

COUNCIL



Report subject	Response to Climate and Ecological Emergency
Meeting date	17 December 2019
Status	Public Report
Executive summary	To present a draft action plan to meet the commitments of the Climate and Ecological Emergency Declaration made by Council on 16 July 2019 and the Corporate Strategy objective to 'tackle the climate change emergency'. The draft action plan should be seen as a summary of options to achieve carbon neutrality, since the detail will need to be consulted on with residents and stakeholders in order for it to be finalised.
Recommendations	It is RECOMMENDED that Council supports the following course of action: 1. Endorse the draft Climate and Ecological Emergency Action Plan as the basis for a public consultation with a final report back to Council 2. To take the delivery of this Council's Climate and Ecological Emergency commitments into account in setting the Medium Term Financial Plan, with a view to additional financial support being added to the Climate Change Reserve (£120k) and Salix Fund (£120k) 3. Continue commitment to participate in the Global Covenant of Mayors for Climate and Energy, single-use plastic reduction initiatives and work towards a plastic-free Council 4. Development of a new overarching Environment Strategy, to include climate change adaptation, mitigation, ecology and all related issues.
Reason for recommendations	To allow the Council to meet its commitments under the Climate and Ecological Emergency Declaration and help global efforts to keep climate warming below 1.5°C to avoid further environmental damage, population displacement, biodiversity loss and risk to life.

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Wards	All
Classification	For Decision

Background

1. On 16 July 2019, BCP Council declared a Climate and Ecological Emergency. The headline commitments of this were to make BCP Council and its operations carbon neutral by 2030, and to work with partners to set a target date for when the Bournemouth, Christchurch and Poole region can be made carbon neutral, ahead of the UK target of 2050. An action plan was required to be submitted to Council in December 2019.

Climate & Ecological Emergency Action Plan

2. The draft Climate & Ecological Emergency Action Plan is presented at Appendix A. This contains actions selected to achieve the Council emission reduction target by 2030 and actions to help achieve the area-wide target pre-2050. Council is requested to confirm support for the draft Action Plan (Recommendation 1), on the understanding that this will then form the basis of a number of public consultations during 2020 and used as the starting point for further work by the Climate Action Members Working Group, the Climate Action Council Steering Group and the Climate Action Place Leadership Board. This is not an exhaustive list of the actions required to achieve the Place target. Many more, some utilising innovative technologies not yet widely available, will be needed and the scale of many of the projects means that each will require detailed assessment, consultation and approval.
3. The Action Planning process has drawn on the ideas of the public (submitted via the Council website), Elected Members, officers, published research and the work of other councils and best practice guides (including those produced by Friends of the Earth, Association of Public Service Excellence (APSE) and Ashden).

4. The draft Action Plan should be viewed against the background of the Committee on Climate Change (CCC) recommendations that Government must take significant action nationally, including: decarbonising electricity, developing hydrogen production, making homes and businesses energy efficient, increasing Electric Vehicle uptake, tree growing, aviation and shipping efficiency/reduction, decarbonising the gas grid, reducing all waste and banning biodegradable waste from landfills. The Government response to this confirmed that it is largely in agreement with the recommendations. Therefore, local authorities should encourage the Government to push ahead with these improvements.
5. There is also a need for development of a new overarching BCP Council Environment Strategy (Recommendation 4). This would take account of climate change adaptation, mitigation and the ecological aspects of the Climate and Ecological Emergency. It would also include all related issues contributing to and being affected by climate change, such as air quality, waste and recycling, energy efficiency and biodiversity.

Emissions data

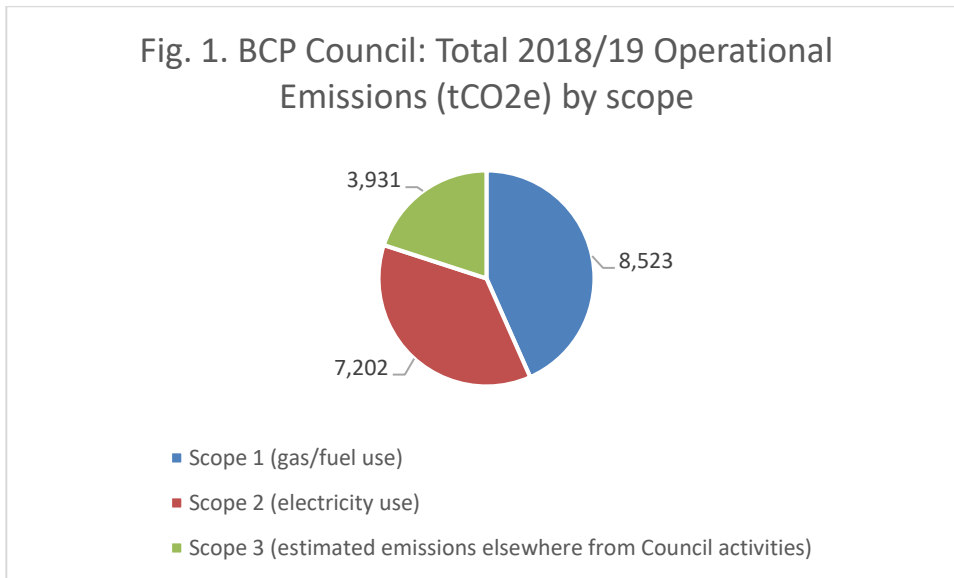
6. Benchmark data has been compiled on Council and area-wide emissions. It should be noted that figures shown are derived from data made available in 2019, the year of BCP Council formation.

Table 1 below contains the total carbon dioxide emissions for the Council and administrative area.

Table 1				
Carbon Dioxide Emissions	Scope 1	Scope 2	Scope 3	Total
BCP Council area (tonnes CO ₂ e) 2017 data, produced 2019	1,027,343	530,004	385,984	1,943,331
BCP Council operations (tonnes CO ₂ e) 2018/19	8,523	7,202	3,931 (estimated)	19,656 (estimated)

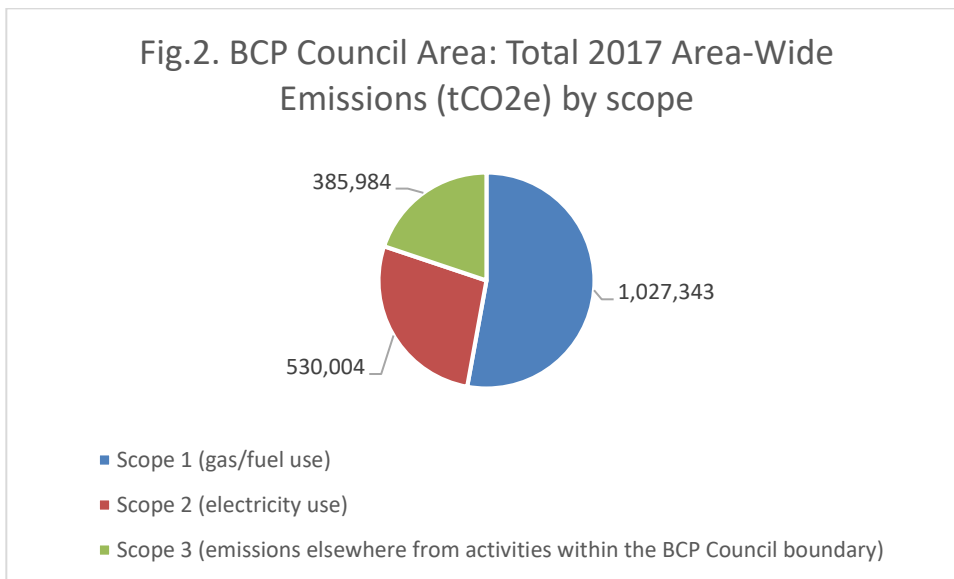
Council Scope 1 emissions are from the direct burning of fuel (gas in buildings, diesel in vehicles), Scope 2 emissions are indirect, from the generation of the electricity we buy, and Scope 3 emissions are caused outside our boundary by our activities (staff travel, waste disposal and items we procure). This is illustrated at Fig.1. Council emissions for Scope 1 and 2 have been calculated directly from consumption data. Scope 3 requires further work to confirm sources and calculate quantities, so at this point it has been estimated to be of the same proportion as the area Scope 3 emissions (20% of the total emissions).

Fig. 1. BCP Council: Total 2018/19 Operational Emissions (tCO₂e) by scope



- Area-wide emissions data has been made available to the Council from its ongoing involvement in the Global Covenant of Mayors for Climate and Energy. Emissions in Scopes 1, 2 and 3, are based on the latest emissions data provided by the Government for 2017. This is illustrated at Fig.2.

Fig.2. BCP Council Area: Total 2017 Area-Wide Emissions (tCO₂e) by scope



- It is proposed that BCP Council continue to participate in beneficial climate-relevant programmes including: Global Covenant of Mayors for Climate and Energy to monitor and report on progress annually (Recommendation 3), ensuring that our efforts attract global attention and opportunities for collaboration and continue to support plastic-free initiatives corporately and in the community to help marine ecosystems remain healthy and therefore continue to be useful stores of global CO₂.
- To deliver on the Council's commitments, additional financial support is required. It is possible to achieve the Council target in year one by offsetting all Council emissions immediately, by buying reductions generated by others but this does not reduce our actual emissions. These continue to contribute to

climate change, while the annual cost of offsetting increases, placing further pressure on finances. It is intended that the limited amount of emissions remaining at 2030 will be offset by local tree-planting and biodiversity programmes or renewable energy installations, which are a more reliable and accurate option.

10. It is recommended that the Climate Change Reserve be replenished as current funds are fully allocated to energy saving projects. To fund feasibility studies for energy-efficient retrofit of buildings and renewable energy installations a sum of £120k is requested.
11. In addition, the 'Salix' fund to loan Council services funds to carry out energy improvements is near-fully spent and a top-up of a further £120k is sought (this is then match-funded by Government).

Summary of financial implications

12. Achieving the recommendations contained in the Draft Climate & Ecological Emergency Action Plan presented with this report will require substantial revenue and capital funding, much of which is currently not identified. However, this report requests that Council approves the draft Action Plan for onward public consultation. It is to be understood that many of the individual projects contained within it will require appropriate consideration, consultation and approval, following corporate procedures. Additional financial support is required to be added to the Climate Change Reserve (£120k) and Salix Fund (£120k). This represents an in-year financial implication for 2019/20 and will be met though the 2020/21 budget setting process for the Environment and Community Directorate.

Summary of legal implications

13. There are many legal implications in delivery of the draft Action Plan that will be considered as each project moves forward. In addition, an environmental law organisation has recently given notice to one hundred local authorities that have declared a Climate Emergency (including BCP Council), and are revising their Local Plans, that they will challenge those that do not sufficiently take account of the Climate Emergency in their new Local Plan.

Summary of human resources implications

14. Considering the scale of the proposed actions and possible projects, if the BCP Climate & Ecological Emergency is to be meaningfully addressed it will require additional human resources. Some actions may require external expertise to deliver individual projects (e.g. Citizens Assembly) whilst others would last the duration of the project and so would require new Council posts (e.g. Climate Change Support Officer). We will continue to explore re-focusing of roles within the Environment Directorate and wider Council to minimise costs and use resources efficiently.

Summary of environmental impact

15. In addressing the BCP Council Climate and Ecological Emergency, the actions proposed in this report are intended to deliver a carbon neutral Council and wider area.

Summary of public health implications

16. Climate change will result in heatwaves, extreme weather events, floods, disease and increased cancer risk. The measures to reduce it will limit the dangers and those activities can also have direct positive health effects (e.g. increased fitness from cycling and better air quality from reducing car journeys).

Summary of equality implications

17. There are no negative impacts identified on the protected characteristics groups of the Equalities Act 2010 from the recommendations in this report. However, an Equalities Impact Assessment will be undertaken, as necessary, for individual projects in the draft Action Plan before commencement to ensure this.

Summary of risk assessment

18. We are uncertain of the full extent that the effects of climate change will have on our area but know it will be more severe if we do not act now. Non-achievement of our declaration commitments will contribute to a further degraded and hostile global environment – with local consequences, lack of energy supply resilience for the area and legal challenge from environmental organisations. However, acting positively and rapidly, many of the actions that are proposed will help to make our society thrive. Having declared a Climate and Ecological Emergency, a risk identified is that of non-achievement of targets, which will result in reputational damage from negative publicity (locally, nationally and internationally). As we move to implementation and projects develop, business cases will consider further associated risks and benefits.

Background papers

Published works

<https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law>

BCP Council Climate and Ecological Emergency:
<https://democracy.bcpCouncil.gov.uk/mgAi.aspx?ID=1065>

Appendix

- A. Draft Climate and Ecological Emergency Action Plan (2020 – 2030/2050) for consultation



**Draft Climate and Ecological Emergency
Action Plan (2020 – 2030/2050)
for consultation**

Draft Climate and Ecological Emergency Action Plan (2020 – 2030/2050) for consultation

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1. Executive Summary

Each day seems to bring new evidence that our activities as humans are causing the planet to get warmer. This in turn is causing changes to our climate that will be extremely harmful to our future if we don't act now.

BCP Council took the decision to declare a Climate and Ecological Emergency in July 2019, following the same action by UK Parliament, the Committee on Climate Change 'net zero carbon 2050' report and a groundswell in public opinion supporting this course of action.

This document is the Council's draft Climate and Ecological Emergency Action Plan, setting out the course of action we will carry out for the Council and wider area to become carbon neutral. This is the first step towards a carbon neutral future for Bournemouth, Christchurch and Poole, which will involve lifestyle changes for us all.

This draft Action Plan will be open for public consultation so that all members of the community can comment on the proposals.

The actions we propose to make the Council carbon neutral by 2030 include reducing the need for our staff to travel, making our buildings very energy efficient, generating more power from renewable resources and minimising our waste.

The actions we propose to contribute towards making the area carbon neutral before 2050 include creating a supportive environment with sustainable planning policies, transport infrastructure improvements, energy efficiency and waste minimisation schemes. These actions will be presented to stakeholders for discussion and to foster joint working to enable all organisations to contribute to a carbon neutral area.

Most importantly, every resident will need to play their part by doing things differently. We look forward to working with you to help these improvements take place and create a better future for us all.

2. Introduction

On 1 May 2019 the UK parliament became the world's first national parliament to declare a Climate and Ecological Emergency. It has since amended the UK's Climate Change Act to legislate for Net Zero carbon emissions by 2050. This coincided with publication of the report from the Committee on Climate Change (CCC), 'Net Zero – The UK's contribution to stopping global warming' (May 2019), which recommended this new target.

The Government Response to the CCC Report 'Leading on Clean Growth: Reducing UK Emissions' (BEIS, 2019) confirms that the Government is aligned with most of the CCC's recommendations. It states that the Government has allocated £2bn to decarbonisation projects since the 'net zero by 2050' target amendment was ratified, much of it to the areas of hydrogen, carbon capture and green finance. Action is promised on the built environment, specifically commercial building energy efficiency standards, and transport, which is now the UK's most emitting sector. The Department for Transport will publish a plan in 2020 to decarbonise all modes of transport.

In addition, the Environment Bill introduced to parliament in October 2019 is intended to be a key vehicle for delivering the vision set out in the Government's 25 Year Environment Plan. The Bill sets out a post-Brexit domestic framework for environmental governance, including the establishment of a new Office for Environmental Protection, to ensure urgent and meaningful action to deal with the environmental and climate crisis. The Bill introduces many initiatives connected to climate change: mandatory biodiversity net gain - the requirement for new developments to enhance biodiversity, consistency of local authority materials recycling, charges on single-use plastic products, measures to tackle both droughts and flooding and improvements in air quality. Local authorities will be key to effective implementation of the proposals.

2019 has seen continuing public protests pressing for action on climate change. This increased awareness and concern was flagged by the Government's Department for Business, Energy and Industrial Strategy (BEIS) Public Attitudes Tracker, published in March 2019, in which 80% of the public said they were either fairly or very concerned about climate change. This is the highest proportion of overall concern since the survey started.

BCP Council is one of over 260 local authorities who have announced Climate Emergency Declarations – 64% of UK councils. Whilst the scope and targets within these varies widely, BCP Council's is in line with the more ambitious.

3. The BCP Council Climate and Ecological Emergency

On 16 July 2019, a Climate and Ecological Emergency motion was endorsed, committing the Council to the actions below. A progress update is shown under each commitment.

- i. Declare a 'Climate and Ecological Emergency';
(Declared 16 July 2019)
- ii. Pledge to make BCP Council and its operations carbon neutral by 2030, taking into account both production and consumption emissions (scope 1, 2 and 3);
(Now a key objective in the Council Corporate Plan)
- iii. Work with partners, businesses and the wider community to investigate, make recommendations and set a target date for how early the Bournemouth, Christchurch and Poole region can be made carbon neutral, ahead of the UK target of 2050;
(Climate Action Place Leadership Board will meet in early 2020)
- iv. Call on Westminster to provide the powers and resources to make the 2030 and other interim targets possible;
(Council has, and will continue to, communicate with Government)
- v. Work with other governments (both within the UK and internationally) to determine and implement best practice methods to limit Global Warming to less than 1.5°C;
(This is ongoing via involvement in Global Covenant of Mayors, APSE, ADEPT, Key Cities)
- vi. Continue to work with partners across the city region to deliver this new goal through all relevant strategies and plans;
(Climate Action Place Leadership Board will meet in early 2020)
- vii. Set-up a Citizens' Assembly to enable views of the general public to be taken into account;
(Included in the draft Action Plan)
- viii. Report to Full Council within six months with the actions the Council will take to address this emergency. As discussed with officers an action plan with clear quantifiable milestones should be submitted to Full Council in December 2019.
(This document presented to Council on 17 December 2019)

4. Council actions since declaring a Climate and Ecological Emergency

Since declaring the Climate and Ecological Emergency the Council has taken steps to begin delivering progress at every opportunity. These short-term actions include:

- Setting up of a governance structure comprising: a cross-party Member Working Group and sub-groups to provide Councillor oversight and guidance, a Carbon Action Council Steering Group to guide work on the Council's own 2030 target and a Carbon Action Place Leadership Board of stakeholders to build support across institutions, create strategy and mobilise action on the area-wide pre-2050 target.
- Climate Change and Sustainability have been made key priorities within the Council's Organisational Design Programme (restructuring operational assets and using behaviour change, smarter working and technology to limit staff travel and reduce resource use) as well as the People Strategy which will set the culture of the organisation.
- From October 2019, 82% of Council electricity has been sourced from renewable UK generation. In April 2020 all the Council's electricity will be renewable and our Scope 2 footprint will be greatly reduced.
- A public 'Climate Emergency – Your Ideas' page has been added to the Council website at: www.bcpCouncil.gov.uk/climate to enable direct submission of community views and suggestions for action. These have fed into the draft Action Planning process and will be considered by the Climate Action Members Working Group.
- Climate Emergency Staff Communications have been created and the Autumn and Winter editions of BCP News include articles telling residents about the declaration and how to act.
- Aircraft flight emissions from the 2019 Air festival, amounting to 240 tonnes, have been 'offset' to make that element of the event carbon neutral and support projects that reduce carbon emissions. An impact assessment is being conducted on the event to inform future activity.
- A BCP Council Senior Managers Network event on the Climate Emergency was held on 27 November 2019 to inform on best practice from local partners and across the UK.
- Engagement with local businesses on the Climate and Ecological Emergency at Regional sustainability forums.

5. The Key commitments examined

Commitment ii: Pledge to make BCP Council and its operations carbon neutral by 2030, taking into account both production and consumption emissions (scope 1, 2 and 3);

The meaning of 'Carbon Neutral'

Much of the activity generated by the Climate and Ecological Emergency Declaration will be to reduce and avoid carbon emissions. However, the motion uses the term 'carbon neutral'. This means the same as the term used by the Committee on Climate Change: 'net zero carbon'. Being carbon neutral or having a net zero carbon footprint means that we are balancing any carbon released with the same amount sequestered (captured and stored) or offset (made up for by sponsoring carbon-reducing activities elsewhere).

The meaning of 'Scope 1, 2 and 3'

The Greenhouse Gas Protocol classifies an organisation's emissions into:

- Scope 1 emissions are direct emissions from owned or controlled sources - fuel combustion in buildings (e.g. gas) and Council-owned vehicles (e.g. diesel fuel)
- Scope 2 emissions are indirect emissions from the generation of purchased energy (e.g. electricity)
- Scope 3 emissions are all indirect emissions (not included in scope 2) occurring outside the area (e.g. from purchased goods and services, business travel, staff commuting, waste disposal and investments)

BCP Council's Climate and Ecological Emergency Declaration commits the Council to making all three scopes carbon neutral by 2030. Progress will be measured in tonnes of Carbon Dioxide equivalent (CO_{2e}). This allows inclusion of other greenhouse gases that are produced alongside carbon dioxide when fossil fuels are burned, which also have a warming effect in our atmosphere. However, some data used in this report gives measurements and projections for carbon dioxide 'from energy only'. These are expressed as CO₂.

Commitment iii: Work with partners, businesses and the wider community to investigate, make recommendations and set a target date for how early the Bournemouth, Christchurch and Poole region can be made carbon neutral, ahead of the UK target of 2050;

The work on Commitment ii makes a small contribution to Commitment iii: achieving carbon neutrality for the BCP region. This challenging undertaking will require the support and mobilisation of the population and organisations operating in the BCP area, along with Government action, to do before 2050 what the Council aims to achieve by 2030. Whereas the Council controls its own resources and has drafted a clear action plan to become carbon neutral by 2030, the process of creating a carbon neutral region must involve a wide range of players to do likewise. As a first step towards achieving this, the Council is facilitating a Carbon Action Place Leadership Board of influential partners that can lead and support the wider area to become carbon neutral.

6. Drivers for responding urgently to the Climate and Ecological Emergency

The Council is committed to taking decisive action after declaring the Climate and Ecological Emergency. Although the target dates may at first seem distant, the case for urgent action is made by the Tyndall Centre for Climate Change Research in their report: Local and Regional Implications of the United Nations Paris Agreement on Climate Change (2019). This states that if we are to stay within the Paris Agreement global warming threshold of 'well below 2°C', 'end point targets such as 'net zero' by 2050...can be useful indicators of ambition, but it is ultimately the cumulative CO₂ released on the way to that target that is of primary significance to achieving climate change goals.' To this end, the Council will develop carbon budgets to clearly guide its progress towards its 2030 target, aiming to make significant reductions as soon as possible, whilst the Climate Action Place Leadership Board will similarly consider data on the yearly reductions needed to support the Paris Agreement and bring the area successfully to the pre-2050 target. In addition to addressing climate change, there are other reasons for creating a low carbon area:

Economy: There are clear economic advantages to reducing energy use. Place-based Climate Action Network (PCAN) reports from 2017 estimate that the BCP area spent £610 million on energy and fuel, of which £119 million could have been saved if available energy efficiency and low carbon measures were taken up by residents and businesses. This is calculated to reduce CO₂ emissions by between 25-30% and potentially create 1,385 years of employment in low carbon industries. Furthermore, the Grantham Research Institute on Climate Change and the Environment (part of the London School of Economics and Political Science) concludes in its report 'How to price carbon to reach net-zero emissions in the UK' (2019), that a 'carbon price could start at around £40 per tCO₂ in 2020, rising to £125 per tCO₂ or more in 2050.' This is intended to illustrate that the cost of taking simple energy-efficiency measures today will be far lower than waiting for future technological fixes, such as 'carbon capture and storage', that are anticipated to be much more expensive. The UK low carbon and renewable energy economy grew by 6.8% in 2017 to reach almost £45 billion. Over the last ten years, annual growth of the UK Gross Domestic Product (GDP) has been between 1.5% and 3.1% while the green economy has consistently grown at around 5% (Ashden, 2019).

Ecology: A large amount of carbon is stored in the natural environment, so it is in our interests to maintain habitats and biodiversity. The State of Nature report 2019, from the State of Nature Partnership (a coalition of over 70 conservation organisations) found that over 50 years of monitoring, 41% of UK terrestrial and freshwater species have decreased in abundance. It concludes: 'Climate change is driving widespread changes in the abundance, distribution and ecology of the UK's wildlife, and will continue to do so for decades or even centuries to come. The 21st century so far has been warmer than the previous three centuries. Since the 1980s, average UK temperatures have increased by nearly 1°C.' The IPBES Global Assessment Report on Biodiversity and Ecosystem Services (2019) finds that globally, 'around 1 million animal and plant species are now threatened with extinction, many within decades, more than ever before in human history.' Biodiversity is our ally, so must be protected and enhanced, trees and plants take in and store carbon, whilst it has been found that in the UK's most deprived groups, the number of mortalities is halved, and levels of anxiety are lower in areas with the greenest space (Ashden, 2019).

Health: Many activities that reduce emissions have health benefits, either from reduced pollution or the act of participation. For instance, particulate matter and nitrous oxides from transport contribute to around 40,000 air pollution-related deaths per year in the UK, whereas active travel promotes good health - an increase in physical activity in the UK has been estimated to generate a potential saving to the NHS of £17 billion within 20 years. The cost of cold homes to the NHS is estimated at £2.5 billion a year, while extreme weather events, such as heatwaves, have significant health impacts – the UK heatwaves in 2016 resulted in 908 excess deaths (Ashden, 2019).

7. Draft Climate & Ecological Emergency Action Plan (2020 – 2030/2050)

This draft Action Plan is initially for consultation. Following that it will be a 'living document' that may be added to and amended to best ensure success in fulfilling the commitments of the BCP Council Climate & Ecological Emergency. Many of the actions are intended to be carried out within 5 years with some scheduled for completion nearer the relevant target end date.

Action Areas

Energy

Half of UK electricity generation in 2017 was from low-carbon sources. This low-carbon electricity generation helps lower emissions in sectors where electricity is consumed, such as buildings and industry. Emissions from electricity generation have fallen by 50% since 2013 and 64% since 1990 as coal use for generation declines, electricity demand has fallen and the supply from renewables has increased. Fully decarbonising the electricity supply can be achieved by increasing the share of renewables and low-carbon power from around 50% today to around 95% in 2050, whilst meeting additional demand from electric vehicles and heat pumps. Decarbonised gas will be required for the remaining 5% (CCC, 2019). Emissions from electricity use account for 27% and 37% of the Council's and area-wide carbon footprints respectively. Following the declaration of the Climate and Ecological Emergency in July 2019, the Council took the decision to purchase renewable electricity for its buildings, operations and streetlights. Existing contracts allowed 82% of electricity for Council use to be renewable from 1 October 2019, with the remaining 18% becoming renewable from 1 April 2020. This will reduce the Council's scope 2 emissions dramatically from that time. Whilst at the same time we will be reducing the amount of electricity used through rationalising our building stock and making the buildings we retain as energy efficient as possible. Householders and businesses in the wider BCP area can follow suit with encouragement and grant-funded assistance wherever possible to reduce electricity use and switch to electricity from renewable sources.

BCP Council will:

- Procure all Council electricity from zero-carbon renewable sources
- Assess the energy efficiency of Council buildings
- Review energy project funding options
- Install energy saving measures in retained Council buildings
- Install renewable energy measures in retained Council buildings

BCP Council will work with Partners to:

- Continue the Local Energy Action Partnership scheme to help residents save energy at home
- Promote low carbon grants to businesses
- Investigate options to offer residents renewable electricity

- Seek to identify and consider purchase of sites for large-scale renewable energy installations
- Consider a cost-effective insulation programme for homes
- Promote home energy demand reduction and low-cost improvements

Buildings

Emissions from buildings have fallen by 13% since 2013 and are around 20% below 1990 levels. Current Government commitments for low-carbon homes include bringing as many as possible up to Energy Performance Certificate Band C by 2035 and to stop the installation of gas heating in new homes from 2025. The CCC suggests the next steps to be the 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. From 2025, new homes should not be connected to the gas grid and by 2035 replacement heating systems for existing homes must be low-carbon. The current share of low-carbon heating in the UK housing stock is only 4.5% and must be 90% by 2050. Remaining emissions in 2050 would then come from a small proportion of homes that are very expensive or difficult to treat due to their structure or space constraints. The Government intends to decarbonise industry through improved energy efficiency and low-carbon technologies. These include the ambition to improve business energy efficiency by at least 20% by 2030. To improve comfort levels, lower energy bills and prepare the building stock for a switch to low-carbon heating, retrofit of hybrid heat pumps, enabling continued use of existing boilers and radiators, could sensibly be done alongside energy efficiency improvements (CCC, 2019).

BCP Council will:

- Establish a Corporate Property Group to review accommodation
- Assess the energy efficiency of Council buildings
- Dispose of unwanted/inefficient buildings, after reviewing their energy efficiency, or redevelop sites to build new carbon neutral homes
- Implement new accommodation strategy
- Investigate procurement of zero-carbon green gas for Council buildings
- Install energy saving measures in retained Council buildings
- Install renewable energy measures in retained Council buildings
- Install water saving measures in retained Council buildings
- Install waste saving, reuse and recycling measures in retained Council buildings
- Consider review of the land attached to each building asset to establish opportunities to improve biodiversity and staff involvement
- Develop a Sustainable Construction Policy for corporate buildings

- Publish the bi-annual Home Energy Conservation Act Report to Government
- Develop a Sustainability Strategy for Housing including improving energy efficiency of the Council's new build programme and considerations for retrofitting existing stock
- Seek to influence the house building sector on sustainability and input to the Local Plan on future new build standards
- Seek to influence landlords on the sustainability of existing stock
- Enforce Minimum Energy Efficiency Standards in private rented sector where appropriate
- Tackle the illegal mis-selling of energy products and supplies

BCP Council will work with Partners to:

- Extend the multi-agency Affordable Warmth Partnership across the BCP area
- Use ECO-Flex to facilitate energy saving grants to fuel poor residents
- Consider heating improvement promotion to businesses (boilers, heat pumps and heating controls)
- Promote cost-effective energy improvements to businesses
- Consider waste reduction, reuse and recycling improvements to buildings

Planning and Land Use

Local authorities are regulatory authorities for town and country planning and this role can be used to positive effect in the action against climate change. Higher levels of energy efficiency in developments and on-site renewable generation of electricity can be required (APSE, 2019). The new Local Plan covering Bournemouth, Christchurch and Poole is being prepared for publication in 2022 and the Council has asked for initial views on key issues including how to 'tackle the challenges posed by climate change'.

BCP Council will:

- Conduct a review of current sustainable planning policy to aid enforcement
- Seek to include policies in the new Local Plan for climate change mitigation and adaptation, including a policy to encourage zero carbon developments, subject to viability testing
- Seek to include policies in the new Local Plan for Policy for new homes to be built to higher than current Building Regs standards
- Seek to make it a requirement in the Local Plan for renewable energy and sustainable waste management to be integrated into all new developments
- Seek to include Flood Protection Policies in the new Local Plan and policies aimed at creating biodiversity net gain

- Consider carrying out a strategic parking review to examine parking/car club standards
- Encourage energy-efficient/renewable energy retrofitting of homes
- Investigate the use of developer contributions (CIL, S106, 273) to fund climate change measures
- Identify suitable areas for large-scale renewable energy in the Local Plan
- Investigate and promote installation of PV on all viable properties
- Consider identifying and procuring land suitable for tree planting schemes and other mitigation measures
- Seek to develop incentives for brown field sites awaiting development to be used as temporary SUDS and carbon capture sites
- Explore greater use of natural burial over cremation, procuring additional space for natural burial, to be used as tree planting sites following burial
- Consider a review of culverted, piped and covered surface water drains, possibly breaking them open as vegetated SUDS
- Encourage minimising the use of sealed and non-porous surfaces on all new infrastructure projects
- Seek to promote development of green roofs and walls, street trees and urban greening
- Seek to include Air Quality policy in the new Local Plan

Travel

UK emissions from transport have increased by 6% since 2013 and are now 4% higher than in 1990. Vehicles have become more fuel efficient, but this has been offset by increasing travel demand. The Government's current key commitment is to phase-out sales of conventional petrol and diesel cars and vans by 2040. However, the CCC recommends that to achieve net zero carbon, all cars and vans need to be electric by 2050, and most HGVs should be electric, or hydrogen powered. These changes are likely to result in an overall cost saving but getting all cars and vans to be electric by 2050 will require all sales to be electric by 2035 at the latest. It also requires 3,500 rapid and ultra-rapid chargers near motorways and 210,000 public chargers in towns and cities. HGVs are harder to decarbonise, with new research suggesting that it is possible to get to very-low emissions by 2050 by switching most of these vehicles to hydrogen power or electrification. A hydrogen-based switchover would require 800 refuelling stations to be built by 2050 and electrification would need 90,000 depot-based chargers for overnight charging (CCC, 2019).

BCP Council will:

- Consider enhancing 'Cycle to work' scheme discounts to facilitate increased cycling to work, and 'get back on your bike' training for less confident cyclists
- Seek to install more high-quality showers, lockers, changing facilities, secure cycle parking for staff at work and residentially, such as on-street bicycle hangers
- Conduct a review of the Council's vehicle fleet
- Publish a BCP Council Corporate Travel Plan that will be monitored and acted upon
- Consider introducing School Travel Plans to all schools to promote alternatives to car use
- Seek to implement measures to reduce staff car use
- Introduce 'New ways of Working', in conjunction with accommodation changes and technology to facilitate less staff travel and to reduce the use of consumables
- Continue to expand tele-conferencing facilities in major buildings
- Develop a policy/strategy for installing meeting room AV equipment
- Investigate provision of additional facilities to support active travel
- Explore development of an extended network of EV charging points for Council use to provide certainty of provision
- Assess the feasibility of congestion charging options in BCP and other means of changing behaviours towards more sustainable options
- Consider a best practice proportion of the transport budget to be ring fenced for spending on developing Active Travel networks
- Explore how the taxi licencing criteria could be amended to encourage newly licensed vehicles to be electric or hydrogen fuelled
- Consider a review of public off-street car parks in main centres
- Consider a review of free workplace car parking (where currently available) for staff and elected members
- Seek to develop partnership offers with bus and rail companies for staff season ticket discounts on public transport
- Investigate providing Park and Ride sites and favourable pricing schedule, with secure cycle parking and traffic free cycle route from sites
- Seek to carry out Climate Change Assessments on transport projects
- Investigate replacement of Council vehicles with zero emission EVs or hydrogen vehicles, or alternatives where practicable, such as cargo-bikes

- Investigate viability of fleet of cargo-bikes, electric cycles and motorcycles for staff use
- Promote bridges and underpasses to include proper wildlife crossing opportunities
- Investigate investment in 'safe routes to school' including crossings, wider pavements and safe cycle routes
- Consider rolling out 'School Streets', where streets around schools become pedestrian and cycle access only at school run times
- Consider the trial of temporary measures such as car free days and segregated cycle lanes created by movable barriers
- Investigate adoption of Streetscape Guidance setting high standards for the design of streets and spaces prioritising walking, cycling and public transport

BCP Council will work with Partners to:

- Develop a BCP Walking and Cycling Strategy 2020 -2035 and expand cycle network and storage facilities at major destinations
- Assess provision of segregated cycle lanes, cycle priority at traffic lights and training programme for safe cycling
- Promote and expand car club schemes across the BCP Council area
- Promote and expand the Business Travel Network
- Investigate provision of electrical hook-up points at Port of Poole to enable shipping to turn off engines
- Examine use of sail and solar power for container traffic in Port of Poole
- Assess the feasibility of the introduction of electric or hydrogen buses and charging/fuelling infrastructure
- Seek to work with operators to deliver smart, integrated ticketing and innovative pricing structures to encourage use
- Investigate carrying out of a Strategic Parking review and new Parking Policy to deliver parking pricing schedule for BCP car parks that is commensurate with reducing car trips for commuting and leisure, while providing high quality public transport alternative
- Commence Transforming Cities Fund sustainable travel initiatives
- Consider a workplace car parking levy to fund sustainable transport
- Consider installing electric vehicle charging points across the conurbation
- Review feasibility of parking charges at 'Out of Town Centre' retail parks

- Seek to hold car-free days to encourage modal shift and investigate the creation of car free town centres in Bournemouth, Poole and Christchurch
- Investigate development of a Freight and Movement of Goods Strategy, to look at light goods vehicle licencing minimum emissions standards with major distributors in logistics sector
- Seek to work with Bournemouth Airport to encourage reduce emissions from flights and passenger travel

Nature

Reaching the necessary level of CO₂ removal through tree planting by 2050 in the UK requires an early and sustained increase in tree-planting rates. These must increase from current rates below 10,000 hectares per year to at least 30,000 hectares per year (CCC, 2019).

BCP Council will:

- Develop a Green Infrastructure Strategy and carbon offsetting plan aiming for the 2030 target
- Investigate the allocation of land to allow natural woodland generation from trees, natural habitat and heathlands at scale to absorb carbon and become 'carbon sinks'
- Investigate community tree-planting and biodiversity enrichment programmes
- Assess the introduction of a programme of public realm tree planting
- Work with Environmental Finance and Vivid Economics to better understand the value of parks and open space for nitrate absorption and carbon sequestration and encourage investment in this.
- Consider review all mown amenity sites for woodland creation or allowing natural succession. Amenity being spaces not allocated for recreation, pitches etc. such as large verges and greens in housing estates
- Seek to develop native garden spaces within formal parks and recreation grounds
- Work to develop information and incentives with partners to encourage better practice within private spaces and gardens, such as hedgehog corridors and native amenity planting
- Create nature sanctuaries that minimise disturbance for ground nesting birds and other animals.

BCP Council will work with Partners to:

- Investigate potential of a large scale tree planting programme

- Promote a ban on polluting activities that are harmful to nature (e.g. sky lantern and balloon releases)
- Work closely with local wildlife groups to support biodiversification and the reintroduction of lost species
- Work with partners on landscape scale wildlife conservation programmes e.g. Stour Valley, Christchurch Harbour and Poole Harbour
- Encourage developers to include habitat measures within residential and commercial developments. Ensure habitat measures are included in all council build projects e.g. swift/sparrow boxes, peregrine boxes, bug bricks
- Investigate natural flood defence and coastal protection opportunities for intertidal habitat creation (e.g. saltmarsh), which can store more carbon than woodland

Adaptation

Being prepared for climate change can help communities and councils to lessen the disruptive effects. The BCP Council area can expect to be warmer, with more intense rainfall and more frequent storms. In England temperatures are now 0.5°C–1°C higher than they were in the 1970s and sea levels could increase by 12–76 cm by the end of the century, compared to 1990 levels. If emissions remain high, this is predicted to be 2 metres by 2100 and could lead to the displacement of hundreds of millions of people worldwide (PNAS, 2019). A 2019 NASA study found that unchecked emissions will result in the entire Greenland Ice Sheet melting by the year 3000, causing up to 7 meters of sea level rise. Recent storms have led to significant costs for councils. The winter storms of 2013 directly cost Kent County Council an estimated £4.4 million, rising to over £11 million when taking into account repairs to infrastructure. Heatwaves increase the demand for health and social care services, resulting in costs to providers, including councils, sometimes more than £600 per patient per day. Some of these costs will fall on council budgets under the Health and Social Care Act. At a household level, average domestic fuel bills have more than doubled in the last ten years in real terms, pushing large numbers of households into fuel poverty. Preparing for climate change, as well as reducing carbon emissions, can put councils in the strongest possible position to deal with these challenges (Ashden, 2019).

BCP Council will:

- Update Climate Change Risk Assessment
- Produce Supplementary Planning Document for climate change place adaptation

BCP Council will work with Partners to:

- Create Strategies and Action Plans to engage all sectors in adaptation work
- Seek to ensure that via communication, communities and sectors are aware of future risks, pre-emptive actions and how to mitigate

Waste

UK emissions from waste have fallen by 69% since 1990, due to the landfill tax reducing the amount of biodegradable waste going to landfill, and an increase in methane captured at landfill sites. The CCC recommends additional emissions reduction from treatment of waste water, stopping sending biodegradable waste to landfill by 2025 and increasing recycling rates to 70% across the UK (CCC, 2019).

BCP Council will:

- Reduce Council waste sent to landfill and increase recycling from Council buildings
- Reduce resource use, particularly paper for printing and single-use plastic
- Unify household waste, recycling and food waste collections across the area to increase recycling and reduce residual waste
- Procure new residual waste disposal and non-residual waste processing contracts exercising where possible the proximity principle
- Enhance commercial waste and recycling services offered to local businesses
- Engage with staff, residents, schools and visitors on waste reduction and recycling initiatives and campaigns
- Seek to progress towards single-use plastic-free status and support community plastic-free initiatives
- Seek to minimise or cease the sale of single use plastics and encourage alternative materials throughout our retail operations
- Support the Environmental Innovation hub built to inform Seafront waste reduction

BCP Council will work with Partners to:

- Support community single-use plastic-free initiatives
- Enhance recycling facilities 'on the go'
- Support and promote community waste reduction and reuse initiatives such as sharing and donation of materials
- Promote business minimisation of packaging
- Seek to apply the proximity principle to treat and/or dispose of wastes in reasonable proximity to their point of generation
- Seek to influence the behaviour of our commercial partners and lessees in their retail operations to minimise or cease the sale of single use plastics

Doing things differently

Technological improvements can bring about much carbon saving, but many emission reductions rely on people changing their behaviour. The CCC estimates that around 10% of the emissions reduction in their more ambitious scenarios involve a significant change in societal and consumer behaviours. These include the shift towards healthier diets with reduced consumption of meat and dairy products. Over half of the CCC emissions reduction scenarios require some change from consumers, such as the purchase of an electric bike or installation of a heat pump. The Government must engage with consumers over why and how they can make these improvements and take supporting actions (e.g. ensuring that road infrastructure use is a safe option for all) and raise awareness of the need to move away from natural gas heating and what the alternatives might be. There is a limited window to engage with people over future heating choices, to understand their preferences and to factor these into strategic decisions on energy infrastructure (CCC, 2019). The Council has recently undergone a major structural change, with Local Government Reorganisation, which puts it in a good position to change organisational practices to support a more low-carbon approach. The communities served by the Council also have a history of protecting their environment by using the services provided by the Council and the Council and partners must ensure this co-operation continues.

BCP Council will:

- Hold a Climate Emergency Citizens Assembly
- Publish an Engagement Strategy to better involve people in decision-making
- Introduce a 'New Ways of Working' behaviour change programme, in conjunction with accommodation changes and technology to encourage less staff travel
- Draw up an internal Communication Plan
- Endorse a Zero Carbon Workplace Charter for behaviour change
- Launch a Decision Impact Assessment tool to embed sustainability
- Carry out a review and adopt sustainable procurement strategy and guidance – including practices to reduce carbon in the supply chain, local sourcing, full-life-costing and assessment of suppliers to encourage energy and waste reduction
- Promote and encourage low carbon best practice among commissioned services
- Investigate a carbon charge on projects/decisions to fund offsetting
- Investigate divestment of fossil fuels from the Council Pension Fund
- Promote consistency in decision-making to ensure that we are consistent in communicating and acting on this emergency

BCP Council will work with Partners to:

- Consider a 'Smart Place' approach to support new ways of moving around, better health outcomes and other community services
- Launch a behaviour change programme for residents on all issues, including: energy, waste, water, travel, food, shopping
- Inform residents, businesses and visitors of progress

Working together

Together with partners on the Climate Action Place Leadership Board, the Council will work to improve the voluntary and business sector emissions and collaborate with local authorities and others across the world to tackle climate change.

BCP Council will work with Partners to:

- Develop and agree a science-based emission reduction pathway for the BCP area
- Support the Voluntary & Community sector to reduce emissions
- Work with business organisations to signpost them towards sustainable practices for all business sectors
- Investigate an integrated policy approach to Climate Change and Air Quality
- Encourage businesses subject to emissions controls to adopt an Environmental Management Policy
- Expand the successful Leave Only Footprints environmental awareness campaign
- Submit annual emissions data to CDP for Global Covenant of Mayors
- Participate in networks of similar organisations addressing climate change (Covenant of Mayors, LGA, APSE, local and regional partnerships)
- Consider developing a local offsetting scheme for area-wide emissions remaining at 2050

Implementation

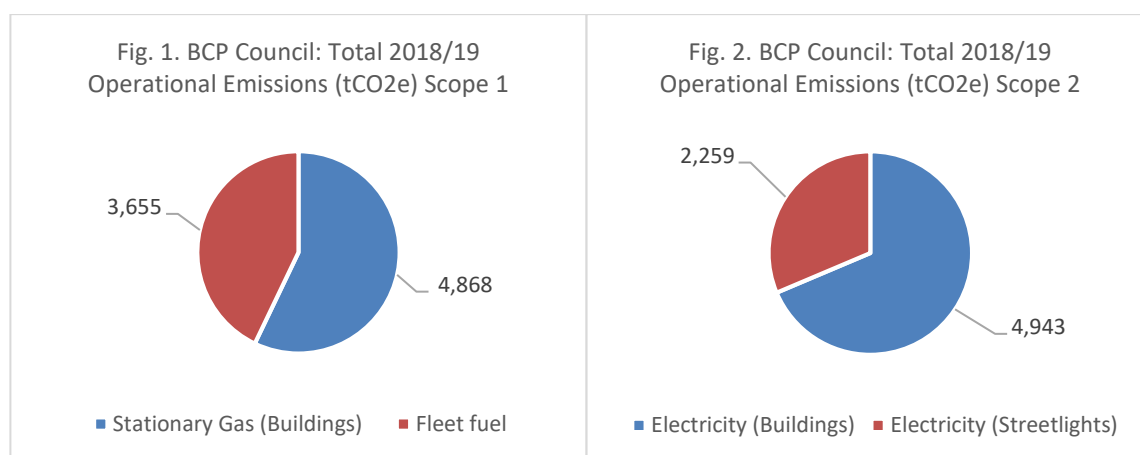
BCP Council will:

- Prioritise measures that have the most impact
- Monitor and communicate progress via a Climate Emergency Annual Report
- Seek to establish 'carbon budgets' for Council services
- Maintain communication with Government and encourage positive action on all related legislation

8. BCP Council emissions from our own operations

Table A				
Carbon Dioxide Emissions	Scope 1	Scope 2	Scope 3	Total
BCP Council operations (tonnes CO ₂ e) 2018/19	8,523	7,202	3,931 (estimated)	19,656 (estimated)

Council emissions for Scope 1 and 2 have been calculated directly from consumption data – shown in Table A and illustrated in Fig.1 and 2.



Scope 3 requires further work to confirm sources and calculate emission quantities, so at this point it has been estimated to be of the same proportion as the area Scope 3 emissions (20% of the total emissions). This information is still evolving following Local Government Reorganisation, as some emissions will move scope as all local services migrate to be under the direct control of BCP Council. Scope 3 will be calculated by April 2020, and include emissions from:

- Purchased goods and services
- Capital goods
- Upstream transportation and distribution
- Waste generated in operations
- Business travel
- Employee commuting
- End-of-life treatment of sold products
- Downstream leased assets
- Investments

BCP Council emission reduction milestones

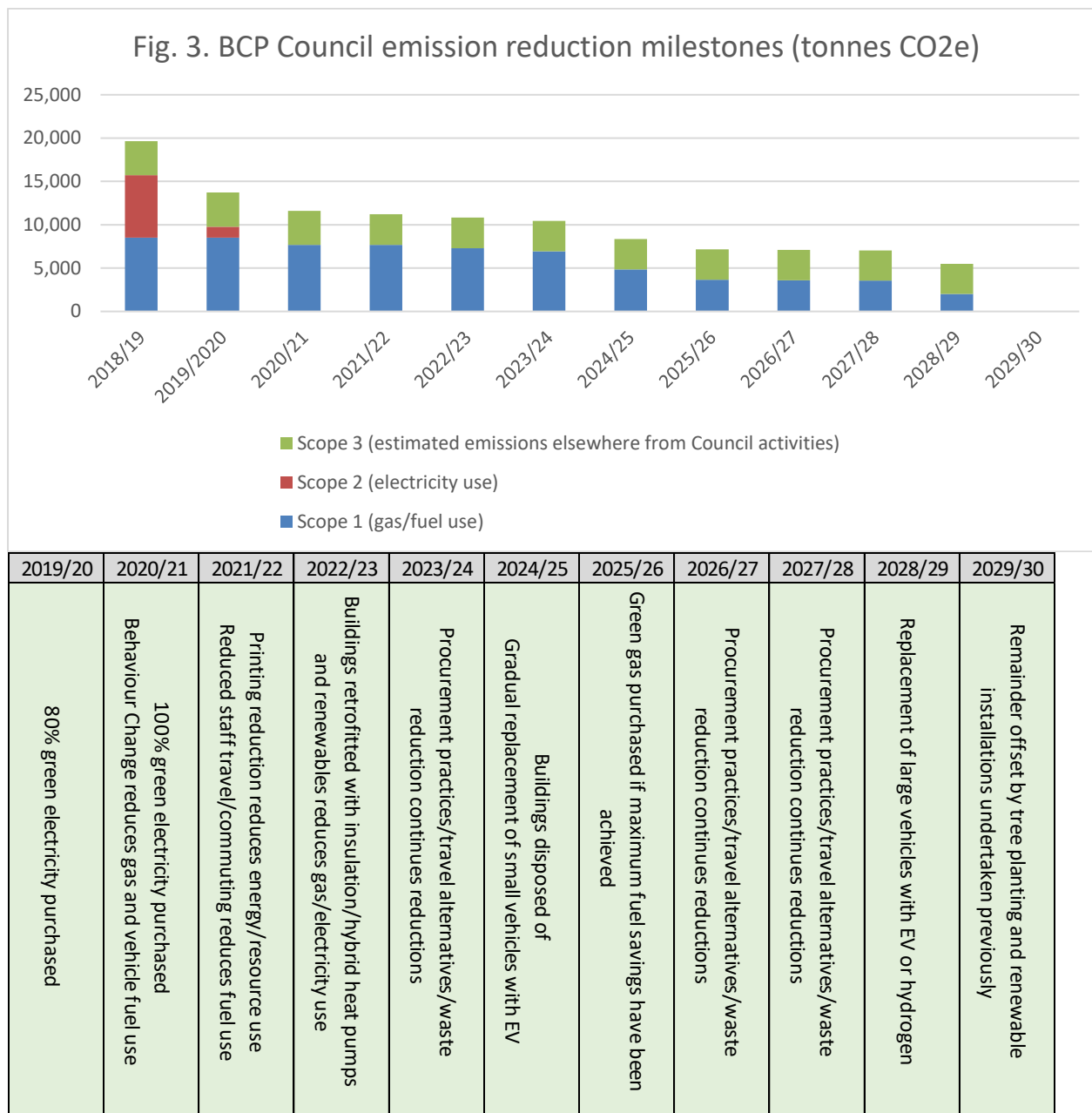


Fig. 3 above illustrates how the actions proposed in the Action Plan are intended to reduce the Council’s carbon emissions year-on-year to 2030.

The decision to purchase renewable electricity in 2019 reduces the Scope 2 (electricity) amount by 82% then in 2020 this reduces further to zero.

Implementation of ‘New Ways of Working’ from 2020 in conjunction with new technology and implementation of the Accommodation Strategy and other behaviour changes reduce the Scope 1 (gas/vehicle fuel) amount gradually year on year. This reduces significantly in 2025 when the Accommodation Strategy is fully implemented, and assets disposed of. Ongoing energy efficiency works in retained buildings and the gradual introduction of EVs in the vehicle fleet further reduce

Scope 1 emissions. Procuring green gas will be a consideration, once usage levels off, and in 2028, large vehicles begin to be replaced, bringing the Scope 1 total to near zero.

Once the constituent sources of the Council's Scope 3 emissions have been identified and measured, this will be reduced by the reduction in the need for staff travel, due to flexible working. Sustainable travel options will be encouraged for the workforce commute. Paper use will be reduced due to new monitoring and reduction reporting and waste disposal will be targeted for improvement. It should be stressed that the Council's Scope 3 emissions are not yet known, so the reductions shown in Fig.3 are indicative only.

Remaining emissions at 2030 will be offset, preferably by Council renewable energy installations, tree planting and biodiversity measures carried out in intervening years and calculated to absorb this amount.

9. Area-wide emission baseline data

Below is a summary of the 2017 carbon emission data for the BCP Council area, made available in 2019. Source data was provided by UK Government.

In line with standardised reporting frameworks, 24 sources of carbon emissions are identified but not all have complete figures due to lack of data availability – this will be updated as data is published. Sources with less than 1% of each scope's total emissions or no recorded emissions are omitted from this summary report. The recognised sources of CO₂e are as follows:

- Residential buildings
- Commercial buildings & facilities
- Institutional buildings & facilities
- Industrial buildings & facilities
- Agriculture
- Fugitive emissions
- On-road
- Rail
- Waterborne navigation
- Aviation
- Off-road
- Solid waste disposal
- Biological treatment
- Incineration and open burning
- Wastewater
- Industrial process
- Industrial product use
- Livestock
- Land use
- Other AFOLU
- Electricity only generation
- CHP generation
- Heat/cold generation
- Local renewable generation

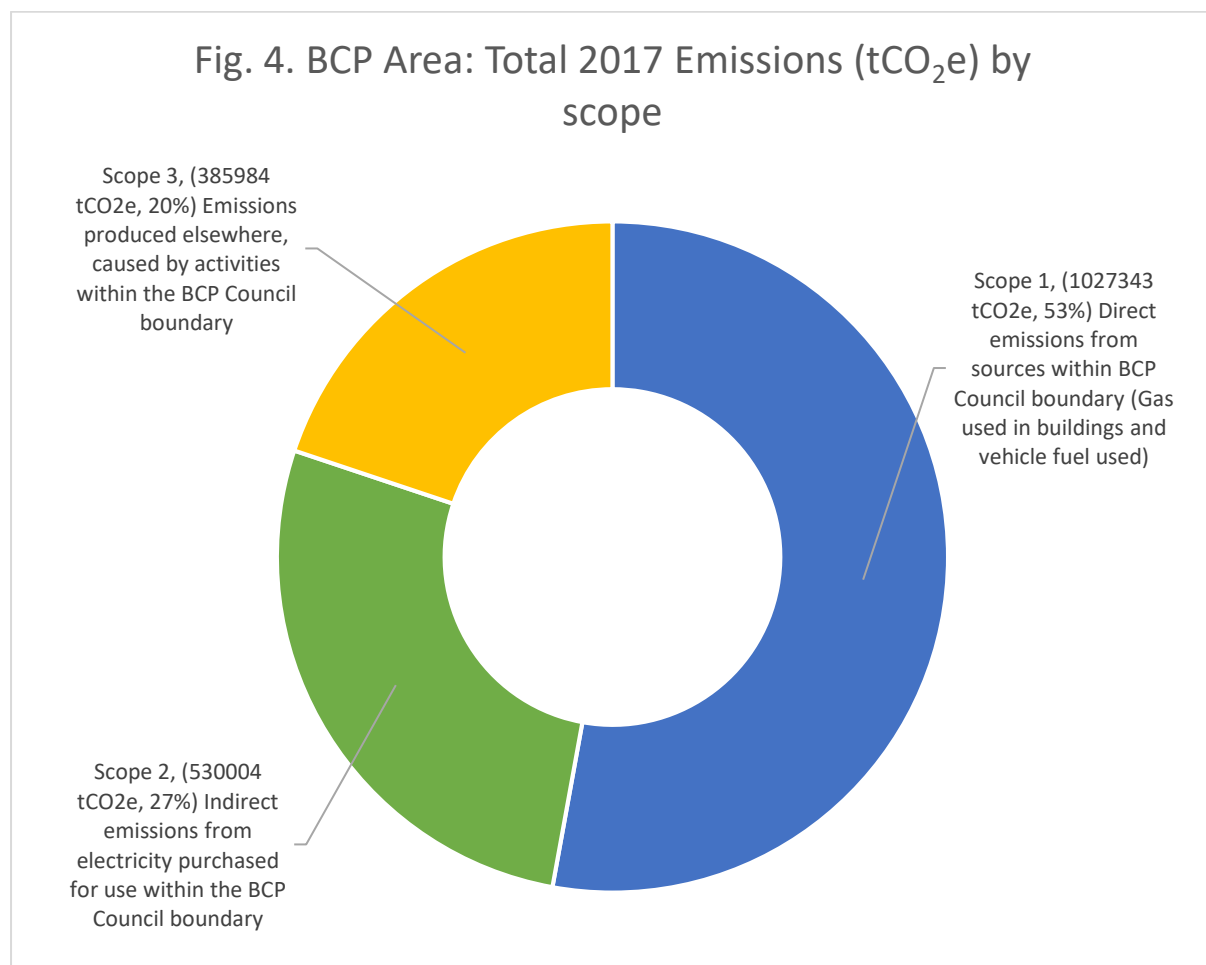
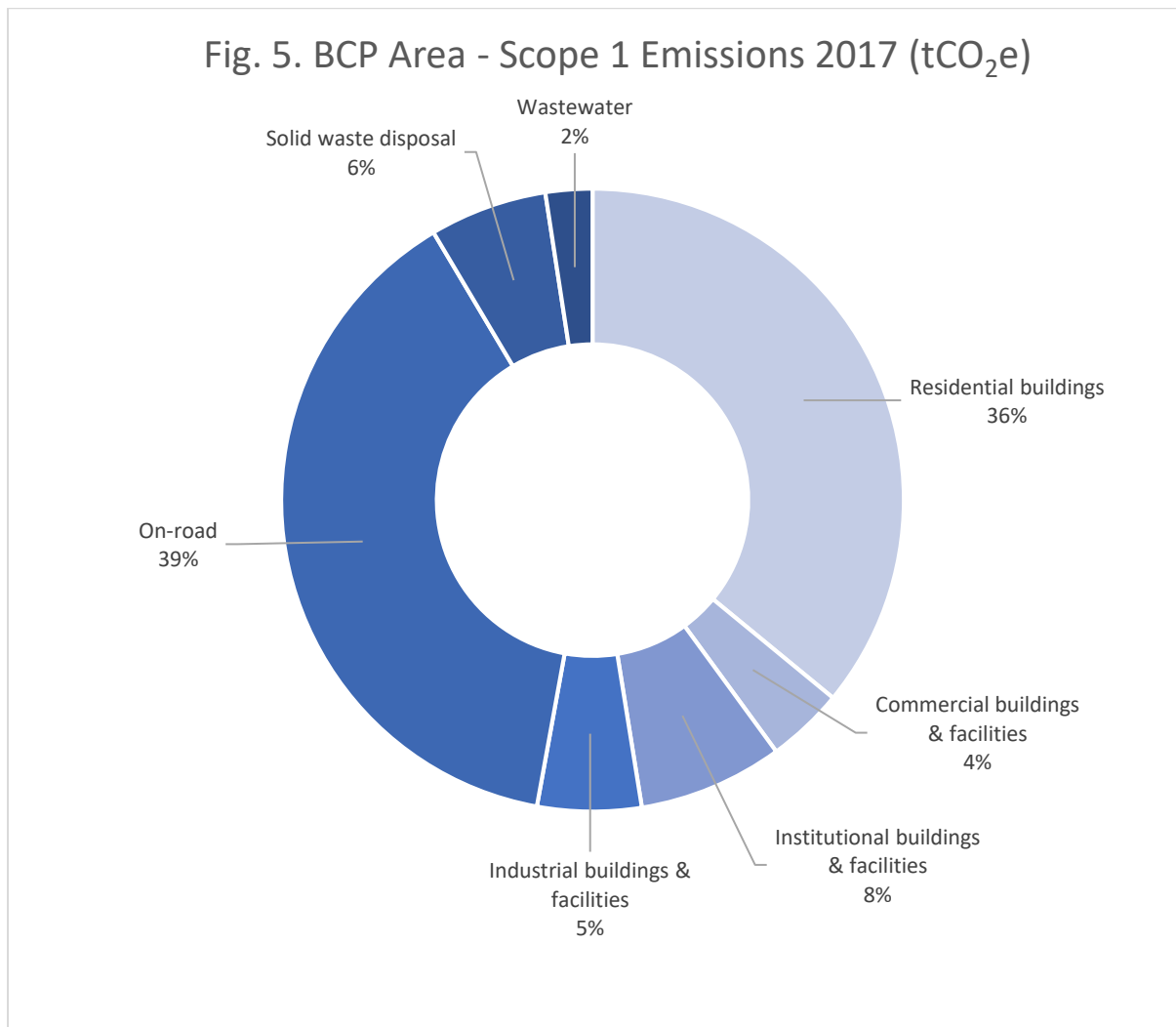
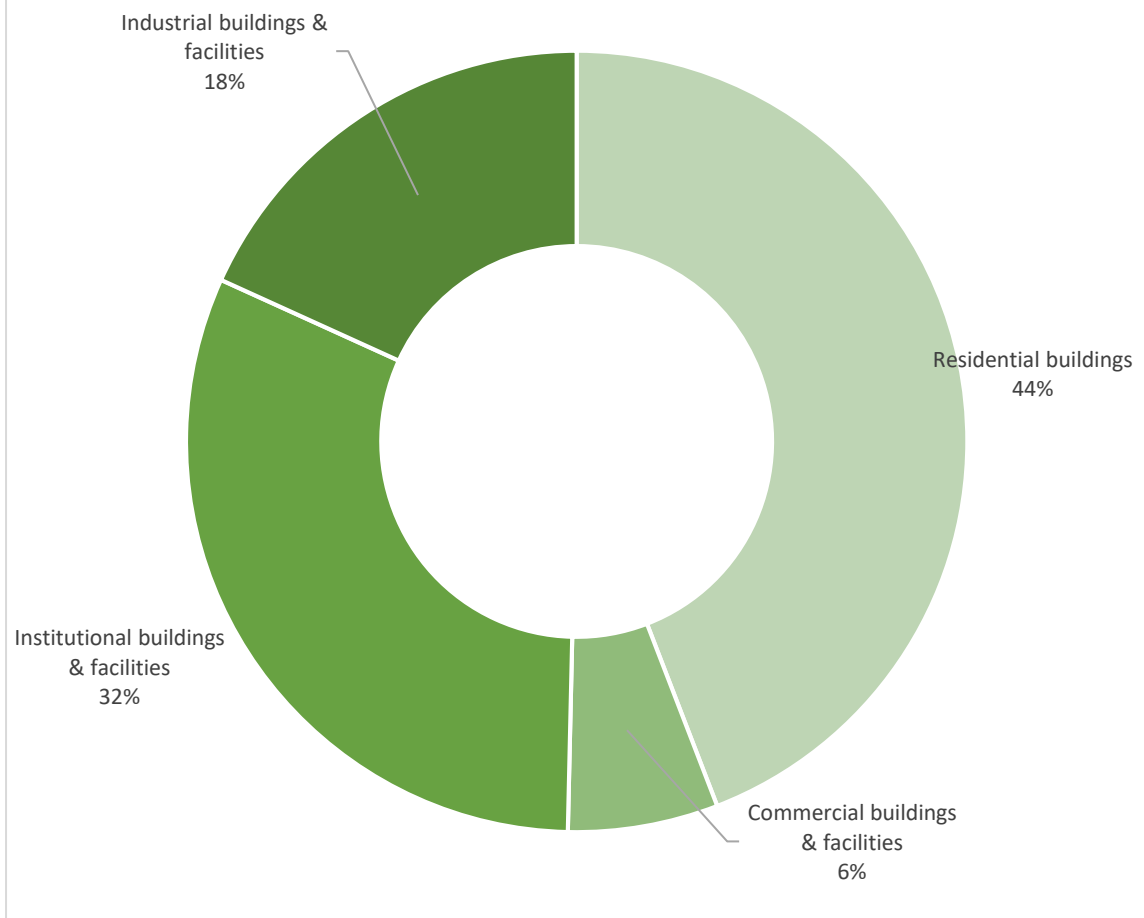


Fig. 5. BCP Area - Scope 1 Emissions 2017 (tCO₂e)



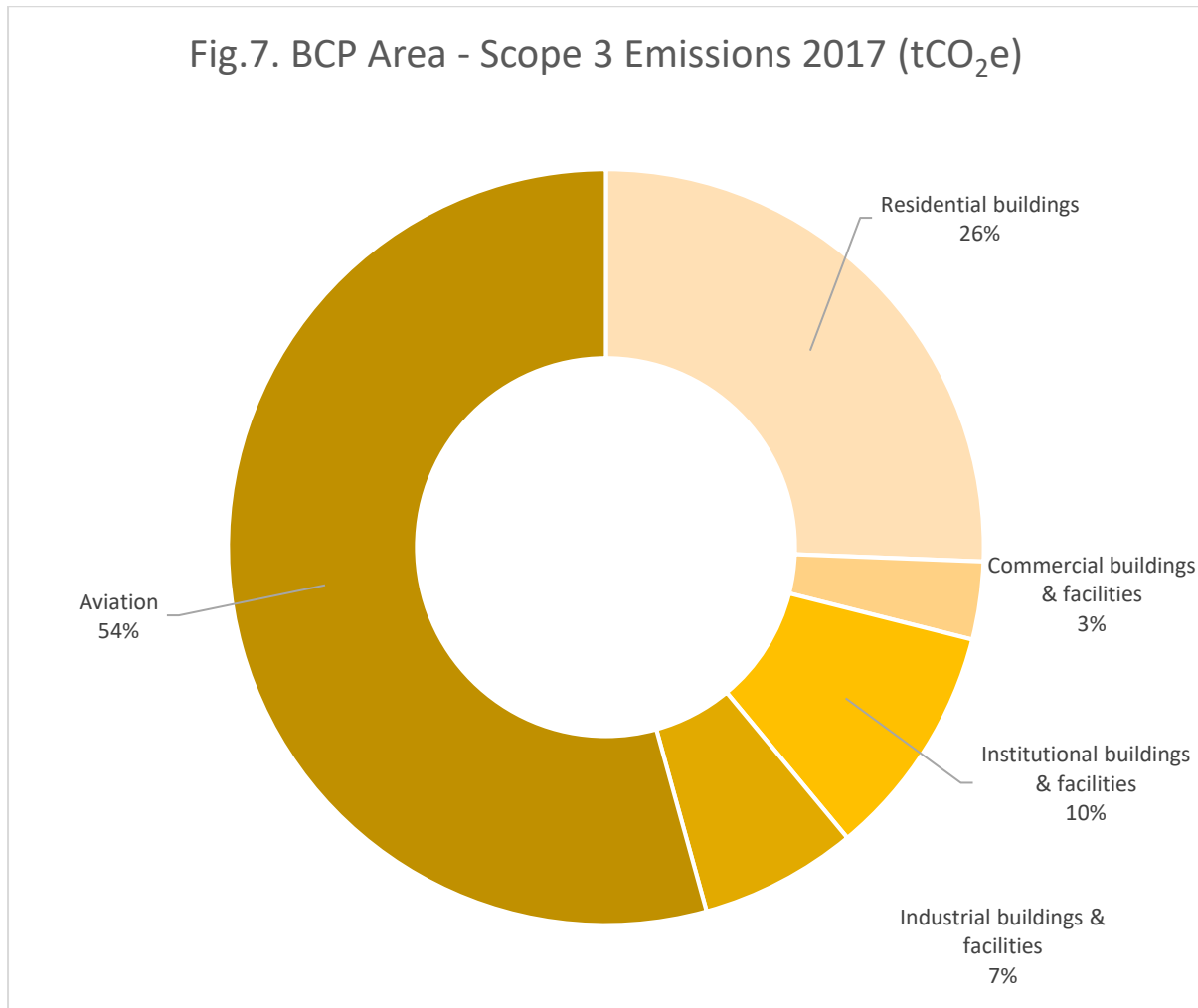
	B	C	P	BCP Total	Percentage
Residential buildings	166087.730	50071.000	149655.000	365813.730	35.608%
Commercial buildings & facilities	16193.910	5085.000	19435.000	40713.910	3.963%
Institutional buildings & facilities	24732.040	14633.000	37092.000	76457.040	7.442%
Industrial buildings & facilities	22632.450	5819.000	26498.000	54949.450	5.349%
Agriculture	199.920	667.000	354.000	1220.920	0.119%
On-road	157317.580	72148.000	163300.000	392765.580	38.231%
Rail	586.300	269.000	842.000	1697.300	0.165%
Waterborne navigation	3.070	1.000	3.000	7.070	0.001%
Aviation	0.000	6646.000	0.000	6646.000	0.647%
Solid waste disposal	33599.450	9108.000	19436.000	62143.450	6.049%
Wastewater	12183.700	3111.000	9428.000	24722.700	2.406%
Livestock	69.760	66.000	70.000	205.760	0.020%
BCP Total	433605.910	167624.000	426113.000	1027342.910	100.000%

Fig. 6. BCP Area - Scope 2 Emissions 2017 (tCO₂e)



	B	C	P	BCP Total	Percentage
Residential buildings	113322.000	30236.000	90402.000	233960.000	44.143%
Commercial buildings & facilities	13693.000	3992.000	15273.000	32958.000	6.218%
Institutional buildings & facilities	69192.000	20175.000	77177.000	166544.000	31.423%
Industrial buildings & facilities	40109.000	11695.000	44738.000	96542.000	18.215%
BCP Total	236316.000	66098.000	227590.000	530004.000	100.000%

Fig.7. BCP Area - Scope 3 Emissions 2017 (tCO₂e)



	B	C	P	BCP Total	Percentage
Residential buildings	46197.000	13195.000	39449.000	98841.000	25.608%
Commercial buildings & facilities	4937.000	1831.000	6083.000	12851.000	3.329%
Institutional buildings & facilities	15603.000	5010.000	18115.000	38728.000	10.034%
Industrial buildings & facilities	10499.000	3260.000	12244.000	26003.000	6.737%
Aviation	103274.000	26374.000	79913.000	209561.000	54.293%
BCP Total	180510.000	49670.000	155804.000	385984.000	100.000%

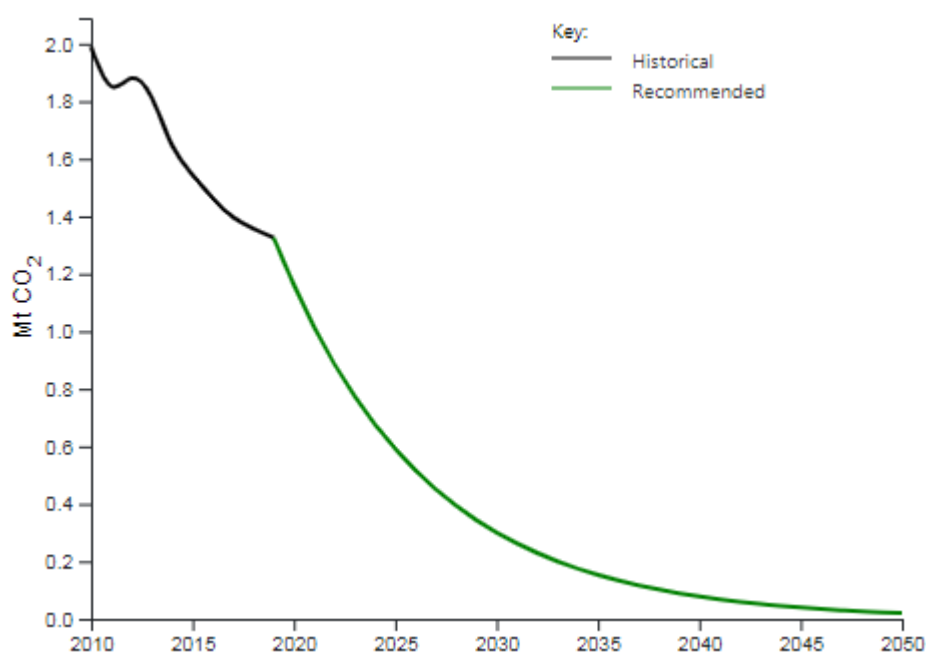
Note – Scope 3 data does not include emissions resulting from financial sector investment activity

Area-wide Paris Agreement emission reduction pathway for BCP Council area

The BEIS-funded 'SCATTER' project has provided an example CO₂ emissions reduction pathway for BCP Council (Fig. 8 below) to help achieve the Paris Agreement target. This has resulted in the University of Manchester and Tyndall Centre for Climate Change Research producing a science-based target for the BCP area geared towards achievement of the Paris Protocol's 'well below 2°C, pursuing 1.5°C' global warming aspiration. This recommends that the BCP area should aim to deliver average CO₂ emission cuts of 12.6% each year to become carbon neutral before 2050. This and other research will be considered by the Climate Action Place Leadership Board when deciding the most effective way forward for the area.

It should be noted that this illustrates an 'energy only CO₂' pathway.

Fig. 8. 'Energy only' suggested Paris Agreement CO₂ emission reduction pathway for BCP Council area



University of Manchester/Tyndall Centre

Area-wide emission reduction milestones

To be drawn up and considered by the Climate Action Place Leadership Board once the Government-supported web-based tool is active.

10. Background papers

Published works

<https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law>

BCP Council Climate and Ecological Emergency:
<https://democracy.bcpCouncil.gov.uk/mgAi.aspx?ID=1065>

Department for Business, Energy and Industrial Strategy (BEIS) Public Attitudes Tracker (March 2019):
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/800429/BEIS_Public_Attitudes_Tracker_-_Wave_29_-_key_findings.pdf

The Place-based Climate Action Network (PCAN) reports, hosted by: Centre for Sustainability and Environmental Governance at Queen's University Belfast; the Edinburgh Centre for Carbon Innovation; the University of Leeds, and the London School of Economics and Political Science (2017) <https://pcancities.org.uk/find-your-place>

How to price carbon to reach net-zero emissions in the UK (2019) London School of Economics and Political Science et al. http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2019/05/GRI_POLICY-REPORT_How-to-price-carbon-to-reach-net-zero-emissions-in-the-UK.pdf

The State of Nature Report (State of Nature Partnership, 2019)
<https://nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-UK-full-report.pdf>

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services: Global Assessment Report on Biodiversity and Ecosystem Services (IPBES, 2019) <https://www.ipbes.net/global-assessment-report-biodiversity-ecosystem-services>

A toolkit for city regions and local authorities (Ashden, 2019)
<https://www.ashden.org/downloads/files/CAC-Chapters-all-FINAL.pdf>

Leading on Clean Growth: The Government Response to the Committee on Climate Change's 2019 Progress Report to Parliament – Reducing UK Emissions (BEIS, 2019)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/839555/CCS0819884374-001_Government_Response_to_the_CCC_Progress_Report_2019_Web_Accessible.pdf

Environment Bill 2019 (Department for Environment, Food & Rural Affairs, 2019)
<https://www.gov.uk/government/publications/environment-bill-2019>

Ice sheet contributions to future sea-level rise from structured expert judgment
Jonathan L. Bamber (PNAS, 2019) <https://www.pnas.org/content/116/23/11195>

Operation Icebridge (NASA, 2019) <https://climate.nasa.gov/news/2883/study-predicts-more-long-term-sea-level-rise-from-greenland-ice/>

Local Authority Climate Emergency Declarations (APSE, 2019)
<https://www.apse.org.uk/apse/index.cfm/local-authority-energy-collaboration/apse-energy-publications1/local-authority-climate-emergency-declarations/>