol Avon Rivers Trust
Mel Moden	Zero Chippenham
Jane Laurie	Climate Friendly Bradford on Avon
Adam Walton	Transition Town Corsham (TransCoCo)
John Schofield	Sustainable Devizes
Margaret Green	Sustainable Devizes
Tom Morris	Sustainable Calne
Ben & Julia	Helping the Community of Malmesbury
Cate Watson	Eco Royal Wootton Bassett
Steve Oldrieve	Trowbridge Environmental Community (Trowbridge Eco)
Shirley McCarthy	Melksham Energy Group (MEG)
Nicola Lipscombe	Salisbury Area Greenspace Partnership (SAGP)
Margaret Green	Green Party

Evidence

15. This report focuses upon delivering climate [mitigation](#) through the planning process. The task group chose to concentrate upon mitigation, rather than [adaptation](#), to address the root causes of carbon emissions rather than their effects.
16. In August 2020 the UK Government published a white paper on [the future of planning](#). This proposes significant changes, but even if agreed, these are likely to be implemented many years into the future. The task group, acknowledging the need to act quickly, has looked at the current planning process and made recommendations to reduce carbon emissions in that context.
17. Further evidence is listed in the references and specific sources are included in the endnotes.

Local Planning Authority (LPA)

18. The planning system exists to ensure that development and land-use is aligned with the public interest, and is appropriately weighted in terms of its economic, social and environmental costs and benefits, including in respect of future generations. It specifies the quantity and quality of development, and what needs to be protected or supplemented in order to ensure that such development is sustainable. Local Planning Authorities (LPAs) provide a framework for guiding planning decisions and addressing needs and opportunities in relation to the local economy, housing, infrastructure, community facilities and the natural environment, including climate change.
19. There is already a legal duty on LPAs for their local plans to address the causes and impacts of climate change, under [Section 19](#) of the 2004 Planning and Compulsory Purchase Act, as amended by the 2008 Planning Act. The 2019 revision of the [National Planning Policy Framework](#) (NPPF) also includes a stronger emphasis on future development, such that plans must “*pro-actively shape places in a way that contributes to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience.*”
20. There is also a legal requirement under the [Neighbourhood Planning Act 2017](#) for local authority’s strategic plans to comply with the priorities set out in paragraph 20 of the NPPF, which includes climate change. However, the NPPF is less helpful about the overarching priority that needs to be afforded to the climate emergency (e.g. by the Climate Change Act) and there is a lack of guidance and support to help local authorities secure the radical carbon reduction measures that are urgently needed.
21. Paragraph 149 of the NPPF does specify that local planning authorities must ensure that policies and decisions are in line with the objectives and provisions of the Climate Change Act 2008 (Section 1), including setting greenhouse gas (‘carbon’) emissions reduction targets, measuring progress on emissions reduction and requiring onsite renewable energy generation. This Section 19 statutory duty has more powerful implications for decision-making than the

NPPF, which is guidance, not statute. Where Local Plan policy is challenged on the grounds of viability, for example, a local authority must make clear how the plan would comply with the duty if the policy were to be removed. This legal duty on mitigation (carbon reduction) also implies compliance with the provisions of the target regime (the trajectory to net zero) of the Climate Change Act.ⁱⁱⁱ

22. Further clarification is provided in a [legal briefing](#) prepared by the Town & Country Planning Association (TCPA) and Client Earth, which states that local plans are required to demonstrate how their policies are in line with the legally binding carbon emission reduction targets in the Climate Change Act, including:
 - accounting for baseline emissions;
 - robustly evaluating future emissions, considering different emission sources, considering requirements set in national legislation, and a range of development scenarios; and
 - adopting proactive strategies to mitigate carbon emissions in line with the Climate Change Act and UK national target of net zero by 2050.
23. This includes the Local Plan's evidence base providing an overall [carbon budget](#) for the county, consistent with the updated net zero national target, illustrating baseline emissions and the impact of development and policies on this emissions curve. Local Plan policies should aim to secure carbon reductions in line with the trajectory.
24. There is also various enabling legislation such as the [Planning and Energy Act](#), which sets powers for local authorities to require a proportion of the energy need relating to new development to be sourced in the locality of the development, through renewable or low-carbon generation and enables local planning authorities to set stronger energy efficiency requirements than those set out in the Building Regulations^{iv}
25. Targets need to be evidence or science-based and build upon a robust scoping exercise. The council must understand what net zero will mean, whether the timeline is realistic and what budget will be required to achieve it. The [Carbon Trust](#) has set out some of the challenges and opportunities of moving from intent to the delivery of robust and measurable change.

Sustainable communities

26. According to [Friends of the Earth](#), only 22% of Wiltshire's commuter journeys are currently made by public transport, cycling and walking. It suggests that Wiltshire should aim to increase this to 40% by 2030.
27. [Nottingham City Council](#) has historically pursued policies that encourage the use of public transport together with walking and cycling, as well investment in a high-quality, high-frequency public transport network. These policies have resulted in an increasing number of its residents using public transport and, despite a rising population, traffic volumes have remained static for several years.

28. The '15-minute neighbourhood' involves a menu of policy actions that provide residents access to most, if not all, of their needs within a short walk or bike ride from their home. Based upon four pillars; proximity, diversity, density and ubiquity, 15-minute policies transform urban spaces into connected and self-sufficient (or 'complete') neighbourhoods. Reducing car use and encouraging active travel are central to delivering the 15-minute vision. Low traffic neighbourhoods are being pioneered in [Waltham Forest](#) and Sheffield – with others planned for Bristol and Manchester.
29. Bath & NE Somerset is consulting on developing [Liveable Neighbourhoods](#). The idea is to provide fairer access for those who prefer to walk or cycle (or who do not have cars) and create healthier outdoor spaces for everyone to enjoy. This includes better walking and cycling routes, and vibrant local high streets where people can relax outside and connect with others, without the hazards and pollution associated with vehicles.
30. The [BREEAM Communities International standard](#) can be used to assess and certify the performance of medium to large scale developments, including new communities and regeneration projects. It helps to create sustainable communities that are good for the environment, its people and are also that are economically successful.

Renewable energy generation

31. The benefits of renewable energy generation were covered in the task group's [first report](#).
32. Renewable energy organisations^v have considerable potential to increase large-scale (ground mounted) solar energy generation in Wiltshire. This could be 70MW+ of new, renewable energy - for every 5MW installed, a solar farm can power over [1,500 homes](#) annually - with an annual carbon saving of 16,000+ tonnes carbon dioxide equivalent (CO₂e). The task group's meetings with renewable energy developers suggests that the council owns (at least) five sites where significant solar generation is practically and commercially viable.^{vi}
33. In [Cornwall](#) the council has developed new planning guidance for renewable energy. The Renewable Energy Planning Advice provides guidance on a range of renewable energy technologies. It explains what community ownership means and how it might be considered as part of a planning application. It also contains detailed guidance on specific considerations, such as landscape and cumulative impact (in particular for wind turbines and solar farms). As such, the Planning Advice provides a tool to guide new development, inform planning decisions and support the development of Neighbourhood Plans.

Electric vehicles (EVs)

34. Electric vehicles, in terms of transport and air pollution, were covered in the task group's [first report](#).

35. Transport is the largest source of total emissions in 49% of local authority areas^{vii}. Wiltshire's highest emissions sources have been reported as road transport and buildings. Planning has a major role to play in enabling and encouraging take up of electric vehicles.
36. Cardiff City Council is an example of a local authority that plans to significantly increase the number of [residential EV charge points](#) by 2025. An on-street electric vehicle strategy is part of Bath NE Somerset's [Liveable Neighbourhoods](#) programme.
37. EV chargers have been installed alongside resident parking bays at [Wichelstowe](#), a residential development on the southern edge of Swindon. Environmental sustainability is a core commitment to this new development, which has been a collaborative project with Barrett Developments and Swindon Borough Council.

Landscaping

38. Trees are good at removing carbon from the air. [Planting new trees](#), restoring wetland and forest habitats can increase the amount of CO² removed from the atmosphere by photosynthesis. Increasing tree cover across the country could help reduce emissions and benefit nature and people's mental health. The Government has set itself a [target](#) of establishing 30,000 hectares (ha) of new woodland in England by 2025.
39. Although oceans store most of the [Earth's carbon](#), soils contain approximately 75% of the carbon pool on land — three times more than the amount stored in living plants and animals. Therefore, soils play a major role in maintaining a balanced global carbon cycle. It is therefore important to carefully consider the management of plants, soil and the wider ecology. [Cornwall Council](#) has developed a nature recovery network and linked it into wider spatial planning targeting development and encouraging nature.
40. The Woodland Trust are calling for 30% canopy cover across new developments - to help mitigate the impact of development. This is set out in the Trust's [Emergency Tree Plan for the UK](#) (January 2020).

Planning Policy – Net zero carbon development (operational carbon)

41. The built environment contributes around 40% of the UK's total carbon footprint. Almost half of this is from energy used in buildings (e.g. plug loads and cooking) and infrastructure (e.g. roads and railways) that has nothing to do with their functional operation^{viii}. According to the Committee for Climate Change (CCC), carbon emissions from this sector need to be reduced significantly faster than they have been to date, if the UK is to meet its carbon reduction commitments^{ix}.
42. In its *Net Zero – The UK's contribution to stopping global warming* (2019) report^x, CCC stated that: "An overhaul of the approach to low-carbon heating and energy efficiency is needed. The Government's planned 2020 Heat Roadmap must establish a new approach that will lead to full decarbonisation

of buildings by 2050,” and with respect to heating of buildings: “This requires roll-out of technologies such as heat pumps, hybrid heat pumps and district heating in conjunction with hydrogen, and new smart storage heating, combined with high levels of energy efficiency.”

43. The CCC also pointed to COVID-19 recovery as an historic turning point in tackling the global climate emergency, in its 2020 Progress Report to Parliament^{xi}, urging Government to support a national plan to renovate buildings and construct new housing to the highest standards of energy and water efficiency, to shift to low-carbon heating systems, and to rolling out ‘green passports’ for buildings and local area energy plans immediately.
44. In a recent review of local plans^{xii} the Centre for Sustainable Energy (CSE) found that most were not planning for the zero-carbon future that is needed, and the majority of planning authorities will need to strengthen their Local Plans if they are not to fall short in their climate resolutions. In this respect, they describe three types of local authority:
 - a) Willing and able: currently creating robust policies fit for a zero-carbon, climate-adapted future, well ahead of central government thinking, making progress in spite of, rather than with the support of, central government;
 - b) Willing but under-resourced: often rural authorities under financial pressure and struggling to do the day-job, in need of resources and tested policy approaches to cut and paste into plans; and
 - c) Unwilling, uninformed or pre-occupied: prioritising housing provision over everything else, planning for climate change is not a priority and will not affect their residents.
45. Currently the UK has the least energy efficient homes in Europe^{xiii}. Under the former *Code for Sustainable Homes*, new homes were due to be zero carbon from 2016, but this policy was abandoned in 2015 and homes built in Wiltshire since then will need to be retrofitted. Net zero carbon planning policies and retrofit of the existing housing stock will both be needed to meet the UK’s national target for net zero emissions by 2050 and Wiltshire’s 2030 target. In addition, [no new homes will be connected to the gas grid](#) from 2025 at the latest and will need to be heated through low carbon sources and have ultra-high levels of energy efficiency alongside appropriate ventilation.

Policies and standards

46. [Section 14](#) of the revised NPPF (2018) provides for Local Plans to enforce policies which reduce carbon emissions from new homes. The revised NPPF (2018) encourages the use of assessment frameworks (e.g. such as Home Quality Mark, Passivhaus standard and Energiesprong) as tools for improving design quality.
47. Wiltshire Core Policy (CP) 41 on Sustainable construction and low carbon energy^{xiv} states that *“low-carbon energy will be integral to all new development in Wiltshire.”* It directs new housing development to be built to at least Code for

Sustainable Homes (CfSH) Level 4 and encourages development that exceeds this code where it is in accordance with Government guidance.

48. The UK Green Building Council (UKGBC) has set out a framework for the achievement of net zero carbon^{xv}, following on from the Code for Sustainable Homes, as well providing a resource pack for local authorities^{xvi}, with good examples of emerging and adopted policies. The three-tiered approach to achieving net zero begins with energy conservation through the fabric of the building, followed by renewable energy generation, and ending with carbon offsets, the latter being collectable through a carbon levy attached to planning permissions.
49. For housing developments, energy conservation can be translated as a 30-40% improvement in fabric performance, as laid out in the London Energy Transformation Initiative (LETI) guide and standard^{xvii} and endorsed in the Royal Institute of British Architects (RIBA) 2030 Challenge^{xviii}, which stipulates targeting < 55 kWh/m² p.a. operational energy use for non-domestic buildings and < 35 kWh/m² p.a. operational energy use for domestic buildings, or the equivalent of Passivhaus standard^{xix}. Given the that buildings in operation do not always perform as the designers predicted (the so called 'performance gap'), it is important that methodologies such as TM54 (as oppose to SBEM, which is intended for compliance checks) are used for predicting in-operation energy use^{xx}

Carbon offsetting

50. According to a [Centre for Sustainable Energy](#) (CSE) survey of six local authorities^{xxi}, the majority reported little resistance to their policies and their carbon offset regime, demonstrating the potential for such funds to deliver social and environmental benefits and support the local economy, as well as deliver carbon reductions.
51. The CSE report considered that a £95 per tonne carbon price was high enough to encourage developers to install onsite solar PV where possible instead of paying into an offset fund. It concluded that carbon offsetting is possible within current planning legislation, has been used successfully elsewhere and can be undertaken in innovative ways.
52. In the [London Borough of Southwark](#), where it is demonstrated that new developments cannot achieve the carbon target on site, the council has established a carbon offset fund for cash in lieu of contributions from developers to meet the target off site. This money is spent on carbon offsetting projects around the borough to achieve CO₂ reduction savings. Southwark Council's carbon offset cost is £60 for every tonne of CO₂ emitted per year over a period of 30 years (or £1,800 per tonne of annual residual CO₂ emissions).
53. The need for such an approach is also highlighted by a study undertaken by consultants Currie & Brown^{xxii} on behalf of four West of England authorities, which concluded that zero carbon development could generally not be achieved

through the building fabric and incorporation of renewable energy alone, hence the need for off-site carbon abatement through a carbon offset scheme.

Whole life-cycle carbon (WLC) emissions

54. Whole Life-Cycle Carbon (WLC) emissions are the carbon emissions resulting from the materials, construction and the use of a building over its entire life, including its demolition and disposal. A WLC assessment provides a true picture of a building's carbon impact on the environment. Draft [London Plan Policy SI 2](#) sets out a requirement for developments to calculate and reduce WLC emissions. This requirement applies to planning applications which are referred to the Mayor, but WLC assessments are encouraged for all major applications.
55. Many Local Planning Authorities require an [energy statement](#) to be submitted as part of a planning application. This is often combined with a requirement to provide a reduction in carbon emissions/ energy use of the building through onsite generation of energy using low or zero carbon and renewable energy technologies.
56. Meeting with the Task Group and Wiltshire Council strategic planners^{xxiii}, the Centre for Sustainable Energy (CSE) commented that developers should not be able to claim that the price of land as a material consideration in meeting net zero carbon requirements, as this should have been priced in to purchasing the land being put forward. The NPPF advises (paragraph 57.) *“Where up-to-date policies have set out the contributions expected from development, planning applications that comply with them should be assumed to be viable”.*
57. Paragraph 2 of the Planning Practice Guidance^{xxiv} relating to viability states furthermore: *“It is the responsibility of site promoters to engage in plan making, take into account any costs including their own profit expectations and risks, and ensure that proposals for development are policy compliant. Policy compliant means development which fully complies with up to date plan policies. The price paid for land is not a relevant justification for failing to accord with relevant policies in the plan. Landowners and site purchasers should consider this when agreeing land transactions.”*

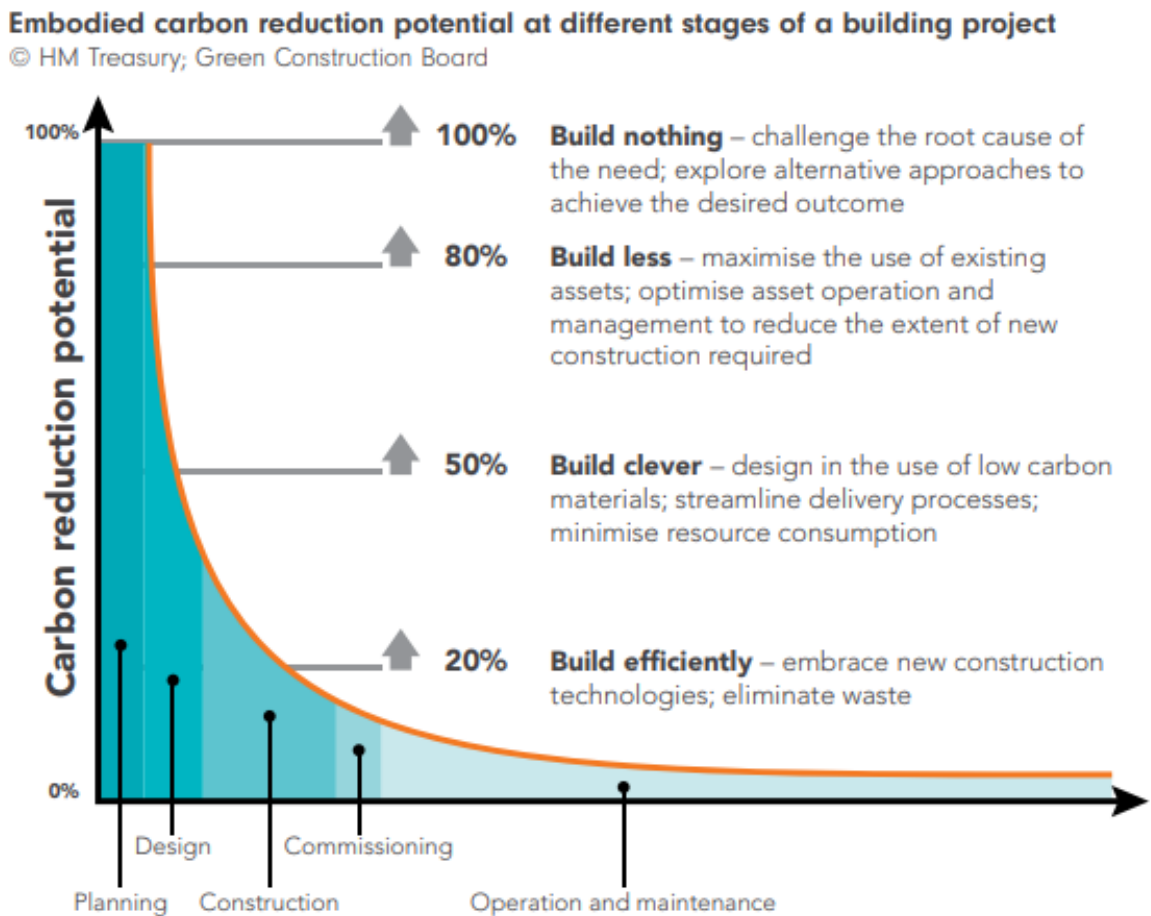
Planning Policy – Sustainable (low carbon) construction^{xxv}

58. Genuine net zero carbon development includes both operational carbon emissions generated by buildings in use (regulated and unregulated), plus emissions embedded in the building materials, emissions generated in construction and those generated in demolition and recycling^{xxvi}. Ultimately this would require buildings to have a circular lifecycle, where all the materials would be recycled, and the energy used to produce the materials, their installation and dismantling would originate from renewable sources. Any remaining emissions would be determined by a whole lifecycle carbon assessment and offset at the point of completion.
59. Whilst this is not fully achievable, the urgency of the climate emergency means that it is important to minimise as much of the carbon impact from development,

as possible, including these 'upfront' embodied and construction phase activities, which can sometimes account for up to half of a new building's lifetime carbon impacts before it has been occupied.

60. Overall, and depending on building type, between 30% and 70% of a building's lifetime carbon may already have been accounted for by the time the building is occupied. Buildings built to higher energy efficiency or Passivhaus standards will be at the higher end of this range^{xxvii}. Research suggests that embodied will account for 60-70% of a building's lifetime emissions for new builds in the next 10-20 years, as the grid decarbonises, highlighting how important it will be for planning policies to address this.
61. The figure 1 below shows the potential for doing so at the different lifecycle stages of a development, and whilst it may be difficult for Local Plan policies to promote 'building less' through better use of existing assets, it is certainly possible for them to promote the use of low carbon materials, streamlined delivery processes and elimination of waste. Low carbon construction (included reducing embedded carbon) presents considerable challenges, not least in terms of measurement but will become more feasible over time.

Figure 1 Embodied carbon impacts from product and construction stages of development



2.2 The embodied carbon impacts from the product and construction stages should be measured and offset at practical completion.

Planning Policy – Energy and heating

- 62. The UK Clean Growth Strategy *Leading the way to a low carbon future* (2017)^{xxviii} sets out the Government's ambition to deliver low carbon growth, including reducing the emissions created by heating homes and businesses, which account for almost a third of UK emissions.
- 63. Decentralised heating and cooling systems and networks can provide an extremely cost-effective way to minimising carbon emissions, particularly where networks can be expanded to accommodate new developments over time. The Climate Change Committee estimates that district heating could meet 20% of domestic heating and hot water needs by 2030. [The Clean Growth Strategy](#) includes policies to roll out low carbon heating and phase out installation of fossil fuel heating.

64. The proposed Future Homes Standard^{xxix} proposes to restrict the installation of individual boilers in newly built properties from 2025, with heating being provided by heat pumps or district heating from this point.
65. Decentralised heating and cooling systems require a strategic approach, involving various stakeholders and technologies, and requiring a certain scale and mix of development uses to be viable. Best practice is to ensure that energy planning happens concurrently with master planning, so that district heating (or heat networks^{xxx}) is part of the design criteria from project inception, and ideally from the strategic site allocation stage.
66. Stroud District Council has amended its [Local Plan](#) to ensure that development proposals include a communal low-temperature heating system where viable.
67. [Greenwich Millennium Village](#) is a community being developed through a joint venture partnership between Taylor Woodrow and Countryside Properties. The landowner stipulated stringent environmental design criteria for the development specifying an 80% reduction in primary energy use. The target is to be met progressively over the life of the development
68. Phase 1 of the [Bunhill District Heating scheme](#) was commissioned by Islington Borough Council to tackle fuel poverty in the local area. This project connects 850 homes and 2 leisure centres to a 1.9MWe (megawatt electrical) gas combined heat and power (CHP) unit. The scheme itself is owned and managed by Islington Borough Council.

Planning Policy – Retrofitting

69. There are hundreds of listed buildings in [Wiltshire](#). - a building is listed when included on a register called the *List of Buildings of Special Architectural or Historic Interest*, drawn up by English Heritage and approved under the Planning (Listed Buildings and Conservation Areas) Act 1990.
70. There is increasing evidence that the retrofit of traditional buildings (and indeed all buildings) over the past few years has not led to the expected reductions in energy use, and has sometimes harmed the building fabric, heritage or health of building^{xxxi}. Energy and carbon performance of most historic buildings can be improved, which will help them remain viable and useful, now and in the future. But striking the right balance between benefit and harm is not easy, [Historic England](#) publishes guidance.

Planning Policy – Transport

71. The [Charter Institute of Highways & Transport](#) has set out that integrating sustainable transport into new developments is key if future developments are to provide healthy, successful places for people to live in, but three key barriers stand in the way:
 - local authorities are not setting out a vision for development in their Local Plans that includes setting accessibility and targets to which developers and promoters can respond;

- limited practical examples demonstrating how to deliver sustainable transport outcomes, which reinforces risk-averse approaches;
 - collaboration between planning and transport regulatory and delivery bodies is either insufficient or ineffective.
72. Truly sustainable development requires the planning system to orientate development so that new homes and jobs are close to shops, services, and public transport nodes and existing places are made more sustainable. As set out in [Better planning, better transport, better places](#) (CIHT 2019)
73. Increasing levels of walking and cycling has substantial benefits. For people, it means cheaper travel and better health. For businesses, it means increased productivity and increased footfall in shops. And for society it means lower congestion, better air quality, and vibrant, attractive places and communities. The [Government](#) aims to double cycling activity by 2025 and each year reduce the rate of cyclists killed or seriously injured on English roads. It aims to reverse the decline in walking. For that to happen, cycling and walking must be the natural choices for shorter journeys in every urban and rural community in England.
74. The Government's [Cycling & Walking Investment Strategy](#) (2017) states that through Local Plans and planning decisions, local planning authorities should ensure developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised. Local Plans, prepared in consultation with local communities, should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Developments should be located and designed where practical to:
- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
 - create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians;
 - site key facilities such as primary schools and local shops within walking distance of most properties, particularly within large-scale developments.
75. Though intended for transport authorities, the [Local Transport Note 1/20](#) - Cycle Infrastructure Design, (DfT) July 2020 provides guidance and good practice for the design of cycle infrastructure, in support of the Cycling and Walking Investment Strategy.
76. [Kingswood](#) is a proposed new sustainable settlement located between Pulborough and Billingshurst on the A29, approximately nine and a half miles south-west of Horsham. The proposed settlement is for 3,500 homes with new modern workspace for 3,500 jobs as well as two new primary schools, a secondary school, a range of sport and leisure activities, and community facilities for a population of 10,000 people.

Planning Policy – Standalone renewable energy development and grid decarbonisation

77. Reaching net zero carbon emissions nationally by 2050 requires an annual rate of reduction of 15 metric tons of carbon dioxide equivalent (MtCO₂e) per year, equivalent to 3% of 2018 emissions, some 50% higher than under the UK's previous 2050 target and 30% higher than achieved on average since 1990^{xxxii}. Reaching net zero carbon emissions in Wiltshire by 2030 will be more challenging still.
78. The Committee on Climate Change June 2020 Progress Report to Parliament^{xxxiii} states that electricity demand is likely to double in the next 30 years in order to decarbonise the heat and transport sectors, and that this will have to be achieved through wide-spread, renewable energy powered, electrification. This increase will be alongside an almost total decarbonisation of our electricity system as part of the UK's transition to a net zero carbon economy.
79. The NPPF (paragraphs 151 and 152) encourages local authorities to take a positive approach by identifying suitable areas for renewable energy generation and its supporting infrastructure, and by maximising the opportunities for community-led and decentralised energy production. The NPPF supports the development the development and diversification of agricultural and other land-based rural businesses.
80. The NPPF also advocates the allocation of sites for renewable energy by stating that local planning authorities should “*not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions.*”^{xxxiv}
81. However, in a recent review of local plans by the Centre for Sustainable Energy, a minority of the plans had proactive renewable energy policies that genuinely sought to maximise generation, with many rural council policies being discouraging in tone, and few plans defining suitable areas for different types of renewable energy^{xxxv}.
82. [Project LEO](#), is an Oxfordshire consortium comprising Scottish & Southern Electricity Networks (SSEN), Low Carbon Hub and the local councils, looking to improve understanding of how opportunities can be maximised and unlocked from the transition to a smarter, flexible electricity system and how households, businesses and communities can realise those benefits.
83. The Stroud District [Local Plan](#) (draft) sets out that decentralised renewable and low carbon energy schemes will be supported and encouraged, and will be approved where their impact is, or can be made, acceptable. In determining applications for renewable and low carbon energy, and associated infrastructure, the following issues will be considered:

- the contribution of the proposals, in the light of the council’s pledge to be carbon neutral by 2030, to cutting greenhouse gas emissions and decarbonising our energy system;
 - the impact of the scheme, together with any cumulative issues, on landscape character, visual amenity, water quality and flood risk, heritage significance, recreation, biodiversity and, where appropriate, agricultural land use, aviation and telecommunications;
 - the impact on users and residents of the local area, including where relevant, shadow flicker, air quality, vibration and noise; and
 - the direct benefits to the area and local community.
84. Ground-mounted solar energy developments are more likely to be supported in areas identified as suitable in principle as set out on the Policies Map. Outside these areas, applicants will need to provide a clear justification for the suitability of the chosen development site for solar development at the relevant scale. Proposals for renewable energy proposals within the Area of Outstanding Natural Beauty (AONB) are encouraged, however, where development proposals will affect the AONB, the benefits of development must demonstrably outweigh any harm to the designated area or its setting.

Planning Policy – Re-forestation and tree planting

85. Wiltshire already has significantly less tree cover (9%) than the national average (13%) and is well below the national target of 17% (which is itself far lower than the [European](#) average of 34% tree cover). The [Government](#) has set a target of establishing 30,000 hectares of new woodland in England by 2025, as outlined in the 2020 budget statement, and the Committee on Climate Change’s has recommended 30,000 ha of new trees planted in the UK every year until 2050, to take woodland cover in the UK from 13% to 17%^{xxxvi}. The Natural Capital Committee also supports this target^{xxxvii}.
86. Friends of the Earth recently published mapping^{xxxviii} that demonstrates there is the capacity to more than double canopy cover in the UK without impeding on our best and most versatile agricultural land or sensitive ecology.
1. The Woodland Trust advocates for 19% tree coverage by 2050 but localised as appropriate i.e. not infringing on food security and other ecologically valuable habitats. This is based upon the role of trees in [sequestering](#) residual emissions to get to net zero. This is also framed around carbon, rather than the need for nature-based solutions in response to climate, ecological and wellbeing crises a holistic approach which the Woodland Trust urges.
 2. Like many local authorities [Gloucestershire](#) has a target (20%) for tree cover supported by the County Council and Districts. Swindon has adopted a target of 30% by 2030 based upon its [Community Forest](#) target.
 3. Section 197 of the [Planning Act 1990](#) places a duty on the local planning authority, when granting planning permission, to ensure whenever appropriate that adequate conditions are imposed to secure the preservation or planting of trees, and that any necessary tree preservation orders are made under section

198 of the Act. The Government's planning guidance on the natural environment^{xxxix} also mentions the need for local development plans to include "appropriate green infrastructure", including provision for Community Forests.

4. The NPPF and NPPG are mostly silent on policies for trees other than older and established trees, although Paragraph 114 requires planning authorities to "*set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure.*"
5. The Government's [25 Year Environment Plan](#) aims to deliver cleaner air and water in our cities and rural landscapes, protect threatened species and provide richer wildlife habitats. It calls for an approach to agriculture, forestry, land use and fishing that puts the environment first.
6. Trees are often overlooked during development and, as a result, many are either lost, or given inadequate protection, that results in their demise within a few years. The '[British Standard BS 5837 Trees in relation to design, demolition and construction - Recommendations](#)' (2012) is the benchmark document for how to successfully take account of, and retain, suitable trees in proximity to development.
7. Given the need to preserve and protect trees, woodland and the natural environment through there are numerous examples of planning documents setting out requirements. For example Bristol City's [Planning Obligations](#) identifies the number of trees required to compensate for loss of existing trees depends upon the size of the trees to be lost – not a simple 1:1 ratio.
8. The [Dorset Biodiversity Appraisal Protocol](#) (DBAP) is a tool that operates alongside the Dorset Biodiversity Compensation Framework. It quantifies the impacts on biodiversity arising from development (residential, mineral or waste) and sets out the required mitigation and enhancements (net gain) as stipulated in National Planning Policy Framework, 2018.

Conclusions

9. In the context of the current climate and ecological emergency, planning for sustainable development will increasingly require alignment with the UK's transition to net zero carbon, circular economy and ecological restoration, as well as adapting to climate change and creating resilient communities. Local plans have a key role to play by determining the location, scale, mix and character of development in ways that reduce carbon emissions.
10. The challenge for Wiltshire Council is how to give climate change the necessary prominence, within its strategic plans and planning policies, in keeping with the Climate Change Act and the Council's own climate emergency declaration, without prejudicing development viability and also within the context of a challenging and changing national planning policy landscape. This will require having a clear vision and ambition, as well as developing a robust plan and securing the necessary evidence to support it.

Local Planning Authority (LPA)

11. Presently there is a misalignment between Wiltshire Council's commitment to addressing the climate emergency, and its existing strategy and policies. This was underlined by comments made by the Centre for Sustainable Energy (CSE) at a meeting with the Task Group and Wiltshire Council strategic planners. Wiltshire's current Local Plan suffered from vague language and did not make climate change mitigation measurable (essential if carbon reduction policies are to succeed). The same point was made in a letter to Wiltshire Council from [Client Earth](#), an environmental charity that has won high profile cases against the Government on air pollution^{xi} and put 100 local authorities across England (including Wiltshire) on notice of legal challenge if they do not introduce proper climate change plans^{xii}.
12. Wiltshire Council's current Local Plan, adopted in 2015, is about to undergo revision. This is a formal process which will need to be supported by a robust evidence base to inform the new and revised policies. Wiltshire Council's carbon reduction ambitions, which include *seeking to make the county carbon neutral by 2030*, will therefore need to be at the heart of the Local Plan Review (LPR) review, at both strategic planning and planning policy level.
13. Spatial planning has the potential to contribute significantly to the Council's '*net zero by 2030*' target and reduce the county's emissions, by defining where large-scale development can be located and the characteristics of what can be built. Through the Local Plan, Wiltshire Council has the potential to avoid transport emissions (currently the largest source of emissions in the county) by steering the location of its strategic sites, as well as the potential to ensure that all development is net zero carbon, avoiding the need for future retrofit and carbon offsetting. It can also positively influence renewable energy generation and support local communities in their endeavours to generate energy and produce food locally.
14. Climate change must be an over-arching objective in plan making, if Wiltshire Council is to meet its commitment to seeking to decarbonise the county by 2030. The Local Plan must seek to influence the location and layout of new development, to secure the radical cuts in carbon emissions that are needed.
15. This includes:
 - locating development to minimise greenhouse gas emissions, including '*presumed access*' on foot, by bike and by public transport;
 - locating development to reduce the need to travel, particularly by private car;
 - building integrated sustainable transport into the earliest stages of the development;
 - ensuring the necessary infrastructure is put in place for active travel, with greater parity between infrastructure planning for vehicular and active travel;
 - ensuring the necessary infrastructure is put in place for electric vehicle charging;
 - delivering the highest possible energy efficiency standards for all types of development, ensuring that overall new development is net zero carbon;

- driving delivery of renewable and low-carbon energy generation, storage and associated grid infrastructure;
- supporting community-led decentralised renewable energy generation;
- supporting community-led local food production and sourcing;
- maximising co-benefits for enhanced health and fitness, community engagement, wildlife and biodiversity, and climate change resilience.

16. Its revised Local Plan policies now need to be fit for purpose to achieve the council's pledge to deliver net zero-carbon.

Planning Policy – Net zero carbon development (operational carbon)

17. There is mounting evidence that new houses can be built to net zero carbon standards on a cost-competitive basis in the mass market, but currently only a very small proportion are built to better than the [minimum legal requirement](#) for energy efficiency^{xiii}. To achieve the council's target of carbon zero by 2030, the council's planning policies will therefore need to require this to the maximum extent that legislation allows.

18. Net zero carbon planning policies and retrofit of the existing housing stock will both be needed to meet the UK's national target for net zero emissions by 2050 and Wiltshire's 2030 target. In addition, no new homes will be connected to the gas grid from 2025 at the latest and will need to be heated through low carbon sources and have ultra-high levels of energy efficiency alongside appropriate ventilation.

19. Following a challenge from developers, CP41 has stopped being enforced and housing has been built that meets no more than Part L of the Building Regulations' requirements on energy efficiency concerned. Given that we are ten years on from when CP41 was originally written, with new council and national net zero emissions targets, as well as substantially greater scope for achieving net zero carbon development, a new policy is required to ensure the delivery of net zero carbon development across the county.

Planning Policy – Sustainable (low carbon) construction

20. The Committee for Climate Change (CCC) has stated that: *“An overhaul of the approach to low-carbon heating and energy efficiency is needed. The Government's planned 2020 Heat Roadmap must establish a new approach that will lead to full decarbonisation of buildings by 2050,”* and with respect to heating of buildings: *“This requires roll-out of technologies such as heat pumps, hybrid heat pumps and district heating in conjunction with hydrogen, and new smart storage heating, combined with high levels of energy efficiency.”* (2019)
xiii

21. The CCC also pointed to COVID-19 recovery as an historic turning point in tackling the global climate emergency, urging Government to support a national plan to renovate buildings and construct new housing to the highest standards of energy and water efficiency, to shift to low-carbon heating systems, and to

rolling out '*green passports*' for buildings and local area energy plans immediately^{xliv}.

22. Sustainable construction policies should also take account of the impact of other Local Plan policies on carbon emissions, including for example, surface water run-off and its attenuation, so as to reduce loading of the local sewerage network (and the associated pumping energy and emissions^{xlv}).

Planning Policy – Energy and heating

23. Decentralised heating and cooling systems and networks can provide a cost-effective way to minimise carbon emissions, particularly where networks can be expanded to accommodate new developments over time. The Climate Change Committee estimates that district heating could meet 20% of domestic heating and hot water needs by 2030. The Clean Growth Strategy includes policies to roll out low carbon heating and phase out installation of fossil fuel heating.
24. Decentralised heating and cooling systems require a strategic approach, involving various stakeholders and technologies, and requiring a certain scale of development to be viable.
25. It should be noted that distribution losses from CHP/ district heating can be high and there can be a lack of incentive to conserve energy for users, in which case localised, low carbon technology can turn out to be a better solution.

Planning Policy – Retrofitting

26. Carbon emissions can be reduced through policies that upgrade existing buildings and avoid their demolition and rebuild. Retrofitting can also make buildings more energy and water efficient (the latter saving yet more energy, as water takes energy to pump). Planning policy has a role to play in reducing carbon emissions from the existing building stock by encouraging retrofitting of energy efficiency measures, decentralised energy and renewable energy generation^{xlvi}.
27. It can also be helpful in enabling listed buildings and buildings in conservation areas in applying energy efficiency and renewable energy generation measures that have previously not been permitted. Low carbon retrofit standards such as Passivhaus EnerFit^{xlvii} can be valuable in this context.

Planning Policy – Transport

28. Transport is Wiltshire's largest source of carbon emissions and needs to be considered up front when planning for development, locating developments in a way that avoids the need to travel and minimises associated carbon emissions.
29. Planning strategically can help ensure there is a good mix of houses, employment and local services so that people are able to work locally and can

walk or cycle to work or school. Land can be allocated, and development designed around the principle of presumed access on foot, by bike and by public transport.

30. Local Plan policies can help ensure new development has access to public transport and includes as many safe walking and cycling routes as possible. It can help ensure that cycle parking and sheltered storage is in place for people who live in flats. It can make sure charging points for electric vehicles are sufficient for future demand.

Planning Policy – Standalone renewable energy development and grid decarbonisation

31. Decarbonisation and decentralisation of the UK's national electricity grid will depend upon more renewable energy generation. The anticipated uptake of electric vehicles, phasing out of gas for cooking and heating from 2025 and the increase in full and/or hybrid heat pumps, means electricity demand will rise in most areas. Decentralised energy is a rapidly-deployable and efficient way to meet that demand, whilst at the same time improving energy security and sustainability.
32. Flexible generation capacity and using electricity storage technologies will add complexity for system operators and participants but will reduce system costs in the long-term. The System Operator is already planning to manage the grid to operate '*safely and securely at zero carbon*' for parts of the year as early as 2025^{xlviii}.
33. In practical terms this means that, in addition to removing fossil fuels from our electricity system and replacing them with renewable sources, we need to decarbonise the wider energy system, including transport and heating systems (which are largely reliant on fossil fuels at present). The Committee on Climate Change estimates this could result in a doubling of electricity demand. Overall, the Committee on Climate Change predicts we need to quadruple the supply of low-carbon and renewable electricity by 2050, against current levels^{xlix}.
34. Currently, variable renewables such as offshore wind, onshore wind and solar PV are the lowest cost renewable energy generation options with the lowest barriers to deployment^l. Energy masterplans in cities like Manchester reveal that projected increases in demand exceed current capacity and investment is needed to make up the gap. Planning has a key role to play in the delivery of new renewable energy infrastructure.
35. A review by the Committee on Climate Change's Expert Advisory Group on the Costs and Benefits of Net Zero noted a continued downward trend in the costs of wind, battery and solar photovoltaic technologies over the last year (2018-19), and the benefits to the UK of a secure supply of low-cost renewables^{li}. While off-shore wind and ground mounted solar are likely to deliver a significant proportion of this, on-shore wind still has a role to play.

36. In addition to helping meet national decarbonisation targets, standalone renewable energy installations can deliver regular and dependable income to rural landowners, helping sustain farming in the longer term without taking land permanently out of production as with other types of development. They are also an opportunity to invest in nature by delivering meaningful social, ecological and hydrological enhancements through the planning process, bringing biodiversity net gain and local community benefits.
37. The planning system will be required to support the transition to a net zero carbon future in a changing climate, including enabling a radical reduction in greenhouse gas emissions through the development of clean, renewable forms of electricity, at all scales.
38. Finally, it is worth pointing out that scale is an important consideration in planning for renewable energy developments, as there are technical and cost efficiencies associated with larger installations. In the case of wind turbines, for example, electrical output increases substantially with size and height of the turbine (e.g. double the wind speed produces eight times as much power, and double the length of turbine blade, quadruples the power output^{lii}).

Planning Policy – Re-forestation and tree planting

39. Tree planting in England is at its lowest rate for a generation^{liii} while the loss of existing woodland has been accelerating, partly as a result of weak planning legislation^{liv}, all in sharp contrast to the 30,000 ha target and the Government's planned 'England Tree Strategy'.
40. Making key changes to how land is used is also necessary if Wiltshire is to achieve net zero carbon by 2030. Investing in nature, including re-forestation^{lv} / tree planting, restoration of soils and green infrastructure will bring significant benefits for the climate, air quality, flood prevention, biodiversity and public amenity, as well as providing another route to employment opportunities (e.g. as part of a green recovery).
41. Local Plans can identify key features and characteristics of an area, including land designations such as protected open space and can contain policies that lend support woodland creation, as well as objectives to increase the percentage tree cover in the county. Local plan policies can set out site-specific policies including requirements for the provision of new trees and woodland and the retention of existing trees and woodlands.

General conclusions

42. In Wiltshire, as elsewhere, the investment decisions made over the coming months will be a major determinant of whether the county reaches net zero emissions by 2030, either locking in further emissions or establishing the basis for emissions reduction. The Committee for Climate Change (CCC) 2020 Progress Report states that, "*by 2025, a full net-zero policy package must be in place and working effectively,*" and "*most areas will have scaled up delivery and the transition must be well underway*"^{lvi}.

43. There is also an opportunity in the COVID-19 recovery phase to decouple economic activity from carbon emissions and environmental degradation by *“building back better and building back greener”* globally, nationally and within our own county^{lvii}.
44. The task group is aware that the recommendations set out here present difficult choices around priorities and implementation. This is not a role that can be performed by the task group. It has simply set out what it considers to be a range of feasible options to support delivery of the council’s 2030 net zero carbon objective.
45. The recommendations and evidence presented in this report are intended to inform Wiltshire Council’s spatial strategy and planning policies, and help the Council make rapid headway in developing a new ‘net zero carbon’ focused Local Plan.

Proposal

46. To endorse this report of the task group and refer it to the Cabinet Member for Spatial Planning, Development Management and Property and the Cabinet Member for Housing, Corporate Services, Arts, Heritage and Tourism, for response at the next meeting of Environment Select Committee.

Recommendations

That the Cabinet Member for Spatial Planning, Development Management and Property and the Cabinet Member for Housing, Corporate Services, Arts, Heritage and Tourism considers implementing the following recommendations;

That the Council, in its capacity as Local Planning Authority:

- 1. Adopts an outcome focused approach to meeting the Council's 2030 net zero carbon ambition through the Local Plan Review, considering this cross-cutting objective across all policy areas.**
- 2. Places substantial and significant weight on climate change mitigation as a core objective alongside delivering a sufficient supply of homes for local needs, building a strong, future-proofed local economy, climate change adaptation and environmental protection.**
- 3. Takes a joined-up approach so that Local Plan policies are well aligned and mutually supportive in achieving net zero carbon by 2030.**
- 4. Develops an updated evidence base, including in relation to viability, that enhances the ability of Local Plan policies to ensure that new development, including renewable energy, plays a key role in delivering net zero carbon.**
- 5. Establishes the county's baseline emissions, to be able to test its policies in terms of their carbon reduction potential.**
- 6. Sets a target/ trajectory for achieving net zero carbon emissions in the county by 2030, so that all planning policies can be assessed against and contribute to this target.**
- 7. Engages with industry in understanding what is achievable and deliverable, so that developers recognise that it is incumbent on them to address climate change issues.**
- 8. Prioritises mitigation of climate change through spatial planning and at the earliest stages of the Local Plan preparation/ Local Plan Review process, ensuring that proposed new development:**
 - is allocated and designed around the principle of presumed access on foot, by bike and by public transport, to minimise the need to travel, particularly by private car;**
 - is located where local employment opportunities exist, to avoid creating large commuter extensions;**
 - maximises opportunities for local renewable energy and heat generation;**
 - maximises opportunities for walking, cycling (including e-bikes and scooters) and ultra-low emission public transport^{lviii}, incorporating**

high quality sustainable transport infrastructure and electric vehicle charging as a matter of course;

- maximises opportunities for community led carbon reduction initiatives.
9. Assesses and makes transparent the carbon impact of alternative strategic site options (including transport emissions, land-based emissions or sequestration potential lost) at the earliest stages of the plan-making process and gives substantial weight to strategic sites generating the least carbon over their lifecycle.
 10. Attributes significant weight in its strategy and policies to the protection and/or restoration of natural assets that are critical to climate change mitigation (as well as having benefits for adaptation and the natural environment), including:
 - the best and most versatile agricultural land (refer to Agricultural Land Classification (England)^{lix}) and land associated with local food production;
 - existing woodland and land suitable for woodland creation;
 - soils in relation to their stored carbon and the potential emissions and loss of carbon storage as a result of development.
 11. Promotes the delivery of new homes on brownfield sites wherever possible, including innovating to achieve higher densities on such sites, so as avoid the permanent loss of agricultural land and associated carbon emissions.
 12. Promotes the delivery of employment land in advance of new housing development, particularly where existing employment opportunities are limited, and housing development would generate the need for commuting by car.
 13. Assesses and maps connectivity and accessibility to proposed infrastructure and facilities (e.g. schools, surgeries, shops) in order to optimise sustainable travel within proposed development sites.
 14. Promotes a sustainable pattern of development in the county using a framework such as the BREEAM Communities International Standard^{lx} to improve, measure and certify the sustainability of large-scale development plans as part of the master-planning process, before embarking on procurement, detailed design and construction.
 15. Requires information on climate change mitigation for development proposals at the planning application stage, including documents that must be submitted before an application can proceed.
 16. Identifies suitable areas for different types of renewable energy generation and its supporting infrastructure, as part of the Local Plan (e.g. standalone sites and as part of the strategic sites allocation process), including a call for sites^{lxi}.

- 17. Proactively works with the Distribution Network Operator (DNO) (the future Distribution System Operator) in taking a strategic approach to Wiltshire's decarbonisation and the decentralisation of its energy system, supporting the rollout of Smart Local Energy Systems and smart grids**
- 18. Takes a strategic approach to the roll out of electric vehicle charging points across the county, ensuring that all new development is future proofed for the cessation of the sale of diesel and petrol vehicles by 2035 (likely to be brought forward to 2032 or 2030)^{lxii}.**
- 19. Pursues greater parity between policy expectations for safe and convenient vehicular access, and policy expectations for safe and convenient pedestrian and cycle access, and plans infrastructure provision requirements accordingly, with large developments incorporating dedicated cycle routes connecting with the wider network, proportionate with the scale of development and level of trip generation.**
- 20. Sets a high-level target of at least 17% tree coverage across the county and develops an associated strategy to deliver it (see section on re-afforestation below).**
- 21. Sets up and administers a carbon offset fund as part of requiring net zero carbon development (see section on net zero carbon development below), whereby payments are ring-fenced to implement projects that deliver carbon reductions within the county, monitored and reported on annually, ensuring that the fund demonstrates clear additionality (i.e. carbon emission reductions which would not otherwise have happened).**
- 22. Provides practical advice and guidance for those who may need direction in addressing climate change in relation to proposed development and the retrofit of historic buildings.**
- 23. Increases the institutional capability/ capacity of the Council's spatial planning and development management teams to develop and enforce policies to achieve successful (carbon reduction) outcomes.**

Planning Policy – Net zero carbon development (operational carbon)

That the council's new Local Plan and associated policies require the following:

- 1. All development be net zero-carbon based upon the UK Green Building Council's Net Zero Carbon Buildings Framework Definition^{lxiii}, be mandatory for all development from the commencement of the adoption of the Local Plan 2016-2036, following current Local Plan Review.**
- 2. All development achieves an annual operational net zero carbon emissions balance based on metered data by:
 - a) prioritising energy efficiency through the building fabric;****

- b) reducing the remaining energy demand through on-site renewable energy sources (e.g. rooftop solar PV and/ or air or ground source heat pumps) (the preferred next option), and;
 - c) compensating for the residual carbon emissions via a carbon offset fund, into which developers are required to pay a value agreed at the application stage, to deliver carbon savings which would not otherwise have been made (ensuring additionality).
3. All development to meet a minimum 35% improvement on Part L (2013) of the Building Regulations through energy efficiency measures (e.g. enhanced insulation, glazing, airtightness and high efficiency heating and hot water heat recovery), and to reach 100% reduction in its remaining operational emissions through on-site renewable energy generation, and the remainder through a carbon offset fund (as described above).
 4. For all development proposals to demonstrate that sustainable design principles and standards are integral to their proposals and that these have been incorporated from the beginning of the design process, including:
 - incorporating passive heating and cooling where feasible;
 - making the most of natural systems both within and around buildings;
 - incorporating community renewable or low carbon heat generation systems;
 - avoiding internal overheating and contributing to the urban heat island effect through landscaping and shade planting, site layout and building design.
 5. For all large scale residential and non-residential development proposals to demonstrate how they will achieve net zero carbon through an Energy Statement, to be submitted with the Planning Application, including Part L calculations as evidence, requiring methodologies such as TM54^{lxiv} for predicting in-operation energy rather than SAP^{lxv} or SBEM^{lxvi}.
 6. For all large scale residential and non-residential development proposals to calculate whole lifecycle carbon emissions^{lxvii} using a nationally recognised Whole Life-Cycle Carbon Assessment method^{lxviii} and demonstrate how life-cycle carbon emissions will be minimised.
 7. For all large scale residential and non-residential development proposals to demonstrate how they will minimise carbon emissions from any other part of the development, including infrastructure, plant or equipment, that is not covered by the above policies.
 8. For the minimum standards listed above to be upgraded as soon as legislation allows, to deliver ultra-high levels of energy efficiency consistent with a space heat demand of 15-20 kWh/m²/year^{lxix}.

That the Council:

9. Re-instates a revised Core Policy 41 (in line with the above and removing any reference to the Code for Sustainable Homes), as soon as possible to prevent further carbon intensive development sites being built out.

Planning Policy – Sustainable (low carbon) construction

That the council's new Local Plan policies require:

1. All development proposals to demonstrate the integration of sustainable (low carbon) construction principles (including minimisation of embedded and construction phase carbon emissions) have been incorporated from the beginning of the design process, including via:
 - procurement of materials, including emissions associated with their manufacture and transport;
 - on-site construction management, including how carbon emissions will be minimised throughout the construction phase;
 - efficient use of natural resources (including water) during the construction phase;
 - waste minimisation (e.g. through off-site pre-fabrication) and maximisation of reuse and recycling of materials.
2. Large scale residential and non-residential development proposals to calculate emissions for embedded and construction phase emissions and explain how they have been minimised.
3. Large scale development proposals to evidence their proposals are achieving the Local Plan's policy requirements through one of the BREEAM New Construction or other acceptable relevant standards.

That the Council:

4. Ensures that its Sustainable (low carbon) Construction policy is supported, and not undermined, by other Local Plan policies increasing emissions in other areas as a result of decisions made during the design and construction phase.
5. Regularly reviews and appropriately upgrades its Sustainable (low carbon) Construction policy requirements to reflect the increasing proportion of life cycle emissions resulting from the pre-construction phase of development.

Planning Policy – Energy and heating

That the Council's new Local Plan and associated policies:

1. Include an energy hierarchy, defining the council's preferred heating options for new development. This should:
 - promote the use of combined heat and power (CHP), and/or combined cooling, heat and power (CCHP) and district heating where appropriate;

- require development to incorporate infrastructure for district heating and to connect to existing systems where and when these are available;
 - support the use of ground, and water source heat pumps where district heating is unfeasible or these technologies form part of a lower carbon solution;
 - require development to consider a Decentralised Energy Network is a way of distributing the heat generated from a given clean energy source across multiple buildings or multiple sites;
 - exclude the individual gas boilers and resistive heating within new developments as legitimate approaches within the scope of the policy.
2. Requires a thermal master planning approach that assesses efficiency/opportunity issues such as mix of uses, anchor loads, density and heat load profiles to maximise opportunities for the use of district heating or decentralised energy networks for large scale development.
 3. Requires all development applications to submit Energy Statements to demonstrate how they are delivering clean, smart, sustainable development, in line with Wiltshire Council's net zero carbon ambitions.

Planning Policy – Retrofitting

That the Council's new Local Plan and associated policies:

1. Include an obligation to improve energy efficiency (and demonstration thereof) in relation to construction or modification of buildings for which planning permission is required.
2. To require that improvements meet appropriate BREEAM, Passivhaus EnerFitf or other recognised national standards to make these requirements quantifiable.
3. Encourages retrofitting of energy efficiency and renewable energy generation technology in Listed Buildings and Conservation Areas, including liaising with Historic England to explore how to appropriately adapt heritage buildings to reduce carbon emissions.
4. Provides locally relevant planning guidance for homeowners and businesses regarding retrofitting of historic or listed buildings.
5. Prioritises carbon reduction through retrofitting at whole street or neighbourhood scales to reduce costs, improve viability and support coordinated programmes of improvement.

6. Requires large scale development proposals to demonstrate that opportunities for retention and retrofitting of existing buildings within the site have included in the scheme.

That the Council:

7. Provides training to its Conservation Officers to enable them to:
 - understand of the relevance of the Climate Emergency to their work;
 - support carbon saving measures in historic buildings where possible; and
 - take a constructive, supportive approach with homeowners, setting out what might be possible.

Planning Policy – Transport

That the Council's new Local Plan and associated policies:

1. Promote a sustainable pattern of development that minimises the need to travel by promoting a modal shift to sustainable transport and reduced dependence on the private car.
2. In allocating sites or permitting development, attribute significant weight to minimising the quantity of carbon emissions arising from travel associated with accessing employment and community facilities (schools, health centres, shops), associated with the site's location and layout.
3. Require all developments include community facilities (schools, health centres, shops) that are accessible by public transport, bike or on foot.
4. Require all development proposals to integrate the provision of properly dedicated (rather than shared use) walking, cycling and electric scooter infrastructure (paths) and its connection to existing walking and cycling routes linking with employment and community facilities (schools, health centres, shops) or onward travel (e.g. bus and train stations).
5. Require segregated cycle routes for large scale development proposals be designed in accordance with Local Transport Note 1/20 - Cycle Infrastructure Design, (DfT) July 2020^{lxx}.
6. Require all development proposals to integrate the provision of appropriate secure and covered cycle parking facilities of a specified minimum standard, including provision of showers, changing facilities, drying rooms and lockers for cyclists for non-residential proposals.
7. Require development proposals to allocate on-road cycle storage bays (in place of an on-street parking bays) for residents' use, where there is no viable alternative bike parking provision.

- 8. Require at least 30% of cycle parking provision to be of the most accessible type, such as 'Sheffield' stands and 10% of overall provision to be designed and designated for disabled use, plus at least one charge point, and a minimum of 1 per 10 parking spaces, to allow for recharging of electric bikes.**
- 9. Require development proposals to consider, and include where appropriate, provision for non-standard bikes, such as cargo bikes, particularly in relation to urban and town centre deliveries.**
- 10. Require all development proposals to integrate the provision of infrastructure into the design and layout of the development to enable the charging of electric vehicles such that:**
 - all individual dwellings with one or more dedicated parking spaces or garages includes infrastructure for electric vehicle charging;**
 - where off street parking is not provided within a development proposal, the design and layout of the development incorporates infrastructure to enable the on-street charging of electric vehicles;**
 - for residential development with communal off-street parking provision, at least 50% of spaces have active charging facilities, with passive provision for all remaining parking spaces, ensuring that all spaces can be easily activated with minimal disruption as demand increases;**
 - for high density or large scale residential/mixed use developments, there is at least one rapid charging point clustered with a fast charging point and dedicated spaces with active charging facilities for use of an electric vehicle car club;**
 - for all non-residential developments providing one or more car parking bays, ducting is installed to enable provision of charging facilities for electric vehicles;**
 - where 10 or more car parking bays are provided, at least 50% of those bays provide active charging facilities for electric vehicles, with passive provision for the remaining bays; and**
 - in non-residential development where provision is made for taxis stopping, the taxi spaces include appropriate active charging facilities.**

That the Council:

- 11. Provides training to key members of its Highways team to enable them to:**
 - understand of the relevance of the Climate Emergency to their work,**
 - promote carbon saving measures in transport planning, infrastructure development and highways maintenance; and**
 - take a collaborative and innovative approach with their spatial planning colleagues about what might be possible to reduce transport emissions in the context of the Local Plan.**

Planning Policy - Standalone renewable energy development and grid decarbonisation

That the Council through its Local Plan policies:

- 1. Takes a joined-up approach to early investment in developing Wiltshire's renewable energy capacity to meet its commitment to net zero carbon by 2030, including both heat and power and their generation, transmission, storage, local consumption and associated social, economic and environmental benefits.**
- 2. Encourages proposals and applications for renewable energy developments, including large-scale freestanding installations, renewable energy storage and improvements to the distribution network that support a decarbonised, distributed grid and smart local energy systems.**
- 3. Adopts a strong presumption in favour of proposals for standalone renewable energy and energy storage developments that have:**
 - considered all site-specific constraints to the satisfaction of the LPA;**
 - demonstrated effective community and stakeholder engagement from project conception;**
 - demonstrated additional local social, economic and environmental benefits over the lifetime of the project.**
- 4. Places additional weight on the contribution renewable energy projects make towards delivering the council's climate emergency declaration.**
- 5. Requires provision of renewable energy generation on large scale development sites, including consideration of smart energy technology being incorporated in new development in support of wider grid decarbonisation, as part of an obligation on developers to achieve net zero carbon development.**

That the Council:

- 6. Promotes allocation of sites for renewable energy generation through Neighbourhood Plans^{lxxi}.**
- 7. Engages with and consults Community Energy groups working in the county in developing relevant Local Plan policies, promoting suitable areas for standalone renewables and on the potential for their involvement in applications that could bring local economic, social and environmental benefits.**
- 8. Engages proactively with Scottish and Southern Energy Network (SSEN) through forward planning, to support the rollout of smart, local energy**

systems and their transition from Distribution Network Operator (which manages the physical distribution system/ upgrades through engineering works) to Distribution Services Operator (which actively managing the distribution system and electricity demand to support grid distribution and decarbonisation).

Planning Policy – Re-forestation and Tree Planting

That the Council through its Local Plan policies:

1. Targets at least 17% canopy cover across the county, in line with the Committee on Climate Change recommendations of 17-19%^{lxxiii}, and 30% canopy cover in new developments^{lxxiv}, with 50% of new trees being large canopy trees such as oak, lime and beech^{lxxv}.
2. Introduces a protection status for existing woodland which is aligned with the Council's Green and Blue Infrastructure Strategy.
3. Does not permit the felling of protected trees, groups of trees or woodland^{lxxvi} (i.e. irreplaceable habitats including ancient woodland and veteran trees as per NPPF para 175c, those protected by Tree Preservation Orders, those in internationally, nationally and locally designated sites for nature conservation, and those assessed as important to habitat connectivity and continuity) apart from in wholly exceptional circumstances, in which case replanting will compensate the carbon impact of their removal^{lxxvii}, with notable, veteran or ancient trees compensated on-site accordance with a recognised methodology such as CAVAT^{lxxviii}.
4. Requires development proposals to conserve and enhance all woodland, trees and hedgerows in line with the mitigation hierarchy and to compensate permitted tree removal and associated carbon impact with plantings on other parts of the site, and/or an offset payment that meets the loss in tonnes of sequestered carbon^{lxxix}.
5. Requires large scale development proposals to include a carbon storage calculation (showing the difference between the carbon storage capacities of the pre and post development habitat on the site) and to compensate any loss of carbon storage with a carbon offsetting contribution towards natural climate schemes within the local Nature Recovery Network^{lxxx} or through a suitable carbon reduction technology^{lxxxi}.
6. Requires damage to trees (e.g. through soil compaction), as assessed by a suitably qualified Tree Officer, to be compensated through replanting on site and/or payment that meets the loss in tonnes of sequestered carbon.
7. Requires development proposals that affect trees, hedgerows and woodland to undertake a survey in accordance with British Standard BS 5837:2012 and

include a management plan, including calculation of net increase in carbon and how this is compensated on site.

8. Requires a minimum buffer of 20 metres between the development and ancient woodland or veteran trees, Root Protection Zones (RPZ) for ancient, veteran and notable trees with a radius 15 times the diameter of the tree at breast height or 5m beyond the crown, whichever is greater^{lxxxii}.
9. Requires that development proposals highlight other trees that are not currently ancient, veteran or notable, as the future veteran and notable and with appropriate mitigation of the tree populations on site.
10. Requires that all new trees, whether replacement, landscaping or additional planting, be ecologically appropriate^{lxxxiii,lxxxiv}, sited to maximise their green infrastructure value (for wellbeing, wildlife and water) and, to reduce the risk of spreading disease, sourced and grown in the UK, or from a nursery with acceptable biosecurity practices (e.g. quarantine).
11. Encourages the creation and natural regeneration of standalone woodland that is compliant with the EIA regulations, including identifying areas in which the Council would like to see this happen^{lxxxv}.

That the Council:

12. Works with local community groups^{lxxxvi}, landowners and developers to identify suitable land, including a call for sites for the development of commercial and community woodland.

Cllr Graham Wright, Chairman of the Global Warming & Climate Emergency Task Group

Report author: Simon Bennett, Senior Scrutiny Officer, 01225 718709, simon.bennett@wiltshire.gov.uk

Additional references

Wiltshire Council Climate Emergency declaration, including seeking to make the county of Wiltshire (excluding the Borough of Swindon) carbon neutral by 2030: https://cms.wiltshire.gov.uk/documents/s157138/Climate_Change_Emergency.pdf

RTPI and TCPA “*Rising to the challenge: a guide for local authorities on planning for climate change*” <https://www.rtpi.org.uk/media/3568/rising-to-the-climate-crisis-1.pdf>

Govt. to invest £5billion in public transport and cycle links <https://www.gov.uk/government/news/major-boost-for-bus-services-as-pm-outlines-new-vision-for-local-transport>

BREEAM Guidance on Sustainable Design and Construction https://tools.breeam.com/filelibrary/BREEAM%20and%20Planning/Good_Practice_Guidance_-_Sustainable_Design_and_Construction.pdf

V Masson-Delmotte et al “*Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-industrial Levels and Related Global Greenhouse Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty. Summary for Policymakers.*” Intergovernmental Panel on Climate Change, Oct. 2018. http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf

Gov.UK “*Guide to assessing development proposals on agricultural land*” Published 16 January 2018 <https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development/guide-to-assessing-development-proposals-on-agricultural-land#lpas-consult-natural-england>

UK Green Building Council. Available at: <https://www.ukgbc.org/climate-change/>

BBC. Available at: <https://www.bbc.co.uk/news/science-environment-51804212>

Legislation referred to:

Planning and Energy Act
http://www.legislation.gov.uk/ukpga/2008/21/pdfs/ukpga_20080021_en.pdf

Planning and Compulsory Purchase Act
http://www.legislation.gov.uk/ukpga/2004/5/pdfs/ukpga_20040005_en.pdf

Section 19 of the 2004 Planning and Compulsory Purchase Act, as amended by Section 182 of the Planning Act 2008 at <https://www.legislation.gov.uk/ukpga/2008/29/section/182>

Climate Change Act
http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf

Meetings that have informed the recommendations:

Meeting with Centre for Sustainable Energy (29 January 2020)

Meeting with Community Energy Groups (26 February 2020)

Meeting with EV infrastructure companies (10 March 2020)

Meeting with Renewable Energy Developers (17 March 2020; 4 April 2020)

Other documentation referred to:

Letter to Wiltshire Council from Client Earth (2 September 2019)

End notes

-
- ⁱ <https://royalsociety.org/topics-policy/projects/climate-change-evidence-causes/question-1/>
- ⁱⁱ Fossil CO₂ & GHG emissions of all world countries, 2017
- ⁱⁱⁱ RTPi and TCPA (Dec. 2018) “*Rising to the Climate Crisis A Guide for Local Authorities on Planning for Climate Change.*” Available at: <https://www.rtpi.org.uk/media/3568/rising-to-the-climate-crisis-1.pdf> and RTPi, TCPA; and Client Earth “Planning for Climate Change – Law and Policy Briefing” <https://www.tcpa.org.uk/Handlers/Download.ashx?IDMF=4927d472-a9f0-4281-a6af-463ddc642201>
- ^{iv} Note: The Deregulation Bill sought to remove this right, but was never enacted
- ^v Spring Energy and Eden Renewables
- ^{vi} Meeting with Spring Energy (17 March 2020)
- ^{vii} [Friends of the Earth: 33 actions local authorities can take on climate change](#)
- ^{viii} UK Green Building Council. Available at: <https://www.ukgbc.org/climate-change/>
- ^{ix} BBC. Available at: <https://www.bbc.co.uk/news/science-environment-51804212>
- ^x Committee on Climate Change “Net Zero - the UK’s contribution to stopping global warming” <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>
- ^{xi} Committee on Climate Change “Progress report to Parliament” 2020 <https://www.theccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/>
- ^{xii} Centre for Sustainable Energy “*Are local plans planning for the zero-carbon future we need?*” July 2020: <https://www.cse.org.uk/news/view/2484>
- ^{xiii} Various: <https://www.theccc.org.uk/wp-content/uploads/2019/02/UK-housing-Fit-for-the-future-CCC-2019.pdf>; <https://www.politicshome.com/thehouse/article/one-of-the-most-energy-inefficient-in-europe-the-uks-housing-stock-needs-retrofitting-to-meet-net-zero>; <https://www.theguardian.com/environment/damian-carrington-blog/2013/nov/29/uk-homes-most-expensive-heat-eu-fuel-poverty>; <https://inews.co.uk/news/environment/britain-energy-draughty-fuel-leakiest-homes-400292>;
- ^{xiv} Wiltshire Council CP41 <https://pages.wiltshire.gov.uk/adopted-local-plan-jan16-low-res.pdf>
- ^{xv} UK Green Building Council “*Net zero carbon buildings – a framework definition*” <https://www.ukgbc.org/ukgbc-work/net-zero-carbon-buildings-a-framework-definition/>
- ^{xvi} UK Green Building Council “Policy Playbook” <https://www.ukgbc.org/wp-content/uploads/2020/03/The-Policy-Playbook-v.1.5-March-2020.pdf>
- ^{xvii} London Energy Transformation Initiative (LETI): Net Zero carbon One Pager: <https://www.leti.london/one-pager> and https://b80d7a04-1c28-45e2-b904-e0715cface93.filesusr.com/ugd/252d09_d2401094168a4ee5af86b147b61df50e.pdf
- ^{xviii} Royal Institute of British Architects (RIBA): 2030 Challenge: <https://www.architecture.com/-/media/files/Climate-action/RIBA-2030-Climate-Challenge.pdf>
- ^{xix} Passive House requirements: https://passiv.de/en/02_informations/02_passive-house-requirements/02_passive-house-requirements.htm
- ^{xx} CIBSE: TM54: Evaluating Operational Energy Performance of Buildings at the Design Stage (2014): <https://www.cibse.org/Knowledge/knowledge-items/detail?id=a0q2000000817f7AAC>
- ^{xxi} Centre for Sustainable Energy “*West of England Carbon Reduction Requirement Study: Carbon offsetting in the West of England*” Report to West of England Authorities April 2019 <https://www.cse.org.uk/downloads/reports-and-publications/policy/planning/west-of-england-carbon-reduction-requirement-study-carbon-offsetting-april-2019.pdf>
- ^{xxii} Currie and Brown/ Centre for Sustainable Energy “*Cost of carbon reduction in new buildings Final report*” <https://www.cse.org.uk/downloads/reports-and-publications/policy/planning/west-of-england-carbon-reduction-requirement-study-carbon-offsetting-april-2019.pdf>
- ^{xxiii} Meeting with the Centre for Sustainable Energy (January 2020)
- ^{xxiv} MHCLG - Planning practice guidance – viability: <https://www.gov.uk/guidance/viability>
- ^{xxv} Definition of Net Zero Carbon Construction: “*When the amount of carbon emissions associated with a building’s product and construction stages up to practical completion is zero or negative, through the use of offsets or the net export of on-site renewable energy.*”
- ^{xxvi} *Net Zero Carbon Buildings: A Framework Definition* (UKGBC 2019) <https://www.ukgbc.org/wp-content/uploads/2019/04/Net-Zero-Carbon-Buildings-A-framework-definition.pdf>
- ^{xxvii} UK Green Building Council and The Crown Estate: Tackling embodied carbon in buildings (2015): <https://www.ukgbc.org/sites/default/files/Tackling%20embodied%20carbon%20in%20buildings.pdf>
- ^{xxviii} UK Clean Growth strategy: <https://www.gov.uk/government/publications/clean-growth-strategy>

-
- xxix Future Homes Standard: <https://www.gov.uk/government/consultations/the-future-homes-standard-changes-to-part-l-and-part-f-of-the-building-regulations-for-new-dwellings>
- xxx Gov.UK: *What is a Heat Network?* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/696273/HNIP_What_is_a_heat_network.pdf
- xxxi *Planning Responsible Retrofit of Traditional Buildings* (STBA 2015) <https://historicengland.org.uk/images-books/publications/planning-responsible-retrofit-of-traditional-buildings/responsible-retrofit-trad-bldgs/>
- xxxii Committee on Climate Change update: <https://www.theccc.org.uk/tackling-climate-change/reducing-carbon-emissions/how-the-uk-is-progressing/>
- xxxiii Reducing UK emissions Progress Report to Parliament, Committee on Climate Change, June 2020, p54 <https://www.theccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/>
- xxxiv NPPF Paragraph 154: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf
- xxxv Centre for Sustainable Energy “Are local plans planning for the zero-carbon future we need?” 7 July 2020: <https://www.cse.org.uk/news/view/2484>
- xxxvi Woodland Trust “Disappointing planting figures in England still far below Government target” June 2020: <https://www.woodlandtrust.org.uk/press-centre/2020/06/government-planting-figures/>
- xxxvii https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/879797/ncc-nature-based-interventions.pdf
- xxxviii Friends of the Earth has teamed up with mapping expert [Tim Richards](https://www.forest.gov.uk/people/tim-richards) to draw up an “opportunity map” of potential woodland areas in England: https://takeclimateaction.uk/woodland-opportunity-mapping-england?_ga=2.162611324.1327870118.1602757584-228054516.1601540875
- xxxix Gov.uk “Guidance: Natural environment: Explains key issues in implementing policy to protect and enhance the natural environment, including local requirements.” <https://www.gov.uk/guidance/natural-environment>
- xl Client Earth “UK Government loses third air pollution case as judge rules air pollution plans ‘unlawful’” February 2018: <https://www.clientearth.org/government-loses-third-air-pollution-case-judge-rules-air-pollution-plans-unlawful/>
- xli Client Earth “Lawyers put local authorities on notice over climate inaction” September 2019: <https://www.clientearth.org/press/lawyers-put-local-authorities-on-notice-over-climate-inaction/>
- xlii *Why Zero carbon Homes Must Lead the Green Covid 19 Recovery*. Available at: <https://phys.org/news/2020-06-zero-carbon-homes-green-recovery-covid-.html>
- xliii Committee on Climate Change “Net Zero - the UK’s contribution to stopping global warming” <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>
- xliv Committee on Climate Change “Progress report to Parliament” 2020 <https://www.theccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/>
- xlv CIWEM: *A Blueprint for carbon emissions reduction in the UK water industry* (2013): <https://www.ciwem.org/assets/pdf/Policy/Reports/A-Blueprint-for-carbon-emissions-reductions-in-the-water-industry.pdf>
- xlvi Architects Journal “RetroFirst: Can policy change encourage more retrofitting?” 5th Feb. 2020 <https://www.architectsjournal.co.uk/news/retrofirst-can-policy-change-encourage-more-retrofitting>
- xlvii Passivhaus refurbishment standard: <https://www.passivhaustrust.org.uk/UserFiles/File/Melissa%20Taylor-%20Ecobuild%20EnerPHit%20presentation.pdf> and https://passivhaustrust.org.uk/competitions_and_campaigns/passivhaus-retrofit/
- xlviii National Grid “Zero carbon operation of Great Britain’s electricity system by 2025” April 2019: <https://www.nationalgrideso.com/news/zero-carbon-operation-great-britains-electricity-system-2025>
- xliv Reducing UK emissions Progress Report to Parliament, Committee on Climate Change, June 2020, p54 <https://www.theccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/>
- l Gov.UK Renewable and low carbon energy guidance: <https://www.gov.uk/guidance/renewable-and-low-carbon-energy>
- li Reducing UK emissions Progress Report to Parliament, Committee on Climate Change, June 2020, p142 <https://www.theccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/>
- lii see www.cse.org.uk/news/view/2109 for details

-
- liii Guardian “Tree-planting in England falls 71% short of government target: New figures show 1,420 hectares were planted in year to March 2019 against target of 5,000” June 2019 <https://www.theguardian.com/environment/2019/jun/13/tree-planting-in-england-falls-72-short-of-government-target>
- liiv Guardian Michael Gove appoints UK 'tree champion' Sir William Worsley is tasked with stopping unnecessary felling of trees and support plans to plant 11 million trees” June 2018
- liv The process of putting new trees in the ground in an area where trees used to grow
- lvi Ibid p20
- lvii *Building back a green and resilient recovery: Statement by Lord Goldsmith on Building a Clean and Resilient Recovery from Covid-19 in Support of Climate Action and the Sustainable Development Goals*, 8th July 2020. Available at: <https://www.gov.uk/government/speeches/building-back-a-green-and-resilient-recovery>
- lviii Electric vehicles and hydrogen fuel cell electric vehicles. Excluding hybrids
- lix https://naturalengland-defra.opendata.arcgis.com/datasets/5d2477d8d04b41d4bbc9a8742f858f4d_0
- lx BREEAM Communities International Standard <https://www.breeam.com/discover/technical-standards/communities/>
- lxi For example, BANES Renewable and Low Carbon Energy ‘Call for Sites’ - 1 May to 15 June 2020: https://beta.bathnes.gov.uk/sites/default/files/2020-05/Renewable%20and%20Low%20Carbon%20Energy%20Introductory%20Note_Published.pdf
- lxii BBC “Petrol and diesel car sales ban could start in 12 years” Feb 2020 <https://www.bbc.co.uk/news/business-51474769>
- lxiii Net Zero Carbon Operational Energy: “When the amount of carbon emissions associated with the building’s operational energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset.”
- lxiv CIBSE: TM54: Evaluating Operational Energy Performance of Buildings at the Design Stage (2014): <https://www.cibse.org/Knowledge/knowledge-items/detail?id=a0q200000817f7AAC>
- lxv SAP calculations: <https://www.ukbuildingcompliance.co.uk/what-are-sap-calculations/>
- lxvi SEBM calculations: <https://www.buildenergy.co.uk/sbem-calculations/>
- lxvii Whole Life-Cycle Carbon (WLC) emissions are those resulting from the construction and the use of a building over its entire life, including its demolition and disposal. They include a building’s operational carbon emissions from both regulated and unregulated energy use, as well as its embodied carbon emissions associated with raw material extraction, manufacture and transport of building materials, construction, plus the emissions associated with maintenance, repair and replacement, as well as dismantling, demolition and eventual material disposal.
- lxviii From 2018, RICS members are expected to conduct at least two WLC assessments; one at a project’s technical design stage, which is mandatory, another after practical completion, which is recommended best practice. This follows similar guidance published by the GLA and is based on a 2011 EN15978 European standard.
- lxix Home energy usage is a figure that relates to the amount of energy used in a year to the internal floor area of the house. This will be worked out as kWh per m² per year. See <http://www.totalsolarenergy.co.uk/calculating-energy-costs-per-household/>
- lxx <https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120>
- lxxi Cornwall Council: Neighbourhood Planning Energy efficiency and renewable energy; a community-led approach: <https://www.cornwall.gov.uk/media/19534882/neighbourhood-planning-advice-energy-efficiency-and-renewable-energy-a-community-led-approach-final.pdf>
- lxxii Committee on Climate Change: Land use: Reducing emissions and preparing for climate change, November 2018: <https://www.theccc.org.uk/wp-content/uploads/2018/11/Land-use-Reducing-emissions-and-preparing-for-climate-change-CCC-2018-1.pdf> which states that: “Land area for afforestation and bioenergy could increase by 2.2-2.7 million hectares by 2050, which would increase woodland cover from 13% of UK land area currently to 17-19%.”
- lxxiii Gloucestershire has just launched its [Partnership Strategy](#) with a target of 20%, supported by the county council and districts, with a target of 20% as a rural county and linked to their Nature Recovery Network map which identifies where woodland creation is appropriate vis-à-vis other habitats and land use: <https://www.gloucestershirenature.org.uk/post/gloucestershire-tree-strategy>
- lxxiv Woodland Trust recommendation: <https://www.woodlandtrust.org.uk/media/47692/emergency-tree-plan.pdf>

-
- ^{lxxv} See: Dorset Biodiversity Appraisal Protocol: <https://moderngov.dorsetcouncil.gov.uk/documents/s4049/DorsetBiodiversityAppraisalProtocolandDorsetBiodiversityCompensationFramework.pdf>
- ^{lxxvi} NPPF para 175c already covers irreplaceable habitats, including ancient woodland and veteran trees, those protected by TPOs, those in internationally, nationally and locally designated sites for nature conservation, and those assessed as important to habitat connectivity and continuity. See: <https://www.woodlandtrust.org.uk/publications/2019/06/planners-manual-for-ancient-woodland/>
- ^{lxxvii} On Replacement of trees see: [Bristol Tree Replacement Standard https://bristoltreeforum.files.wordpress.com/2020/03/bristol-tree-replacement-standard-btrs.pdf](https://bristoltreeforum.files.wordpress.com/2020/03/bristol-tree-replacement-standard-btrs.pdf) and Bristol On carbon neutrality see: Tree Forum: Tree replacement and carbon neutrality <https://bristoltreeforum.org/2020/03/31/tree-replacement-and-carbon-neutrality/>
- ^{lxxviii} Capital Asset Value Amenity trees (CAVAT): <https://www.ltoa.org.uk/documents-1/capital-asset-value-for-amenity-trees-cavat>
- ^{lxxix} Ancient and veteran trees are classed as irreplaceable habitats and must be assessed at the earliest possible stage in the design process with the presumption such trees will be retained. Veteran features such as dead wood and cavities provide valuable habitats for species such as bats, fungi, birds, invertebrates and lichen.
- ^{lxxx} New report "shows scale of effort needed to restore nature in Wiltshire": <https://www.wiltshirewildlife.org/news/new-report-shows-scale-of-effort-needed-to-restore-nature-in-wiltshire>
- ^{lxxxi} See similar approach taken by Cornwall Council: <https://www.cornwall.gov.uk/climatechangedpd>
- ^{lxxxii} For example see: Dorset Biodiversity Appraisal Protocol: <https://moderngov.dorsetcouncil.gov.uk/documents/s4049/DorsetBiodiversityAppraisalProtocolandDorsetBiodiversityCompensationFramework.pdf>
- ^{lxxxiii} In most cases native but taking climate change into account
- ^{lxxxiv} Standards such Building with Nature helpful here and in wider Local Plan context: <https://www.buildingwithnature.org.uk/>
- ^{lxxxv} Forest of Cornwall <https://www.cornwall.gov.uk/council-and-democracy/council-news-room/media-releases/news-from-2019/news-from-october-2019/help-plant-the-forest-for-cornwall-and-fight-climate-change/>; <https://www.cornwall.gov.uk/environment-and-planning/grow-nature/about/forest-for-cornwall-programme/>; <https://www.bbc.co.uk/news/uk-england-cornwall-49019961>
- ^{lxxxvi} For example, Avon Needs Trees <https://www.avonneedstrees.org.uk/>