



# Bristol Advisory Committee on Climate Change

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# One City Climate Strategy Progress Review

February 2023

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## Executive summary

The [One City Climate Strategy](#) is an ambitious statement of intent produced by the Bristol One City Environment Board on behalf of the city of Bristol to reduce its carbon emissions and build its resilience to a changing climate by 2030. The strategy was launched immediately prior to the pandemic and the expected actions have, of course, been delayed by this unprecedented public health crisis. However, although it is clear from this assessment that there is good progress in some areas, such as the creation of the Bristol City Leap partnership, progress is not yet sufficient or widespread enough to meet the ambitions of the One City Climate Strategy.

The One City Climate Strategy set out that substantial national action was needed for Bristol to become carbon neutral and climate resilient. Since then, the Government has adopted actions through the Net Zero Strategy and its subordinate strategies which provide the policy context for national action to 2050, a very different time frame to Bristol's 2030 goal. The national targets equate to an approximately 45% reduction from 2019 levels. Some national policies and programmes are in place but the UK Committee on Climate Change highlighted that plans were in place for [around two thirds of this reduction](#) (c. 30% of emissions). Quantifying this residual carbon, its sources and rate of emissions, and developing the capacity and capability to remove it in a sustainable and equitable way are urgent actions for the city.

Last summer we experienced heat waves that demonstrated the need for urgent adaptation to the impacts of climate change across the UK. The UK Committee on Climate Change has highlighted the need for investment in adaptation and resilience as well as in carbon emission reduction. The new National Adaptation Programme is expected in the summer of 2023 and hopefully this will rise to the scale of the challenge. The innovative [Keep Bristol Cool](#) heat risk tool will allow identification of communities at higher risk from heatwaves and can assist in prioritising areas for adaptation action. These actions will need resources and coordination across city stakeholders and communities with particular consideration of justice and equity, acknowledging the most disadvantaged are often the most affected and have least capacity to adapt.

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There are many examples of good initiatives in the city, such as the Climate Action Programme, the Climate Leaders Group, the Community Climate Action Programme, the Climate Hub, Climate Ask, Gold Sustainable Food City Award and Trading to Net Zero. Admirable as these are, they have limited resources and are not yet able to operate at the scale needed to move the agenda forward at pace.

As set out in the One City Climate Strategy, local government resources, powers and capacity are insufficient to meet the ambitions of the strategy. Alternative sources of resourcing and expansion of these climate initiatives need to be secured. Therefore, a key milestone was reached in January 2023 with the formation of the Bristol City Leap partnership between Bristol City Council and Ameresco. This joint venture has set out plans to invest £600 million in the decarbonisation of the city over the next five years, securing the substantial private sector investment and capacity needed. This accelerates the council's rate of investment in energy efficiency, district heating and renewable electricity generation more than 10-fold. It is understood to be the UK's largest local energy initiative and demonstrates how climate action can deliver social value for the community, for example through jobs, training and apprenticeships.

Bristol City Leap will accelerate delivery of heat decarbonisation and renewable electricity objectives of the One City Climate Strategy. Investment of £540 million from the Government's City Region Sustainable Transport Settlement and national policies on electric vehicles will also accelerate delivery of transport decarbonisation but further investment and policies will be needed to achieve the strategy's goals. Similar investment will be needed in all ten areas of the strategy in order to move the city at the pace needed to significantly reduce emissions by 2030.

The One City Climate Strategy is not a delivery plan and does not plot the route to achievement. The envisaged model of thematic delivery plans has not been able to be achieved as city partners have been unable to find the resources to lead delivery action beyond their own responsibilities. Bristol's recent success in joining the EU Climate Neutral and Smart Cities Mission provides a new approach to organising delivery with the formation of a Bristol Climate Transition Team which will develop City Climate Action and Investment Plans to help secure investment of a scale similar to Bristol City Leap. Within the wider One City Approach, and joining up the One City boards, this

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Transition Team has the potential to accelerate progress and the City Council is developing funding bids to help secure additional resources for this process.

A better understanding of best practice from other local authorities, governments and non-state actors including business leadership is required, including drawing on innovative policies implemented in other cities that have declared climate and ecological emergencies.

The report concludes with 12 recommendations for accelerating implementation of the One City Climate Strategy.

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## Purpose of the review

The [One City Climate Strategy](#) is an ambitious, impactful statement of intent by the city of Bristol to reduce its carbon emissions and build its resilience to a changing climate by 2030. It seeks to do this through the mechanism of the [One City Approach](#).

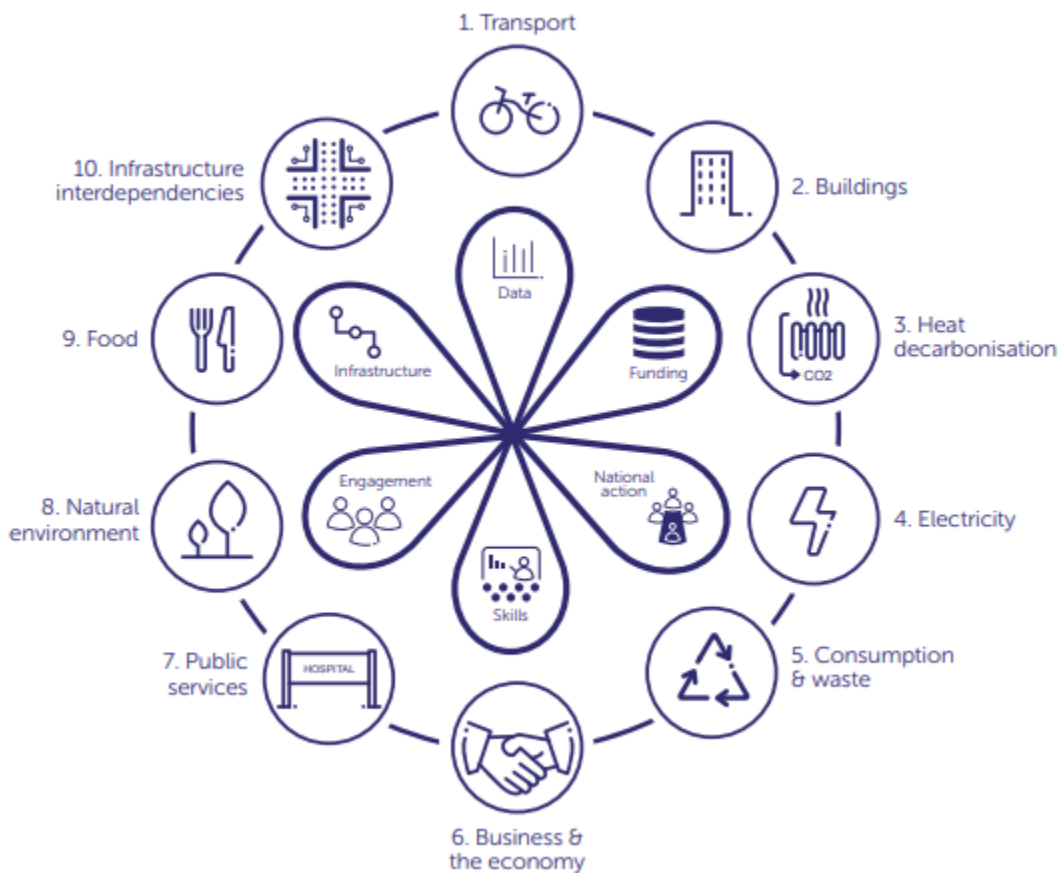
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The strategy is not a delivery plan and does not plot the route to delivery of the strategy. A series of delivery plans were anticipated to follow from the publication of the strategy which would plot the course to implementation. The One City Climate Strategy is bound by a series of principles to guide action, these are *Fair, Collaborative, Transformative, Learning and Evidence based*. The strategy focuses on territorial emissions arising from the geographical area of Bristol, with consideration of the impact of consumption (including supply chain) emissions. The strategy is underpinned by a rich evidence base ([Total greenhouse gas emissions of the city of Bristol – technical report](#), Arup, 2020 and [Consumption-based greenhouse gas emissions for Bristol 2016](#), Owen and Kilene 2020) which has enabled the identification of key themes, goals and objectives. The evidence base provides the baseline for this assessment.

The One City Climate Strategy contains ten delivery themes each containing at least one goal and a number of subordinate objectives. The ten themes are presented in Figure 1. It also identifies enabling conditions that need to be satisfied if the strategy is to achieve its goals. These enabling conditions are presented as the inner circle in Figure 1.

The [One City Environment Board](#) holds the lead responsibility for the One City Climate Strategy as part of Bristol’s One City Approach, with all the One City boards having a role to play. It is important to note that this is a city-wide strategy and is intended to be owned and delivered by city actors, not just Bristol City Council. The original ambition that different organisations would volunteer to lead a theme proved to be an overly optimistic approach to convening city stakeholders to deliver the strategy.

**Figure 1. One City Climate Strategy Themes (outer circle) and Enabling Conditions (inner circle)**



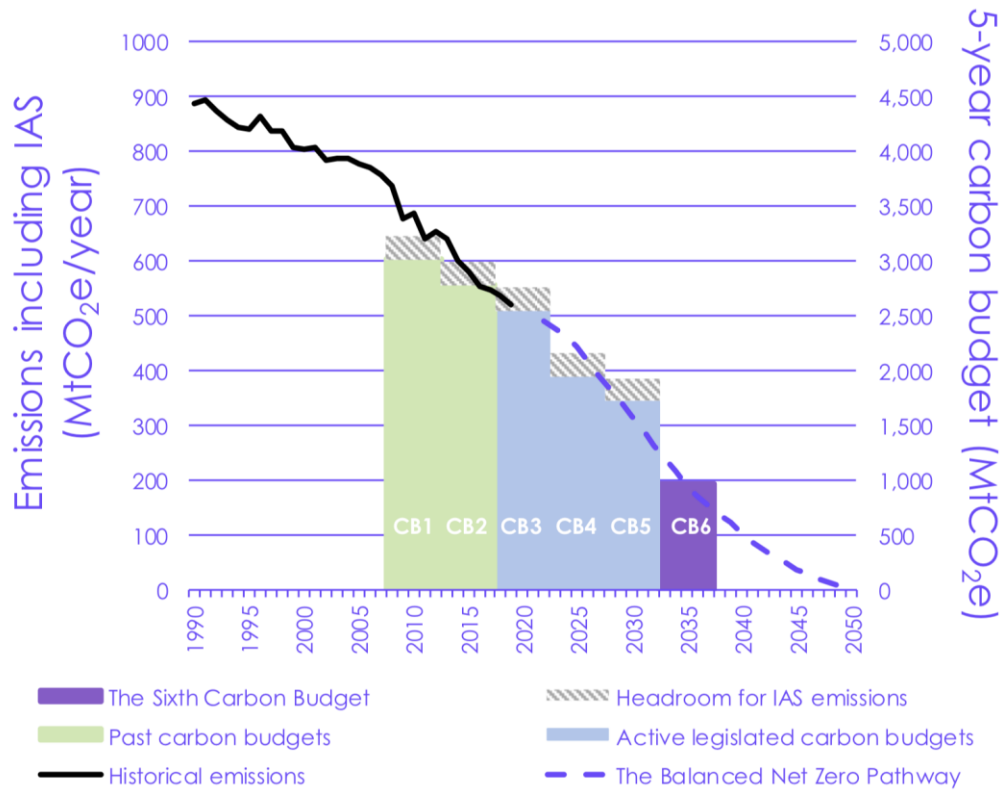
## National context

It is clear that Bristol on its own cannot achieve its desired carbon neutral and climate-adapted status by 2030. Success in a large measure will result from actions undertaken as part of the UK's national [Net Zero Strategy](#) and delivery of the [Sixth Carbon Budget](#) (CCC, 2020). The UK has a legally binding 2050 target compared to Bristol's 2030 target. The national 6th Carbon Budget [for 2033-2037](#) sets a legal target of a 78% reduction in greenhouse gas emissions by 2035 (Figure 2). National actions such as grid decarbonisation, banning of new petrol and diesel cars from 2030, incentivisation of heat pumps etc, will deliver a significant proportion of Bristol's required emission reduction (Figures 3, 4), but not on the desired timescale, and residual emissions will remain. Hence focused, local action to address this residual will be required. An important next



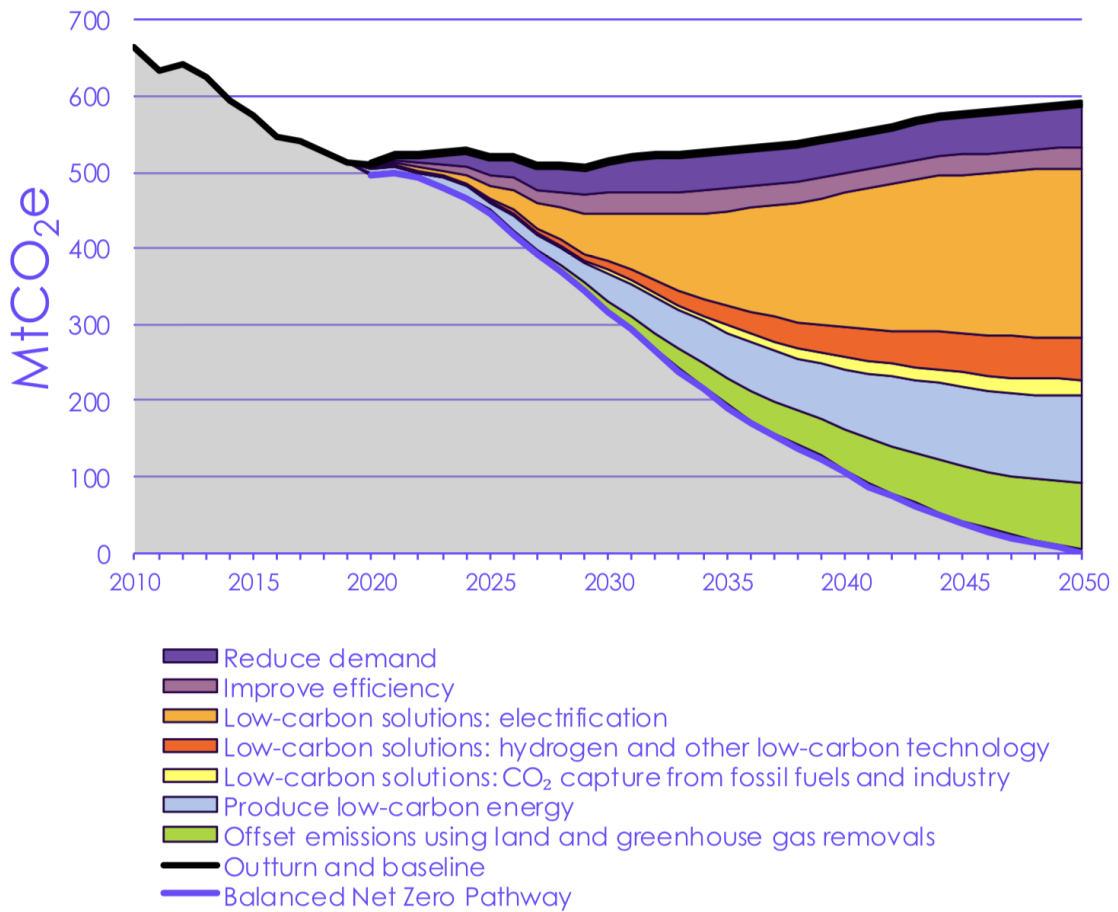
step is calculating the size of the residual emissions that local action must address, identifying and prioritising emission sources for targeted action.

Figure 2. [The UK Sixth Carbon Budget](#) (CCC, 2020)



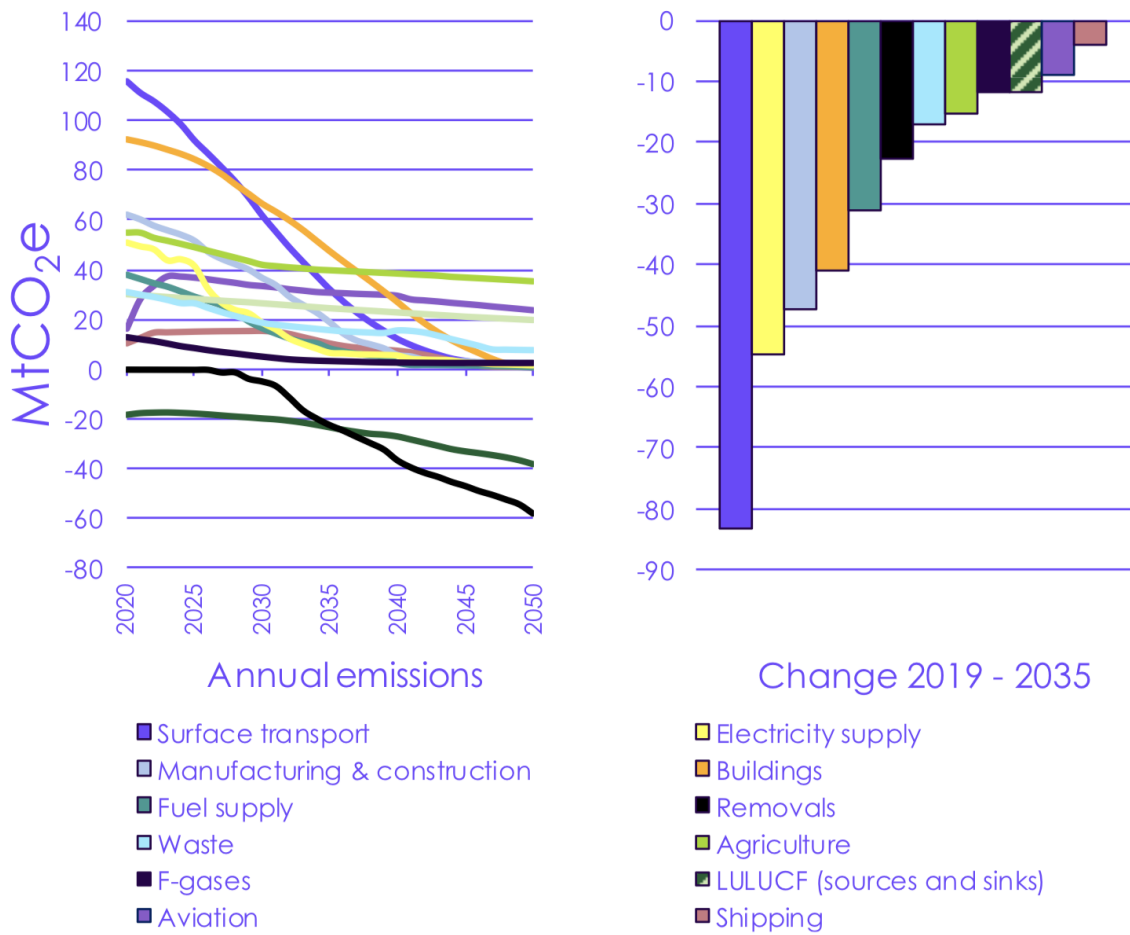
Source: BEIS (2020) *Provisional UK greenhouse gas emissions national statistics 2019*; CCC analysis  
 Notes: Emissions shown include emissions from international aviation and shipping (IAS) and on an AR5 basis, including peatlands. Adjustments for IAS emissions to carbon budgets 1-3 based on historical IAS emissions data; adjustments to carbon budgets 4-5 based on IAS emissions under the Balanced Net Zero Pathway.

Figure 3. Types of abatement in the UK Committee on Climate Change’s Balanced Net Zero Pathway, [The UK Sixth Carbon Budget](#) (CCC, 2020)



Source: BEIS (2020) Provisional UK greenhouse gas emissions national statistics 2019; CCC analysis.  
 Notes: 'Other low-carbon technology' includes use of bioenergy and waste treatment measures.  
 'Producing low-carbon electricity' requires the use of CCS in electricity generation.

**Figure 4. Sectoral emissions under the UK Committee on Climate Change’s Balanced Net Zero Pathway, [The UK Sixth Carbon Budget](#) (CCC, 2020)**



Source: CCC analysis.

Notes: LULUCF = Land use, land-use change and forestry

The Office for National Statistics (ONS) is also leading a cross-government initiative to bring a host of climate-change related statistics, including sub-national where available, together in one place.

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## Local context

[Territorial emissions](#) in Bristol were already declining across sectors as reported in [Bristol net zero by 2030: The evidence base](#) report (Roberts et al., 2019). Scope 1 and 2 carbon emissions reduced by 36% between 2005 – 2017 (Figure 5).

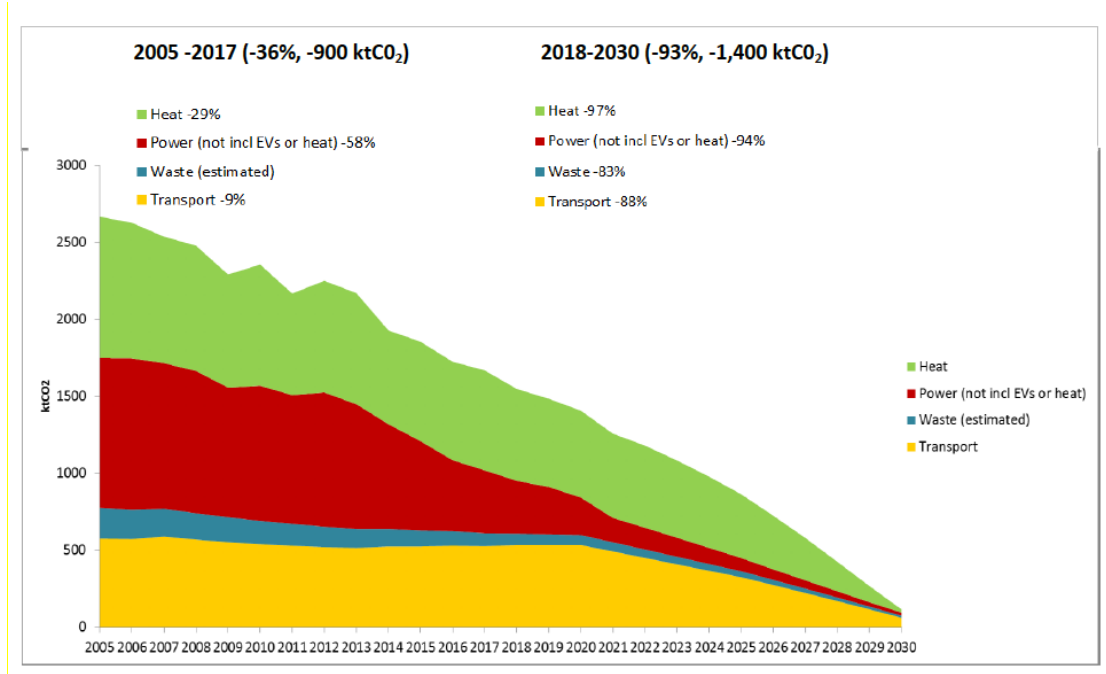
The historical reduction varied by sector. The heat and power reductions were said to be largely due to the widespread adoption of low-cost insulation measures (like cavity wall and loft insulation), the establishment of effective energy efficiency standards for appliances and equipment (including gas boilers) and the significant growth of renewable energy generation and displacement of coal on the electricity system.

Projections from 2018-2030 are based on scenarios developed in the report on realistic but ambitious decarbonisation. Bristol “needs to cut its carbon emissions over the next 12 years at an average rate of c 120 ktCO<sub>2</sub> of carbon saved per year, which is 1.6 times faster than the annual average of 75 ktCO<sub>2</sub> over the last 12 years” (Roberts et al., 2019). Figure 6 shows data from the most recent Department for Business, Energy & Industrial Strategy (BEIS) [emissions report](#) (2022) up to 2020, with a somewhat different sectoral breakdown. Between 2017 and 2019 emissions came down a further 89kt, substantial but only just over two thirds of the desired annual rate. The Bristol Advisory Committee on Climate Change (BACCC) estimates that with a best case of mitigation action there might be residual emission of some 250 -300kt in 2030 which requires further local action to mitigate or offset.

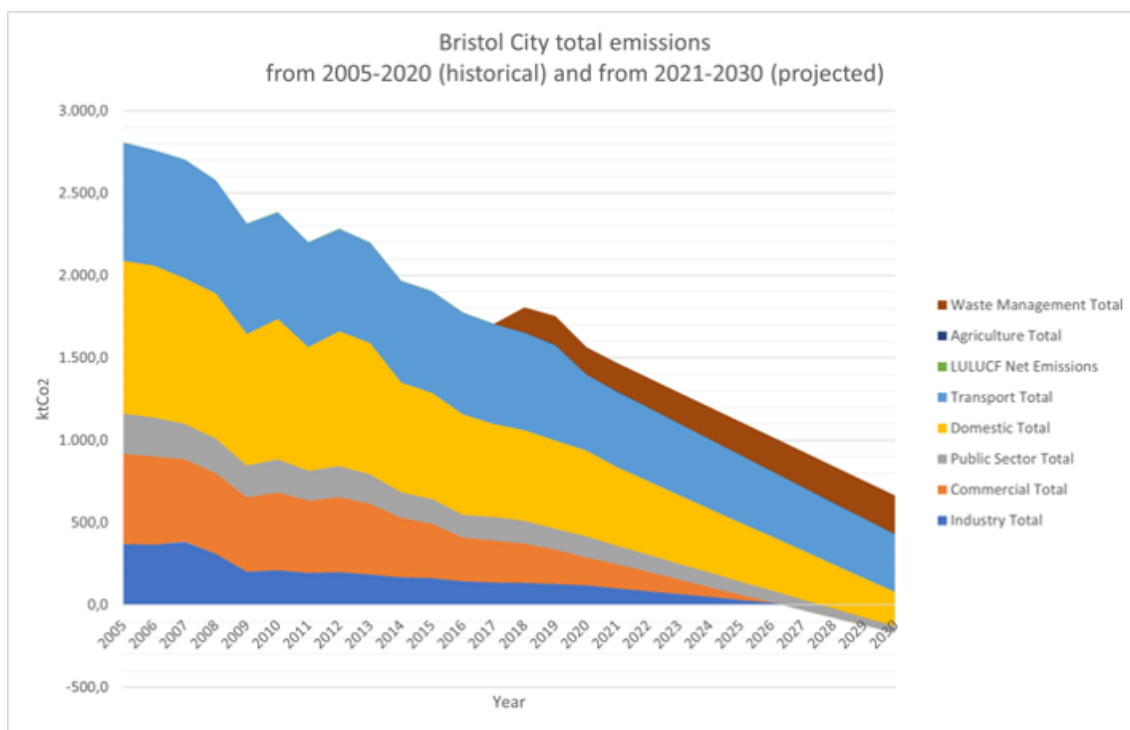


*Image credit: Mikey Harris*

**Figure 5. Historical (2005-2017) and projected (2018-2030) reductions in Bristol’s scopes 1 & 2 carbon emission reductions, with future reductions based on scenarios outlined in [Bristol net zero by 2030: The evidence base report](#) (CSE, Roberts et al, 2019)**



**Figure 6. [Historical 2015 to 2020 emissions data](#) (BEIS 2022) with linear extrapolation based on current trends to 2020 (Bui, 2022)**



In addition to mitigation, the city needs to adapt to the changing climate, the result of past emissions of long-lived warming agents. Bristol is already experiencing higher temperatures, wetter winters, flood events, summer heatwaves, and summer droughts which are some of the impacts of changing climate. 18 July 2022 saw temperatures reach 35.2C, the hottest day the city has seen, beating the previous high of 34.7C reached in 2006. These impacts create risks for public health, the natural environment and infrastructure amongst others. Bristol City Council has developed the [Keep Bristol Cool mapping tool](#) to highlight heat risks and adaptation needs across the city. Bristol’s risks should be assessed in the context of [The UK Climate Change Risk Assessment](#) (2022), and the UK National Adaptation Plan including preparedness for flood events and assessment of the resilience of water and energy infrastructure, food supplies and other infrastructure likely to be adversely affected by a changing climate.

## Box timeline of climate action in Bristol

Updated and amended from <https://www.bristoloncity.com/climate/>

- Bristol was the first UK city to declare a climate emergency in **November 2018**. In response the Mayor published a [Climate Emergency Action Plan](#). That plan committed to developing a One City Climate Strategy with city partners, for the council to be carbon neutral for direct emissions by 2025 and called upon the government for increased powers and resources and for leadership including through national policies, taxation etc.
- To support the development of the One City Climate Strategy, Bristol City Council commissioned the Centre for Sustainable Energy with Ricardo and Eunomia to produce [Bristol Net Zero by 2030: the evidence base](#), a report on how the city can achieve net zero greenhouse gas emissions (scopes 1 and 2) by 2030 (Roberts et al, 2020). The associated evidence also included an assessment of Bristol's resilience to climate change ([Climate Resilience Assessment](#) (ARUP, 2020)), the carbon footprint of the economy of Bristol ([Total greenhouse gas emissions of the city of Bristol](#) - the carbon footprint of the economy of Bristol (ARUP, 2020)) and a report on consumption-based greenhouse gas emissions for Bristol ([Consumption-based greenhouse gas emissions for Bristol](#) (Owen & Killian, 2020))
- In **October 2019** the city established an independent [Bristol Advisory Committee on Climate Change](#) (BACCC) to provide technical expertise to help the city to understand and accelerate progress towards its ambition to be a carbon neutral and climate resilient city by 2030.
- In **February 2020**, the One City Environment Board published the One City Climate Strategy setting a shared vision for Bristol in 2030 to be a carbon neutral and climate resilient city. The strategy is framed around ten themes and six enabling conditions that describe the dramatic changes needed in our transport, heat, and electricity networks, what we consume and waste, our food, businesses and public services, buildings, infrastructure, and natural environment. An Ecological Emergency was also declared this month by the Mayor and One City partners.
- In **October 2020**, the [Community Climate Action Project](#), coordinated by Bristol Green Capital Partnership launched with support from the National Lottery's Climate Action Fund. The first phase of the project saw six Bristol community organisations – Ambition Lawrence Weston, ACH, Bristol Disability Equality Forum, Heart of BS13,



Lockleaze Neighbourhood Trust, and Eastside Community Trust play a leading role in shaping Bristol's transition to a low carbon and climate resilient city, with the support of Bristol City Council and the Centre for Sustainable Energy.



*Image credit: Ambition Lawrence Weston*

- In **November 2020**, the Black and Green Ambassadors programme was re-launched, coordinated by Bristol Green Capital Partnership and Ujima Radio with the support of the National Lottery and Bristol City Council. The programme's mission is to connect, empower and celebrate diverse leadership and community action on environmental issues in Bristol and beyond; challenging perceptions, creating new opportunities and working towards ensuring the environmental movement is inclusive and representative of all communities.
- In **December 2020**, Bristol City Office launched the [Bristol Climate Hub](#) to help residents to make informed decisions about taking action to reduce their own household carbon footprints.
- In **April 2021** Bristol Green Capital Partnership's [Climate Action Programme](#) launched, offering support to organisations to reduce their carbon emissions through a range of

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events, resources and peer-to-peer learning opportunities. This included the launch of the [Bristol Climate Leaders Group](#).

- In **June 2021** the [Bristol Citizens' Assembly](#) report was published, discussing climate change, health inequalities and sustainable transport, with a strong mandate for action.
- In **June 2021** Bristol City Council launched an [Ecological Emergency Action Plan 2021-2025](#).
- In **September 2021**, the One City Environment Board launched the #BristolClimateAction brand to make the work of local groups, organisations and businesses working on climate action more visible across the city.
- In **October 2021** at the City Gathering, the One City Environment and Economy Boards – echoed by the Mayor - launched the [Bristol One City Climate Ask](#), an active ask for all businesses and organisations based in the city to declare an ambition to become net zero by 2030.
- In **November 2021** a wide range of Bristol networks worked together to organise the COP26 Business of Net Zero event and to launch a series of Ambition Net Zero business videos and stories to support the Bristol One City Climate Ask. The University of Bristol hosted a mock COP26 event for local schools. The voices of Bristol citizens can also be heard through a growing series of Bristol One City Climate Action Stories as part of Bristol City Council's ongoing social media campaign.
- In **March 2022** Bristol's [first community climate action plans](#) were launched through the Community Climate Action Project. The city was also awarded funding by the Department of Transport to become a Zero Emission Transport City.
- In **April 2022** Bristol was successful in its bid to join the EU Climate Neutral and Smart Cities Mission bringing together 100 EU cities and 12 others from associated countries, united by their ambition to be trailblazers towards reaching net zero by 2030.

- In **May 2022** Bristol City Council launched Bristol's climate and ecological community grants program, before celebrating some of Bristol's most sustainable businesses and climate pioneers at the Festival of Sustainable Business.
- In **July 2022** the Think Global Act Bristol exhibition launched at the M-Shed asking questions as to what the city's role is in tackling the climate and ecological emergencies. After the second summer heat wave Bristol City Council launched the [Keep Bristol Cool](#) mapping tool, funded by the UK Climate Resilience Programme, highlighting heat vulnerabilities across the city, in an increasingly warming world.
- In the **summer of 2022** Bristol experienced a prolonged heat wave with record breaking temperatures.
- In **December 2022** Bristol City Council formally approved the City Leap Partnership with Ameresco, working in collaboration with Vattenfall Heat UK. With ambitions to bring in £1 billion of investment to decarbonise the city's energy system, and with an initial £424 million of private finance committed, this promises to be a transformative partnership for the city and our climate ambitions.



*Image credit: City Leap*

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## Method of review

This progress review has been undertaken by the [Bristol Advisory Committee on Climate Change](#) (shortened to BACCC), an independent technical advisory group established at the request of the Mayor of Bristol. The membership of BACCC comprises individuals with expertise and experience in the wide range of disciplines concerned with mitigation of emissions and adaptation to a changing climate.

The review has been conducted by BACCC members using their technical knowledge and expertise to assess progress of the One City Climate Strategy, to identify barriers to progress and opportunities to accelerate implementation. The review method has been collaborative and iterative over several months where members input commentary which is reviewed and signed off by the group. The review has sought to identify how the principles guiding the strategy find expression in the implementation of the strategy and how the enabling conditions have been, if at all, satisfied. Each theme of the strategy and its specified goals and objectives has been considered in the following text.

The review considers leadership of the theme, the capacity and capability of city actors to progress the theme, resources to support action, data availability from which progress from the baseline can be assessed, and, where appropriate, communication campaigns or other related policies, actions, and activities to raise awareness or encourage climate action that may support delivery in some way.

A Red-Amber-Green (RAG) assessment has been applied to each theme to indicate BACCC's judgement of the progress made since the launch of the One City Strategy.

- Green indicates satisfactory progress is being made.
- Amber is applied where some progress has been made but not at the scale or pace required to achieve the overall ambition of the theme.
- Red is applied where insufficient progress has been made and considerable effort is required to move the theme back on track.

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In some instances, it is not possible to make an informed judgement of progress and where this is the case an 'unable to assess' judgement is made. The review was undertaken in the full knowledge that the strategy was launched just before the pandemic and that the expected rollout and implementation was significantly impacted by lockdowns and other emergency responses.

## Analysis of One City Climate Strategy themes

### General

There are no delivery plans or leads for any theme, although some are associated with the work of One City boards.

National Net Zero policy, the National Adaptation Plan and other national and regional policies and strategies will affect delivery of each theme.

### 1. Transport

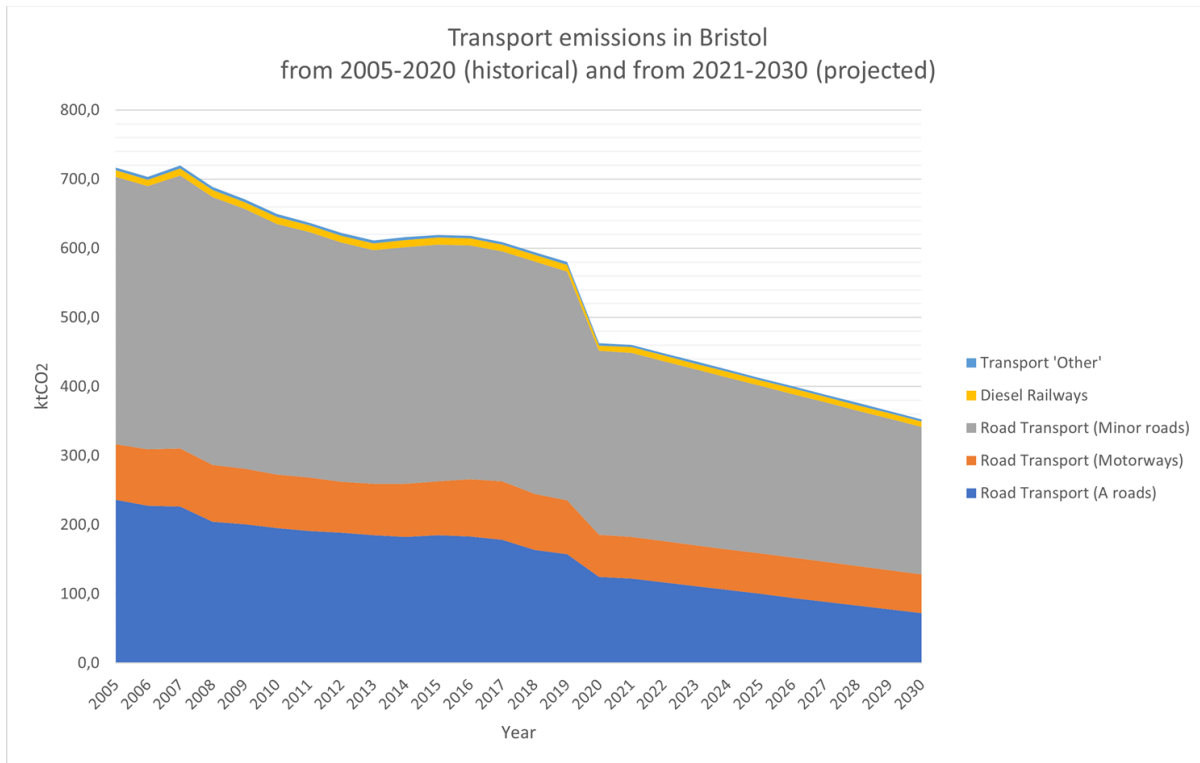
Goal 1: Bristol will have a sustainable carbon neutral transport system with modal shift to significantly more citizens walking, cycling, and using low carbon public transport.

Goal 2: Everyone will have access to a transport system that is resilient to a changing climate.



*Image credit: Ceilidh Jackson - Baker*

Figure 7. [Transport Emissions](#) in Bristol, 2005-2020 historical data from BEIS (2022), linear projection 2021-2030 from Bui (2022)



Figures 5, 6 and 7 show that progress in reducing transport-based emissions has been slow. Figure 7 shows transport emissions are dominated by road traffic. The city experienced a steep fall in transport emissions in 2020 due to the pandemic, more recent anecdotal observations suggest traffic flows are approaching pre pandemic levels.

National actions under the UK's Net Zero Strategy relevant to this theme include, amongst others, actions to accelerate electric vehicle (EV) uptake and the future banning of the sale of new petrol and diesel cars.

These goals have been severely impacted by the pandemic and anticipated progress has not been achieved. However increased penetration of EVs in the car fleet and development of new forms of electric mobility (Voi e-scooters, Big Issue bikes etc) offer promise. Bus patronage has fallen and, in transport decision making, car-based mobility still dominates current and planned investment. This theme and its goals and objectives needs an identified leader to coordinate its actions. BACCC suggests that this responsibility could be taken by the Transport Board.

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Air quality policies such as the Clean Air Zone may be supportive if they reduce vehicle miles or promote a switch to EVs. In developing the delivery plan for this theme, careful consideration of the cost/equity and disability/accessibility issues will be required. The ubiquity of e-scooters does not appear to have reduced car dependency in the city, but may have enabled a switch in mode from walking or bus patronage to electric scooter (see [Modal shift effects of e-scooters](#), 2020). These issues need to be considered within a delivery plan as does the accessibility and affordability of bus and rail travel for all of Bristol's population.

We recommend that the Transport Board consider the implications of the [National Bus Strategy](#) (DfT, 2021) for public transport provision in Bristol. The announcement by First Bus (Edie, 2/9/22) of a major order for electric buses does not include Bristol as an area that will receive any of this fleet.

Bristol has launched a successful [cargo bike delivery system](#) and freight hub with Zedify, and created an [Electric Vehicle Centre of Excellence](#) funded by National Highways, to offer businesses the opportunity to try an eclectic van for free. Bristol City Council is also working with residents to [co-design a liveable neighbourhood scheme](#) in East Bristol.

Since the adoption of the One City Climate Strategy, Bristol City Council has adopted the West of England [Joint Local Transport Plan](#) with the other unitary and combined authority. This sets out a vision for the region's transport system to be carbon neutral by 2030. [A Transport Delivery Plan](#) has been produced for the period 2021-26. This notes that "*for the West of England transport CO2 emissions will rise by a further 22% by 2036 if we don't act...*" and notes that "*all four local authorities and the West of England Combined Authority have now declared climate emergencies and committed to net zero carbon by 2030*".

Bristol was successful in winning [Zero Emissions Transport City funding](#) along with Oxford and Norwich, having been specifically invited to bid by the Department of Transport in recognition of the city being a Net Zero trailblazer with high levels of active travel, especially cycling.

In April 2022 the West of England Combined Authority (WECA) were awarded £540 million from the Government's City Region Sustainable Transport Settlement to improve the West of England's sustainable transport system ([CRSTS Funding Settlement Letter for West of England 1 April 2022 - GOV.UK](#)). This was the highest amount of funding per head awarded in England. One of the three foci for the investment is "*Decarbonising transport: Enhancing public transport*



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*services, creating new walking and cycling routes, and improving existing ones, will help to reduce car dependency. Offering more opportunities for people to travel sustainably, and delivering improvements to air quality in urban areas, will also improve the health and wellbeing of residents."*

There are a range of other [strategies and plans](#) developed at the West of England scale which will support Bristol's decarbonisation agenda when implemented. A range of partner organisations including Severnet, Action Net Zero, North Bristol SusCom, Sustrans and the Sustainable Transport Network (convened by Bristol Green Capital Partnership) are pushing this agenda, even if they are not well placed to lead on this delivery theme.

**Objective 1: Significant reduction in car mileage achieved through mode shift towards public transport, walking and cycling; commercial vehicle mileage reduced through freight consolidation; aiming for a total 40% reduction in vehicle miles.**

The impact of the pandemic has shifted mobility patterns in favour of car based travel but new mobility solutions may reverse the trend. Bus patronage rates are below pre-pandemic levels. There are interesting developments in freight consolidation including e-bike delivery, but not at the scale that will deliver the objective without further action to incentivise change.

The data on mileage reductions and active travel post pandemic are needed to support this assessment of progress. BACCC needs to see detailed plans of how this is expected to be achieved to assess progress. An analysis is required as to whether the reduction in bus patronage due to pandemic fears has resulted in an increase in car miles. Has e-scooter use reduced bus patronage or active travel? Costs, accessibility, and reliability could be major barriers. Identifying these factors can help inform the next steps.

The delivery plan will need to consider restrictive demand management measures if it is to deliver the mileage reductions set out in this objective. Robust action is needed to restrict private vehicle access wherever possible and provide realistic alternatives.

**Objective 2: All of Bristol's cars primarily consist of ultra-low emission vehicles (ULEVs) and 90% of other vehicles to be ULEV.**

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The data to assess progress are not available, the baseline ULEV position and the current penetration rate are required alongside information on availability and accessibility of charging points.

Can local actors work together to enhance penetration into the private fleet through group purchase schemes? For example, Bristol City Council has made use of a Government Salary Sacrifice scheme to enable staff to lease electric vehicles at a reduced cost. It is hoped other major employers will follow this example. Equally, what can fleet owners do to accelerate uptake of ULEVs? How can obstacles such as cost, supply issues and lack of infrastructure be addressed?

Bristol City Council is working with the West of England Combined Authority to develop plans for EVs to accelerate the uptake of EVs and provision of charging facilities. Their Electric Vehicle Charging Investment Proposal will seek to invest some of the WECA Green Recovery Funds into charge points.



*Image credit: Andrew Roberts*

Objective 3: Reduce total carbon emissions from international and domestic air travel associated with residents and businesses.

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After a reduction during lockdown, passenger numbers have bounced back at Bristol Airport. Data on tourist and business travel by Bristol residents and Bristol based businesses is required to assess this objective. It may be useful to explore how major employers (universities, NHS etc) are developing their travel policies to minimise air travel and enhance rail travel as a business choice.

**Objective 4: Significant improvements made to accessibility and service of sustainable travel infrastructure to ensure it can support carbon neutral, climate resilient transport systems.**

Some progress to report as noted above but overall investments at the city region still prioritise car-based travel. Schemes in Bristol under the City Region Sustainable Transport Settlement are prioritising buses, walking, and cycling. Data on investments at city and WECA level are needed to confirm how off course this objective might be.

**Objective 5: Existing transport infrastructure enhanced to withstand future climate projections with the effect that the transport network continues to function well during severe climate events.**

Progress with this goal is difficult to assess in the absence of specific data, a delivery plan or clarity over the leadership of the overall theme. Evidence is required on specific risks faced by rail and public transport and how they will impact service provision, for example flood risk and heat risk. The summer of 2022 provides important evidence on the impact on vital infrastructure which needs to feed through into addressing this objective in the delivery plan.

### **Summary of city progress: transport**

The vision of the regional Joint Local Transport Plan (JLTP4) does set out the vision for how the transport system will be carbon neutral by 2030 and in many ways trumps this theme of the strategy. Bristol has become visibly different with the Voi e-scooter trial and high levels of active travel, and the Zero Emission Transport City funding offers an opportunity. The cargo bike scheme with Zedify, the Liveable Neighbourhood pilot and the Electric Vehicle Centre of Excellence are equally promising. However low bus patronage, and the lack of clarity regarding the electrification

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of public transport is challenging. A large well-funded public transport intervention is necessary to offer an alternative to the high dependency on private car use, and the associated emissions.

## Transport RAG assessment: Amber/Red

### 2. Buildings

Goal 1. All buildings in the city will be carbon neutral and use resources efficiently, ensuring everyone can enjoy affordable warmth in winter and avoid overheating in summer.

The Buildings theme has no identified strategic lead to coordinate and direct actions. There is no delivery plan nor is there clarity about the baseline or scale of the remaining task. Data is required that identifies the current percentage of residential, industrial, and commercial building stock that meets this goal, and the state of the remaining buildings in relation to what is required to meet the goal by 2030. It would be helpful to have data that categorised buildings based on typologies, ownership structures, location, and occupancy.

The complexities and cross cutting nature of this theme is such that it overlaps and can be partially considered through the lens of the heat or electricity themes, or vice versa. The main challenge may be that of retrofitting the city's buildings to reduce emissions from heat. On the other hand, there will be an increasing need for electricity and adaptations for cooling as global temperatures continue to rise. It is not clear how the behavioural element of adaptation is being factored into resilience planning.

BACCC recommends that further work is undertaken to assess the implications of the [Third Climate Change Risk Assessment](#) (CCRA3) for the adaptation needs of existing buildings stock in Bristol. The [Keep Bristol Cool mapping tool](#) will be helpful in assessing some aspects of risk.

Objective 1: New buildings are carbon neutral and climate resilient (aligning heat provision to the city's heat decarbonisation programme).

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There are promising developments in the council's new building programme with some 1,500 new builds per year. Bristol City Council has committed £97 million to making the homes it owns more energy efficient and is building ~400 new homes and flats heated by air or water source heat pumps. Nine homes at Horfields will be built to Passivhaus standards. Heat decarbonisation implementation should accelerate at pace as Bristol City Leap activity starts.

The forthcoming Bristol Local Plan will be critical in shaping the location and delivery of new buildings. BACCC recommends that the Local Plan gives careful consideration to the likely impact of a changing climate on the allocation of land for development as well as building design. We note that BACCC was consulted on, and provided input to the development of the next Bristol Local Plan, and offers to continue to provide expert input as the plan develops further.

**Objective 2: The energy performance of existing buildings in the city is improved to minimise heat demand, whilst preventing overheating, through tailored retrofit solutions.**

Data are required to assess the post pandemic baseline and scale of the remaining task. It is unclear if the Environment Board or Homes Board are collecting data on good practices and sharing lessons on retrofit solutions. Further work can be done to explore how patterns of ownership (in terms of private rental, homeownership, leasehold, or social housing) can influence the energy performance of existing buildings in the city, as well as potential retrofitting policies. Bridging understandings between patterns of ownership and retrofitting policy would assist potential plans to address energy injustice in the city.

The minimum energy efficiency standards, with a minimum Energy Performance Certificate (EPC) rating of E for rented accommodation, needs to be enforced, and resources assigned into investigating more creative reporting by landlords.

The council is delivering grant funded programmes installing energy efficiency measures and low carbon heat for low-income homes via a number of schemes. These include the Bright Green Homes programme (£2.4 million to install 426 energy generation and efficiency improvements to 232 low-income owner occupier properties, including solar panels, underfloor, loft and cavity wall insulation), Energy Company Obligation (ECO) delivery and Home Upgrade Grant delivery (£850k).



*Image credit: Bristol City Council*

Objective 3: All key stakeholders (with a focus on building owners and operators) work together to prepare and adapt our current building stock for future climate hazards.

This objective is general in scope. Consideration should be given to identifying the key stakeholders and convening them with a clearly defined purpose and action.

### Summary of city progress: buildings

The launch of the City Leap Energy Partnership joint venture, with an initial £424 million of private finance and an expected £1 billion of investment, will accelerate action to deliver low carbon energy infrastructure to reduce emissions from Bristol's buildings - initially focused on the council's own estate. How to reduce emissions from privately owned properties and the rental sector is a challenging problem, and the solution probably lies with a national program and

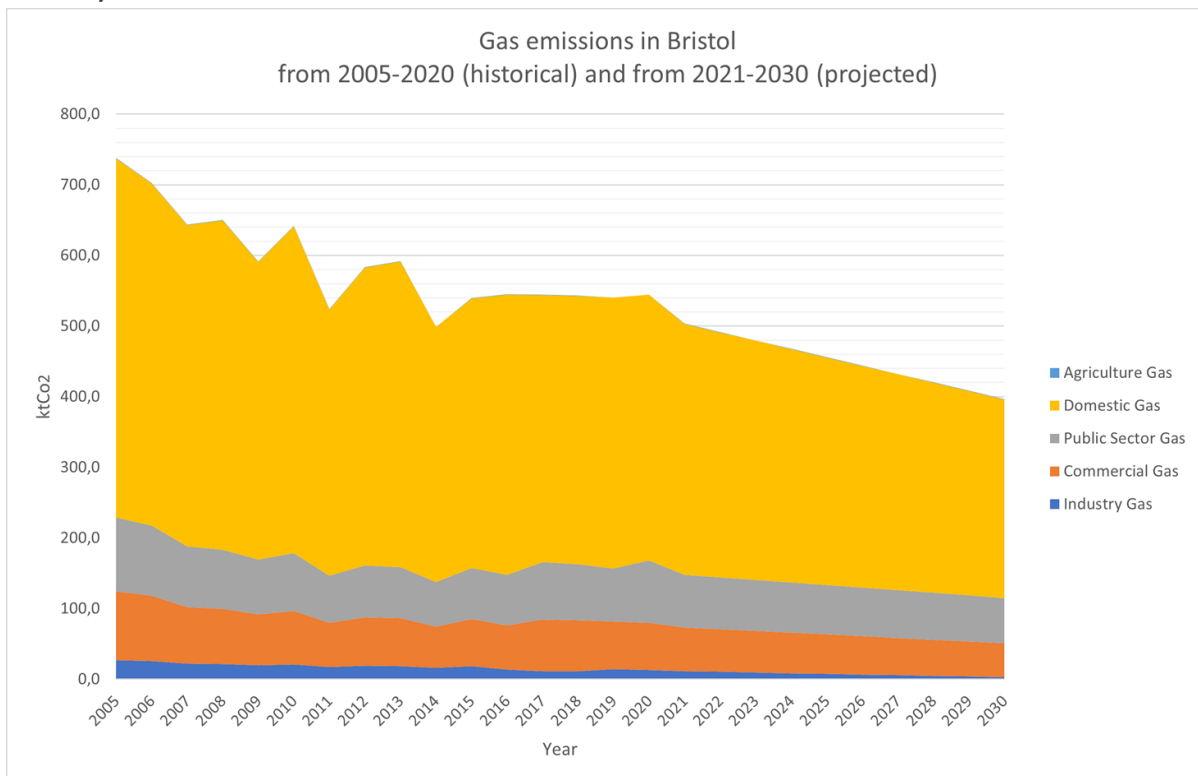
legislation. There is an opportunity to improve building standards through the new Local Plan, but the ability of the local authority to enforce the construction of new carbon neutral buildings is constrained by national legislation and the building regulations. A carbon neutral and climate resilient Local Plan is critical to the delivery of this theme.

## Buildings RAG assessment: Amber

### 3. Heat Decarbonisation

Goal 1. Bristol will have to implement carbon neutral forms of energy for heating and hot water for all by 2030.

Figure 8. [Greenhouse gas emissions related to the use of natural gas in both the domestic and non-domestic sectors in Bristol from 2005 to 2020](#) (BEIS, 2022) with linear projection to 2030 (Bui, 2022)



The BEIS emissions data for the Bristol area (Figure 8) show that emissions from gas remained broadly consistent between 2017 and 2020, although reductions in emissions from domestic gas

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use did occur prior to 2015. The future continuation of trends illustrates the challenge of progress in this theme, especially given accessibility and affordability of zero carbon heating options.

This is one of the areas that will be supported by Bristol City Leap, a radical new approach to delivering energy infrastructure in Bristol, for example through large scale heat networks with heating produced from ground, air and water source heat pumps. BACCC assumes that City Leap will now be the lead party to deliver this goal. BACCC is keen to see the plans and ambitions of the City Leap joint venture so that we fully understand the opportunity that City Leap provides to decarbonise heat.

National actions under the UK Net Zero Strategy (NZS) will play a significant part in achieving the aim of this theme. Quantification of this impact and the residual effort needed requires analysis. National efforts to decarbonise the energy system support this goal and will do much of the heavy lifting for the emission reduction task but there will remain a residual that will require local action to abate emissions.

**Objective 1: Individual electric heat pumps installed in ~95,000 buildings which have been well-insulated to support the phase out of gas heating in Bristol.**

There are approximately 300 heat pumps installed in Bristol as registered on the Microgeneration Certification Scheme, but the exact number of heat pumps in the city is unknown.

The national schemes have, at the time of writing, not produced the scale of installation required. It is also noticeable that supply chain constraints exist. BACCC suggests that there are bodies in the city who, through collaboration, may be able to drive demand and help increase delivery. The Bristol based Centre for Sustainable Energy has successfully convened the supply chain stakeholders to better prepare the city for the large-scale deployment of low carbon heating, as part of their One City Climate Strategy 100 days challenge to organisations to step up to lead delivery themes.

Can the city develop imaginative collaborative schemes, such as green bonds or other collaborative mechanisms that can contribute to meeting the installation and insulation task?





*Image credit: Julien Goettelmann*

**Objective 2: 65,000 buildings connected to heat networks to support the phase out of gas heating in Bristol.**

There are currently 1,000 buildings connected to the heat network supplying heat to around 2,000 homes and flats although it is unclear as to the current rate of connection and thus the scale of the remaining task. Connections might be expected to increase as City Leap becomes fully operational, the Castle Park water source heat pump (drawing heat from Bristol Harbour) supplies heat, and plans to pipe heat from Avonmouth/Sevenside become realised.

Bristol City Council is working with partners on a project funded by BEIS to test the deployment of heat pumps at high density in one neighbourhood of the city to see if this can increase uptake, reduce costs and help understand the impacts on the grid.

### **Summary of city progress: heat decarbonisation**

The launch of the City Leap Energy Partnership joint venture, with an initial £424 million of private finance, and an expected £1 billion of investment, will rapidly accelerate progress across this theme, initially focused on the city council's own estate. The heating of privately owned homes and

businesses remains a ‘wicked’ problem, and whereas the expansion of the heat networks offers the opportunity to rapidly decarbonise heat, the lack of the policy levers to ‘force’ buildings to connect to the network will be challenging.

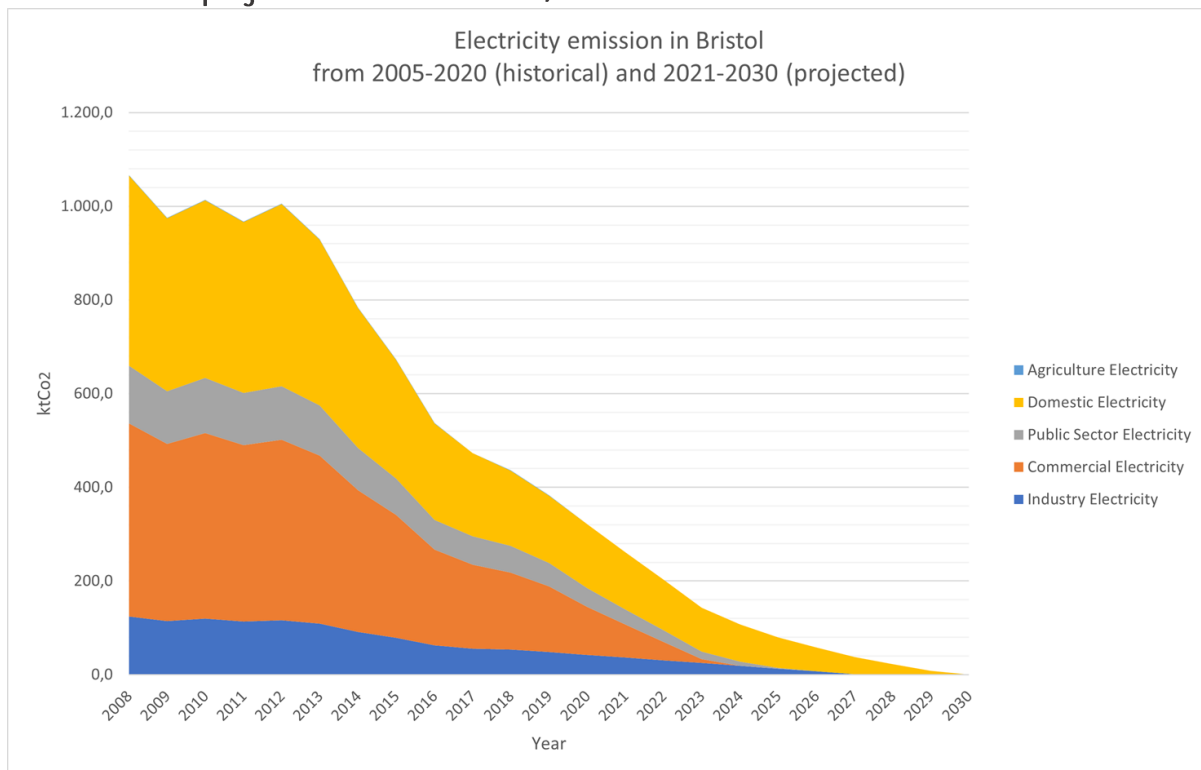
## Heat decarbonisation RAG assessment: Amber

### 4. Electricity

Goal 1: All electricity supplied to and generated in Bristol will be carbon neutral (taking into account the anticipated 50% increase in demand by 2030).

Goal 2: We will have an electricity system that is resilient to a changing climate .

Figure 9. [Electricity sector greenhouse gas emissions in Bristol from 2005 to 2020](#) (BEIS, 2022) with linear projection to 2030 (Bui, 2022)



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Electricity emissions have declined considerably between 2015 and 2020, although at a slower rate between 2017 and 2020 - see Figure 9 (BEIS 2022). Projections continuing current trends indicate emissions from the domestic sector will become the largest source and require further action to accelerate decarbonisation.

National action to decarbonise the grid supports this goal although current energy supply challenges may lead to some renewal of coal combustion. The City Leap activity and further action under the national Net Zero Strategy will support this theme. These actions need to be quantified with remaining challenges highlighted and a coordinated city-wide delivery plan cohered. The council is providing grants for local community energy projects and supported the development of [England's largest on-shore wind turbine in Lawrence Weston](#). The Bristol Energy Network which includes the Bristol Energy Cooperative and a range of partner organisations, are pushing this agenda, even if they are not well placed to lead on the delivery.

Data on system resilience improvements are required in order to assess progress with this goal. National Grid, formerly [Western Power Distribution](#), may be able to provide such data. The 2022 summer heat wave will provide important evidence on the resilience of the supply system and indicate where priority for enhancement lies, for example see [How we protect the electricity network in extreme heat | National Grid Group](#).

**Objective 1: Decarbonisation of the national grid will be supported by the extensive adoption of smart electricity solutions in Bristol.**

Data on adoption of smart electricity solutions are required to assess progress with this goal.

**Objective 2: Renewable generation within the city will be maximised, including approx. 350MW solar.**

Data on current photovoltaics (PV) installation capacity and annual rate of increase are required to assess progress with this goal. The development of a water source heat pump is an important symbol of progress. Can the city develop imaginative collaborative schemes, such as bulk purchasing schemes, green bonds, or other collaborative mechanisms, that can contribute to accelerating PV installation at the domestic scale?



*Image credit: Bill Mead*

Objective 3: The local electricity network is reinforced, managed more smartly and made more resilient to accommodate increased demand.

Data on local grid enhancement are required in order to assess progress with this goal, again National Grid may be able to provide the required information. Equally, the underlying assumptions on the demand increase expected over the period to 2030 need to be understood in order to assess the suitability of action to meet this objective. Important in this will be the assumed effect of energy efficiency measures.

### **Summary of city progress: electricity**

Again the launch of the City Leap Energy Partnership joint venture, with an initial £424 million of private finance and an expected £1 billion of investment, will rapidly accelerate progress across this theme initially focused on the city council's own estate. The Lawrence Weston 4MW turbine demonstrates the potential for a step change in the scale of community energy and the Bright Green Homes programme is installing solar PV for low-income households. There is however a lot more potential for the expansion of renewable energy generation in the city.

### **Electricity RAG assessment: Amber**

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## 5. Consumption and waste: responsible buying of goods and services, alongside zero carbon from waste management

Goal 1: Bristol will generate no carbon emissions from waste management.

Waste management is a relatively small source of city carbon emissions. Data on current contribution and efforts being undertaken to minimise and eliminate carbon emissions in waste management are required. Bristol Waste could coordinate this theme. If human waste is included within this goal, then Wessex Water should share responsibility.

Goal 2: Bristol will be recognised as a city of responsible consumption, buying goods and services that are carbon neutral, and reducing our exposure to climate hazards in the supply chain.

This is a very general goal for which KPIs are not specified. Bristol is generally thought of as a city that takes sustainability seriously but to what extent are purchased goods and services contributing to carbon neutrality? Data on post pandemic consumption patterns are required to assess progress and to plot a pathway to a carbon neutral 2030.

A wide range of partner organisations, many convened as the Waste and Resources Action Group (WRAG) coordinated by Bristol Green Capital Partnership, and including Bristol based Resource Futures are actively promoting this agenda. Severnet are leading on much of the thinking around the circular economy in the industrial area. Waste is a key priority of the council, however the expected new waste strategy has been delayed.

Objective 1: Bristol's retail economy has transitioned to high quality, durable products that can be easily repaired.

This is a very general objective addressing the retail sector for which KPIs are not specified. It is unclear what percentage of the retail economy meets this objective. The British Retail

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Consortium's Climate Action Roadmap will provide some insights on the sector's climate ambitions, but the high street retail sector is experiencing substantial difficulties with large chains and small retailers closing. The BIDs in Bristol could be engaged to support this objective.



*Image credit: Ceilidh Jackson - Baker*

**Objective 2: Everyone follows principles of responsible consumption, using and buying less and buying carbon neutral goods and services.**

This is a very general objective for which KPIs are not specified. Data to establish the post pandemic baseline are required from which a pathway and supporting actions to 2030 might be plotted. The impact on emissions should be quantified.

**Objective 3: Significant levels of waste reduction (particularly for food, textiles, and plastic).**

What does significant mean here? Post pandemic baseline needs to be established from which a pathway and supporting actions to 2030 might be plotted.

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## Summary of city progress: consumption and waste

The upcoming waste summit and the waste strategy may address the waste part of this theme, but consumption remains a difficult area to tackle. Bristol has a great many micro initiatives and organisations active around this theme, but the complexity of tackling consumption challenges what the role of a city is. WRAG as a network brings many of these organisations together, but there is little capacity to create a plan to tackle the consumption aspect of this theme. Bristol Waste, Bristol City Council and the commercial waste companies have a larger role to play in delivering the waste aspect of this theme. [Bristol domestic waste recycling rates are high](#), but there is a substantive gap between the One City Plan objectives and current rates.

## Consumption and waste RAG assessment: Amber

### **6. Business and Economy: Bristol businesses move to be carbon neutral and climate resilient, capturing job opportunities for all through the transition**

As with a number of other themes, national actions under the UK's Net Zero Strategy and the Third Climate Change Risk Assessment will play a significant part in achieving the aim of this theme. The effect of the national strategy on Bristol requires quantification which, in turn, will reveal the residual amount requiring focused local action. A good number of Bristol businesses have committed to a 2030 net zero target, are signatories of the [Climate Ask](#) and the more advanced businesses are members of Bristol Green Capital Partnership's [Climate Leaders Group](#).

**Goal 1: Bristol's businesses will be carbon neutral and climate resilient.**

As with other themes there is no delivery plan for the Business and Economy theme. A number of agencies provide advice, including [Business West](#) and [Future Leap](#), all of whom are supporting business transition to a low carbon future. The Environment Board, working closely with the Economy Board, might explore how greater coordination of advice and information could be provided. [Bristol Green Capital Partnership's Climate Action Programme](#), including the Climate

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Leaders Group, offers support to businesses and provides opportunities for them to share good practice and tackle common challenges. The Environment Board should give urgent consideration to how this successful scheme can be scaled up and offered to a much larger share of the Bristol business sector. The [Climate Ask](#) provides another group of climate pledges from businesses that can be used to enhance and extend real engagement in decarbonisation.



*Image credit: Martyna Bober*

Goal 2: Bristol will have a strong carbon neutral, and climate resilient economy, maximising on the opportunity from the transition.

As with other themes there is no delivery plan for the Business and Economy theme. There are however many organisations providing advice, support and engaging Bristol businesses to reduce emissions including Business West, Future Leap, Bristol Green Capital Partnership, Action Net Zero, North Bristol Suscom, Severnet, Business in the Community, the Federation of Small Businesses, Better Business / Bristol 24/7, City Funds, Bristol & Bath Regional Capital, the



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Energy Savings Trust, Redcliffe & Temple Business Improvement District, Climate Action Bristol, the University of Bristol, the University of the West of England, YTKO, the Southwest Net Zero hub, West of England Combined Authority, Travelwest and Bristol City Council. Further coordination and collaboration within this network of networks would be desirable. The Environment Board could explore how greater coordination of advice and information could be provided. BACCC suggests that there may be a bigger role for the Economy Board in this space.

**Objective 1: All businesses and organisations in Bristol are carbon neutral (direct and supply chain emissions) and will annually record and measure scope 1, 2 and 3 GHG emissions in accordance with the Greenhouse Gas Protocol.**

Data on the current baseline are required and an estimate provided on the size of the remaining task. The BEIS data on territorial emissions include commercial and industrial emissions covered by Scopes 1 and 2. Very few businesses, unless following the Greenhouse Gas Protocol, will report Scope 3 at present. Automatic carbon footprinting techniques are becoming available to estimate Scope 3 emissions. It should be noted that Scope 3 is a problematic area to quantify. Consideration should be given by the Environment Board as to how businesses can be supported to develop the capacity and capability to calculate Scope 3 emissions. The Bristol Green Capital Partnership led Climate Leaders Group may be a useful resource to call upon. BACCC thinks it would be useful to maintain a public list of those Bristol businesses that have made a commitment to become net zero by 2030 and to include regular updates on progress.

The Environment board and the Economy and Skills board have launched an active ask for all Bristol businesses and organisations to support the city's 2030 ambition via the [Bristol One City Climate Ask](#). Of the 18-20,000 businesses and organisations in Bristol, approximately 75 have done so, with considerable overlap with the 30 members of the Climate Leaders Group. Other businesses have made similar national declarations, e.g. by becoming BCorps, and there are an estimated 200 businesses and organisations that have climate ambitions that are compatible with the One City Climate Strategy goals.

A number of sector-based initiatives have been convened by specific businesses to support others in reducing emission, notably Bristol Brewers convened by Wiper & True, Bristol Lawyers convened by the Bristol Law Society and similar initiatives in the cultural sector convened by the

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Watershed and the Natural History Consortium, amongst architects, tourism and the Night Time Economy.

**Objective 2: All businesses (especially those with high GHG footprints) are supported in the transition to carbon neutrality to ensure that Bristol's economy is diverse. This will include training, engagement, management and operation support.**

There are a number of local schemes including Bristol Green Capital Partnership's [Climate Action Programme](#) and Business West's [Trading to Net Zero initiative](#) providing business support. The scale of business uptake is unclear. National business support schemes include the [UK Business Climate Hub](#). Business sector schemes include the British Retail Consortium's Climate Action Roadmap (2021) or MAKE UK's (2022) manufacturing sector road map. It is unclear how these, and other sector specific schemes, are engaging Bristol businesses. The net zero challenge facing the UK's industrial sector has been reviewed by DeVito and Hayes (2021) with significant obstacles to progress identified in many cases. WECA has developed a number of schemes to support SMEs undertaking energy-saving improvements to their buildings and business operations. These [grants are modest in size](#).

Training and skills development is a necessary enabler of the net zero transition. The UK Green Jobs Task Force reported in 2021 outlining the current state of preparedness and the actions necessary to move forward in skills development. Locally, WECA commissioned Ecuity to provide a market analysis of the retrofit skills base (2021a) and green skills (2021b). These reports provide a blueprint for targeted action to enhance training and skills development alongside information campaigns to support awareness of the green jobs market.

**Objective 3: Businesses improve resilience to climate hazards through collaborative organisational strategy, planning and operation. Provision of services to the most vulnerable in society is prioritised.**

Data on the number of businesses engaged in climate resilience planning and implementation are required to assess progress. It is unclear what progress has been made in identifying the most vulnerable and prioritising service provision planning for future and current climate hazards. The impact of the 2022 summer heat wave will provide important evidence of how

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service provision for the most vulnerable has played out in practice. As this information becomes available the Environment Board should ensure that these lessons feed into the delivery plan for this and other themes. The ONS has some national statistics on businesses that assess climate risks ([Business insights and impact on the UK economy: 7 April 2022](#)).

**Objective 4: Bristol builds on its leadership position, attracting businesses at the forefront of the green revolution and developing an eco-innovation cluster, and providing access to these jobs to a diverse group of citizens.**

There is good evidence of Bristol being seen as a city climate leader including participation in the [Horizon Europe Climate Neutral and Smart Cities Mission](#). Information on the development of eco-innovation cluster is required to assess progress with this objective.

### **Summary of city progress: business and economy**

The wide range of activities, organisations, and networks actively engaging businesses to reduce emissions is promising but the challenge of how the 18-20,000 businesses operating in Bristol reach net zero by 2030 is immense. In the absence of the power to compel change, or substantive funding to support businesses to reduce emissions, then business action depends on a voluntary commitment from busy businesses in difficult economic times. The Climate Leaders Group and Bristol Climate Ask are strong initiatives but have limited reach.

## **Business and economy RAG assessment: Amber**

### **7. Public, voluntary, community and social enterprise services**

**Goal 1: Our city will lead the way with carbon neutral public, voluntary, community and social enterprise services and supply chains.**

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Goal 2: Public, voluntary, community and social enterprise (VCSE) services in Bristol will be prepared for future climate conditions and hazards.

National actions under the UK's Net Zero Strategy and the Third Climate Change Risk Assessment (CCRA3) will play a significant part in achieving the aim of this theme. In order to assess progress metrics for adaptation and resilience would be helpful.

A wide range of activities and enterprises are engaged in low carbon activities and demonstrating leadership e.g. the [Community Climate Action Project](#). Further coordination of activities is required, and Bristol Green Capital Partnership may be best placed to do this.

Objective 1: All public and VCSE service organisations in Bristol are carbon neutral (direct and supply chain emissions) and will annually record and measure scope 1, 2 and 3 GHG emissions in accordance with the Greenhouse Gas Protocol.

An estimate of the post pandemic baseline is required in order to assess progress and distance to travel. Bristol City Council has [made good progress](#) organisations for example the NHS Trusts (see [Bristol's NHS Trusts tackling climate change together](#)) and the universities (see [Carbon, energy and water management - Sustainability | UWE Bristol](#) and [Climate Emergency | Sustainability | University of Bristol](#)). BACCC suggests that it would be useful to have a public register of Bristol businesses that have set a 2030 target.

Objective 2: All public and VCSE service organisations (especially those with high GHG footprints) are supported in the transition to carbon neutrality to ensure that access to services are protected for Bristol's citizens. This will include training, engagement, management, and operation support.

Data on training offer and capability to meet the size of task are required. WECA is supporting a number of training schemes, but these are relatively small in scale. The higher and further education sectors provide various forms of support for the development of the local green economy, but these are not always visible to those who might engage with the opportunities. Hence there is a need to enhance their visibility to potential users. The Climate Action Programme and Climate Leaders Group are supporting organisations to make low carbon and climate resilient

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plans. Many organisations that are large emitters have joined e.g. the NHS Trusts, universities but others have only national not local plans and are not engaging well locally e.g. supermarkets, Amazon. The Community Climate Action Project is supporting local communities to develop their own climate action plans and start taking action, and has [secured further funding](#) in September 2022.

**Objective 3: Public and VCSE service organisations improve resilience to climate hazards through collaborative organisational strategy, planning and operation. Provision of services to the most vulnerable in society is prioritised.**

Data on the number of VCSE and public bodies engaged in climate resilience planning and implementation are required to assess progress. It is unclear what progress has been made in identifying the most vulnerable and prioritising service provision planning for future and current climate hazards. An analysis of the response to recent heat waves, floods and droughts would be helpful to assess progress, best practice, and planning.

**Objective 4: Bristol's public and VCSE sector will build upon its leadership position, sharing lessons from its earlier transition with other organisations in the city.**

Good examples of sharing lessons and opportunities especially through the Community Climate Action Project, Climate Action Programme and Climate Ask.



*Image credit: Bristol Green Capital Partnership*

## Summary of city progress: public, voluntary, community and social enterprise services

Similar to the business theme, the wide range of activities, organisations and networks actively engaging public and VCSE organisations to reduce emissions is promising, but the lack of funding for such is challenging. The NHS (especially the two hospital trusts), the University of Bristol, the University of the West of England and other anchor institutions are leading the way with robust carbon action plans, increasingly strong procurement policies to address scope 3 emissions, and collectively taking a leadership role across a range of city wide climate forums and initiatives (including the BACCC and the Environment Board). Avon Fire & Rescue and Avon and Somerset Police are investing in electric vehicles and decarbonising their operations, but smaller community organisations will need additional support, capacity building and funding. Bristol Green Capital Partnership's Community Climate Action Project, funded by the National Lottery, is a strong pioneering initiative that is expanding through a second phase of funding, but additional finance is needed to deliver the community climate action plans.

## Public, voluntary, community and social enterprise services RAG assessment: Amber

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## 8. Natural Environment:

Goal 1: The natural environment in Bristol will be restored, protected and enhanced to deliver climate change benefits.

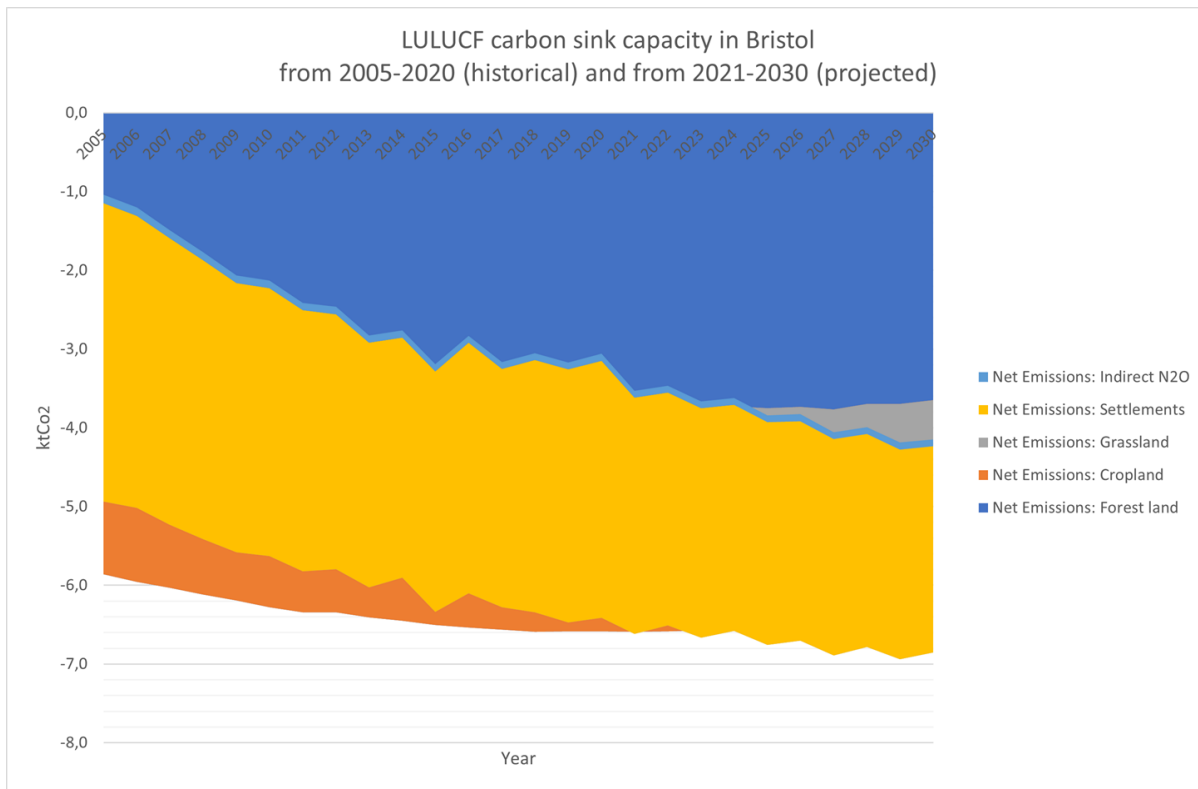
Goal 2: As the climate changes, we will adapt to limit damage to wildlife, whilst supporting opportunities for recovery and protection of species.

While the [One City Ecological Emergency Strategy](#) can contribute to this goal, it is important to remember the focus of nature-based climate mitigation and adaptation is not always the same as that of the ecological emergency. The city's Ecological Strategy and the Climate Strategy need to be considered in tandem to identify and maximise co-benefits and minimise trade-offs.

Coordinated discussions and actions will be needed to enhance the ambition of both strategies in tandem. The delivery of the Ecological Strategy is being coordinated by the Natural History Consortium and Avon Wildlife Trust, and the council has published its [Ecological Emergency Action Plan](#).

The impact of the UK's Net Zero Strategy, the Third Climate Change Risk Assessment (CCRA3), the National Adaptation Plan and Defra plans for Environmental Land Management Schemes ([ELMS](#)) will need to be assessed and quantified in relation to achieving the aim of this theme.

Figure 10. [Land Use, Land-Use Change and Forestry carbon dioxide net removals from 2005 to 2020](#) BEIS (2022), with linear projections to 2030 (Bui, 2022)



The city of Bristol only covers 235.4 km<sup>2</sup> and the opportunity within the city to enhance carbon sinks through nature enhancement is limited. Figure 10 shows that net sinks in forest land in Bristol have changed very little between 2017 and 2020 whilst net emissions from croplands have declined. The One City Plan includes a goal to double tree canopy based on a 2012 baseline. Bristol City Council Parks department is currently undertaking modelling to find out how this could be done optimally in a way that provides multiple co-benefits including heat resilience and wellbeing enhancement.

**Objective 1: All new developments use appropriate blue and green infrastructure to protect from future climate events whilst also providing ecological net gain and enhancing the sequestration potential of all developments.**

A reporting mechanism is required to record both gains and losses in blue or green infrastructure as part of new developments. It should be recognised and clarified that cutting trees or replacing nature in one place, and planting or establishing reserves in another, are not necessarily equivalent in terms of carbon or biodiversity loss/capture/enhancement.



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Objective 2: The city's natural environment (including canopy cover and biodiversity) has been restored, preserved and enhanced to maximise carbon sequestration in carbon sinks, climate resilience and health and wellbeing.

It is necessary to establish a baseline and targets to assess progress against. The delivery plan needs to include specific and measurable targets such as the intention to [double the size of Bristol's tree canopy](#) by 2046. The council is [planting some 9,000 trees per year](#). Consideration needs to be given to areas of natural environment that extend across municipal boundaries to ensure that appropriate management and enhancement occurs either side of the boundary.

Objective 3: Everyone lives and works within a 10-minute walk of a quality green space with sufficient tree canopy cover to provide refuge for citizens during climate change induced extreme heat conditions.

Data is required to assess progress towards this target, as well as clarification of what would be regarded as "sufficient tree canopy cover".



*Image credit: Ceilidh Jackson - Baker*

Objective 4: Bristol businesses and organisations are wildlife friendly by providing habitats, bird boxes or sponsoring the development of green infrastructure in an effort to recover wildlife lost as a direct result of climate change or urbanisation.

A plan is needed to bring businesses and organisations on board, clarify the scale of actions expected, and how the data will be captured and shared. For example, how many enterprises have declared an ecological emergency, and how are their actions being captured and shared?

### **Summary of city progress: natural environment**

This theme is lacking an action plan. Coordination with the ecological emergency action plan is needed to maximise synergies and minimise trade-offs between these nature-based solutions. Coordination could be carried out by the coordinators of the ecological emergency plan, but it is essential that climate mitigation and adaptation targets stay central if this is to happen. Baseline data and clear targets are lacking. We recognise the limited potential for land-based mitigation

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within Bristol land boundaries, but the potential multiple co-benefits of some types of adaptation e.g. tree planting for shade, fruit, wellbeing, biodiversity.

## Natural environment RAG assessment: Red

### 9. Food

Goal 1: Bristol will have a resilient food supply chain that supports the city region's local food economy.

National actions under the Environmental Land Management Scheme (ELMS) and the Third Climate Change Risk Assessment (CCRA3) will play a significant part in achieving the aim of this theme and should be assessed as part of further reviews of progress.

While there is no delivery plan for this theme, [Bristol Food Network](#) has been commissioned by Bristol City Council to develop a Bristol Good Food 2030 Action Plan which may be a useful vehicle for implementing the goals and objectives of this theme. This includes working groups on different themes set up to create delivery plans and Bristol's Food Network may be an appropriate grouping to coordinate the implementation of the Food theme's goals and actions.

Bristol's [Gold Sustainable Food City](#) Award in 2021 recorded almost 2,000 positive food actions on the [Going for Gold/Bristol Bites Back Better](#) website alongside over 500 actions by businesses. At the time of the award over 10,000 households in the city were experiencing food poverty and that number is rising as the cost-of-living crisis unfolds.

Bristol hosts many supermarkets and their distribution centres. National supermarkets often have their own national sustainability plans in terms of food sustainability, supply chain resilience and carbon reductions. It is not clear how these plans will affect Bristol's local goals. We recommend discussions with some of the large supermarket chains.



*Image credit: Ramona Andrews*

Goal 2: People in Bristol will consume carbon neutral food and drink.

This goal is vague. The baseline is unknown, as is the consumption by different groups within the city's population. Some in Bristol will already meet the goal, with efforts by organisations, restaurants, and individuals. Data from supermarkets would be helpful, as well as engaging with them on local strategies for sustainable food and reduced waste.

Objective 1: Sustainable and low carbon food options will be available to everyone, respectful of all dietary and cultural requirements, in all future climates.

This is a well-meaning but vague objective. Data on the baseline and targets on the scale of progress is required. Coordination with supermarkets and other food suppliers will be essential.

Objective 2: Bristol city region specific carbon neutral, climate resilient food supply and distribution solutions will be implemented.

It is necessary to clarify what constitutes a Bristol specific solution.

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Objective 3: Urban food production potential is maximised for sustainable and resilient food production and is used as a mechanism for active community participation and education in food sustainability.

An assessment is required of the baseline for urban food production and its potential. It is essential to consider how this may impact natural environment goals and ambitions.

Objective 4: Our citizens will have a more plant-based diet, minimise food waste and support an increase in the market for sustainable and carbon neutral food.

While we suspect in Bristol there is a higher level of vegetarian, vegan and other sustainable food providers and consumption than in other cities, it is necessary to establish a baseline, as well as an assessment of the current market size for sales of sustainable food. An important consideration is the affordability of sustainable food for Bristol residents, particularly those increasingly relying on free school meals and food banks.

### Summary of city progress: food

While there is a lack of specificity of targets goals and objectives, several initiatives across Bristol are contributing to improved food sustainability. However, availability and accessibility of sustainable and affordable food is challenged by the cost-of-living crisis. There is potential to engage with national supermarkets in local delivery of this goal.

### Food RAG assessment: Amber

## 10. Infrastructure interdependencies

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Goal 1: Infrastructure investors, owners, operators and regulators will collaborate to improve the resilience of the services provided by our infrastructure systems to future climate change and extreme weather events.

Goal 2: Infrastructure investors, owners, operators and regulators will collaborate to develop and maintain infrastructure supports a carbon neutral Bristol across systems.

There is no delivery plan for this theme. This theme needs a coordinating body however it is recognised that the complexities of this theme involve a wide range of national, regional and local stakeholders, regulators, emergency services, every level of government and a wide range of public and private sector organisations and businesses. It is unclear as to who has the authority to convene such a coordinating body. Bristol City Leap will need to play an important coordinating role with infrastructure providers, such as water, sewerage, power distribution, highways, railways and telecommunications in order to build climate resilience and increase rates of system decarbonisation.

The UK's Net Zero Strategy and the Third Climate Change Risk Assessment (CCRA3) will play a significant part in achieving the aim of this theme and the precise contributions to achieving Bristol's goals needs to be assessed. The [Keep Bristol Cool](#) heat risk tool and local flood risk assessments will also be of use.

Objective 1: Our infrastructure is projected to deliver the needs of everyone in the city in even an extreme future climate scenario. Provision of vital services, such as water and sewerage is maintained in all but the most extreme circumstances

Water and sewerage services are covered by the utilities' net zero and resilience plans. See [Water UK's Net Zero 2030 Routemap](#), Wessex Water's [plans and ambitions](#) and Bristol Water's [Routemap to net zero carbon by 2030](#). The progress made in implementing these plans requires coordinated information and data from these organisations.

Objective 2: The extent and criticality of Bristol's infrastructure interdependencies is understood by all necessary stakeholders and used to optimise performance now and in the future.

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Clarity is needed as to who the necessary stakeholders are, the level of understanding needed by different stakeholders, as well as assessment of their current level of understanding. This is necessary before the actions needed to enhance awareness and drive forward progress can be assessed. It is not clear who will lead this work.

**Objective 3: We understand the risk extreme weather events pose across our infrastructure systems and collaborate to improve resilience.**

It is not clear who needs to understand and who needs to collaborate.



*Image credit: Chris Gallagher*

**Objective 4: Infrastructure stakeholders work together to develop cross sector, whole system carbon neutral solutions.**

Need to clarify who will coordinate this activity. Examples of current actions in other cities could be of benefit.

**Summary of city progress: infrastructure interdependencies**

While it is likely that the key infrastructure investors, owners, operators, and regulators etc have resilience and low carbon plans in place, it is not clear if or how these will be shared with different stakeholders (including BACCC) or who will lead any coordination and cross-sectorial efforts. Since some of these are essential services, a lack of resilience would pose a high risk to the citizens of Bristol.

## Infrastructure interdependencies RAG assessment: Red

### RAG summary

Theme	RAG assessment
Transport	Amber/Red
Buildings	Amber
Heat decarbonisation	Amber
Electricity	Amber
Consumption and waste	Amber
Business and economy	Amber
Public, voluntary, community and social enterprise services	Amber
Natural environment	Red
Food	Amber
Infrastructure interdependencies	Red





## Assessment of enabling conditions

Enabling conditions	Rapid assessment of the current state
Data and statistics	<p>As also <a href="#">identified nationally by the CCC</a>, considerable gaps in local understanding exist due to data limitations, as also identified nationally, many of which could be filled reasonably easily.</p> <p>The data and statistics that are available should be more easily accessible and communicated, including to the public, and where appropriate shared between bodies. It would be helpful if Bristol City Council and the One City Office collated and shared relevant data with BACCC and the boards, or made it clear what data they hold, what data they have access to (under what terms e.g. re. sharing), or what data may be accessible from other sources.</p> <p>A working group on evidence needs may be helpful as this could support progress across One City strategies with prioritising data requirements and availability. Discussions could also be had with the ONS, BEIS and the CCC as well as other cities to identify and prioritise requirements for sub-national data and statistics.</p>
Funding	<p>Despite some excellent recent progress regarding funding with City Leap and the Community Climate Action Project, local funding is inadequate for the scale and complexity of the change required. National investments in decarbonisation continue at pace but it is unclear how much direct investment for decarbonisation Bristol receives. Efforts to secure international investment by identifying opportunities at the scale required</p>

Enabling conditions	Rapid assessment of the current state
	by international capital continue. Funding for adaptation and resilience remains low in comparison to decarbonisation.
National action	The UK's Net Zero Strategy and its subordinate strategies for buildings, heat, hydrogen, transport etc set out the policy context for national action to 2050, a different time frame to Bristol's 2030 goal. However, the legal requirement of a 78% cut in territorial emissions by 2035 will, if secured, provide much but not all of the decarbonisation required in Bristol. As noted by the CCC, national actions for adaptation require further impetus to rise to the scale of the challenge. National actions may be affected by changing policy priorities and the cost of living and energy crises.
Skills	The skills requirement to train, develop or retrain workers to take advantage of the numerous job opportunities in a 'green' economy is significant. Financial support for 'green' skills is small in comparison to the opportunity. The work program of the Economy and Skills board is key here as well as WECA. There is encouraging work with UWE and City of Bristol College.
Engagement	There are good examples of engagement in the city with the Citizens Assembly, Climate Action Programme, Community Climate Action Project and Trading for Net Zero addressing domestic and business audiences. However, the scale and reach of these admirable schemes is small in comparison to the population of Bristol. The <a href="#">Bristol Climate Hub</a> shares stories from citizens, communities and businesses that are already taking climate action to inspire others to get involved. The <a href="#">Bristol Climate Ask</a> invites all businesses and organisations based in the city to declare an ambition to become net zero by 2030.

Enabling conditions	Rapid assessment of the current state
	Communication and engagement tools of this nature will become increasingly important to support citizens and businesses in the transition to a net zero, climate adapted Bristol.
Infrastructure	Utility and critical infrastructure providers include water, sewerage, power distribution, highways, railways and telecommunications. An urgent requirement exists to coordinate actions, to build climate resilience and increase the rate of system decarbonisation. BACCC notes that Bristol City Leap could take this role.

## Summary of progress

The One City Climate Strategy is an ambitious statement of intent by the city of Bristol to reduce its carbon emissions and build its resilience to a changing climate by 2030. The strategy was launched immediately prior to the pandemic and the expected actions have, of course, been delayed by this unprecedented public health crisis. However, it is clear from this assessment that progress to date has been insufficient to meet the ambitions of the One City Climate Strategy.

Only one of the ten core themes, heat decarbonisation, can be considered to be making progress at the scale and rate required to meet the 2030 target. In each of the other nine themes examples of good initiatives, such as the Climate Action Programme, the Climate Leaders Group, the Community Climate Action Project, the Climate Hub, Climate Ask, Gold Sustainable Food City Award and Trading to Net Zero, have been identified but admirable as these are, they lack the resources and do not operate at the scale needed to move the agenda forward at pace. Moreover the resources of local government are being constricted by the cost of living crisis and the rising

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costs of social care, inflation, energy costs and the post Covid impact on revenue. Alternative sources of resourcing for expanding these climate initiatives need to be identified.

National actions through the UK's Net Zero Strategy and its subordinate strategies for buildings, heat, hydrogen, transport etc set out the policy context for national action to 2050, a different time frame to Bristol's 2030 goal. However, the legal requirement of a 78% cut in national emissions by 2035 will, if secured, provide much but not all of the decarbonisation required in Bristol. Quantifying this residual carbon, its sources and rate of emissions, and developing the capacity and capability to remove it are urgent actions for the city.

National and local actions for adaptation require further impetus to rise to the scale of the challenge. The [Keep Bristol Cool](#) heat risk tool will allow identification of communities, buildings and infrastructure at higher risk from heatwaves and can assist in prioritising areas for adaptation action.

The One City Climate Strategy is not a delivery plan and does not plot the route to achievement. A series of delivery plans were anticipated to follow from the publication of the strategy which would plot the course to implementation. At present there are no delivery plans to deliver the goals and objectives of each theme. The strategy is intended to be owned and delivered by city actors, not just Bristol City Council and whilst the Environment Board holds responsibility for the strategy as part of the One City Approach, there is no clear leader identified for each theme who will bring together a group to develop the delivery plan.

A rapid assessment of the One City Climate Strategy's enabling conditions reveals that further actions are required to provide the underpinning for meeting the 2030 ambition.

A better understanding of best practice from other local authorities, governments and non-state actors including business leadership is required, including drawing on innovative policies implemented in other cities that have declared climate and ecological emergencies.

This review was completed before the publication of the Skidmore Mission Zero report. In its 2023 work programme BACCC will review this document to assess its implications for Bristol's decarbonisation and adaptation journey.



*Image credit: Mikey Harris*

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## Recommendations

1. We recommend an updated analysis of what national actions are expected to be delivered locally, on what timescale, and that the scale of the unabated, remaining greenhouse gases from Bristol emissions is quantified, taking account of the UK's Net Zero Strategy and Climate Change Committee (CCC) progress reports. Subsequently, the One City Environment Board can consider what additional actions may be required in order to eliminate residual emissions on the required time scale.
2. We recommend that city partners develop the Net Zero Mission approach and provide staff resources to enable it to develop City Climate Action and Investment Plans to secure further resources on the scale of Bristol City Leap.
3. We recommend an analysis of the recent impacts of the 2022 heatwave, drought, and flooding across Bristol, including how communities, individuals and organisations have coped as well as wider environmental effects. This should be assessed against UK Climate Change Risk Assessment (CCRA) recommendations to consider additional near-term actions and long-term goals to minimise climate vulnerability across the city.
4. We recommend that baselines, SMART targets and metrics for mitigation, adaptation and resilience be developed for the One City Climate Strategy to enable progress to be judged.
5. We recommend establishing a working group on evidence needs, to fully identify the significant data gaps that exist, and possible sources of data. BEIS (now the Department for Energy Security and Net Zero), the Office of National Statistics (ONS) and the CCC should be approached to explore how national data sets might be localised to Bristol, and to help improve provision of the necessary relevant sub-national data, including on changes in greenhouse gases by sector, and resilience.
6. We recommend enhancement of city-wide climate engagement activity to support awareness raising about decarbonisation and adaptation needs.
7. We note that the Nature theme of the One City Climate Strategy overlaps with the One City Ecological Emergency Strategy. We recommend that the Environment Board considers what alignment is needed between the two that maximises co-benefits and minimises trade-offs of nature-based climate and ecological solutions, such that the

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Ecological Emergency Strategy and its implementation plan could become the delivery plan for the Nature theme.

8. We recommend that the One City Climate Strategy be refreshed no later than 2025.
9. We recommend that the forthcoming Bristol Local Plan should give careful consideration to the likely impact of a changing climate on the allocation of land for development and on building design.
10. We recommend that the Transport Board consider the implications of the National Bus Strategy (DfT, 2021) for public transport provision in Bristol.
11. We recommend that the good work of the Bristol Green Capital Partnership Climate Action Programme and other business focused initiatives, which bring together a large number of businesses to share good practices and promote decarbonisation and resilience, be scaled up and offered to a much larger share of Bristol's businesses.
12. We recommend the establishment of a voluntary public register of Bristol businesses/organisations that have set an emissions target and whether this is for 2030 or some other year, have resilience plans and/or have declared an ecological emergency be established.





*Image credit: Krisztina Papp*

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# Appendices

## Appendix 1 – Current members of Bristol Advisory Committee on Climate Change (March 2023)

<b>Name</b>	<b>Role</b>	<b>Organisation</b>
<b>Members</b>		
Alice Venn	Lecturer in Law	University of Bristol
Alix Dietzel	Lecturer in Global Ethics	School of Sociology, Politics and International Studies (SPAIS) University of Bristol
Ben Smith	Associate Director, Climate Resilience	Atkins Global
Catherine Pettengell	Director / Independent consultant	CAN-UK and independent Climate Change Consultant
David Tudgey	Project Development Officer	Bristol Energy Network
Ed Atkins	Lecturer, School of Geographical Sciences	University of Bristol
Emma Jolly	Senior Sustainability Consultant	Hoare Lea
Gratsiela Madzharova	Lecturer in Project & Change Management	University of Bath
Hannah Giddings	Senior Advisor – Resilience & Nature	UK Green Building Council
Ian Townsend	Deputy Director – Environment	Office for National Statistics
James Peet	Principal Consultant, Sustainability	WSP



<b>Name</b>	<b>Role</b>	<b>Organisation</b>
Jon Sankey	Head of Business Development for Bristol Heat Networks	Vattenfall
Josh Bullard	Technical Director	Hydrock
Joshua Thumim	Head of Research and Analysis	Centre for Sustainable Energy
Laura de Vito	Senior Research Fellow: Air Quality Management Resource Centre	UWE Bristol
Lauren Blake	Lecturer in the School of Geographical Sciences / Board Director	University of Bristol / Bristol Food Network
Liz Parkes	Deputy Director Climate Change and Business Services	Environment Agency
Lucy Saye	Manager / Sustainability Board Chair	Deloitte / Institute and Faculty of Actuaries (IFoA)
Matthew Wood	Independent Energy Consultant	Energiesprong UK
Ola Michalec	Research Associate	University of Bristol
Rebecca Windemer	Lecturer in Environmental Planning	UWE Bristol
Sam Willitts	Head Of Sustainability for Integrated Care System	North Bristol NHS Trust
Simon Power	Director	Mott MacDonald
Sonja Oliveira	Professor in Architecture and Sustainability Design Innovation	University of Strathclyde

<b>Name</b>	<b>Role</b>	<b>Organisation</b>
Stephen Frost	Principal Research Fellow and co-head of Participative Research	Institute of Public Policy Research (IPPR)
William Clayton	Senior Lecturer in Human Geography	UWE Bristol
<b>Co-chairs</b>		
Jo House	Research Lead, Global Environmental Change theme, Director "Climate Change Science and Policy" Masters Programme	School of Geographical Sciences, Cabot Institute of the Environment
Jim Longhurst	Assistant Vice Chancellor, Environment and Sustainability Professor of Environmental Science	Faculty of Environment and Technology, UWE Bristol