

Bristol Energy Network

10 asks for a Smart Local Energy Revolution - Community Views and Plans for Bristol



1. Introduction

1.1. Aims and Objectives

This document has been prepared in consultation with the community energy groups and citizens of the city of Bristol. It outlines the energy communities' and citizens' views and inspirations for the future energy system of the city of Bristol.

We aim to use this document to:

1. Share our views with the wider Bristol community to engage everyone in the discussion of the future of our energy system and to inspire to action in moving towards that future;
2. Challenge the current and new leaders (within Bristol City Council and the West of England Region as a whole) to share our vision and to champion it through their policies, budget commitments, and city planning activities.

1.2. Context

This document has been written following the publication of the UK Government's 10 point plan and Energy White paper [1]. The UK Energy White Paper sets out support for 'smart local energy systems', these are defined as "community-based initiatives which bring together a range of energy issues, typically including heat, power and transport, to reduce emissions in an integrated way, while also promoting local jobs and businesses." We feel that this definition needs to be updated to ensure that smart local energy systems are democratic and accessible by all. This is our ambition for a smart local energy system in Bristol.

To provide a clear definition for these key terms within the context of this document:

- **Smart** implies both:
 - Digitally supported **technical solutions** for coordination of decision making across various energy resources in order to optimise their use, reduce waste, improve fault tolerance and recovery from failures, and support human users in their decision making for both efficiency and comfort.
 - **Smart users**, that is household and business users who are able to engage with and participate in delivery and use of the digital services enabled by the technology.
- **Local** implies geographically bound to the West of England or its sub-regions. Solutions could be delivered for a very small sub-region (e.g., a street) or the West of England Combined Authority (WECA) as a whole.
- **Energy System** refers to the totality of resources, services and solutions that address generation, storage, transmission, distribution, and use of energy and heat across various sectors (from traditional generation, to transport and mobility, energy efficiency measures in building and retrofit, addressing fuel poverty challenges, and more).

Examples of Smart Local Energy Systems are, for instance the demonstrator projects currently running in the UK through the Prospering From the Energy Revolution (PFER) programme:

- Local Energy Oxfordshire (LEO) [2] that shows how a competitive local energy marketplace can be enabled through smart local networks. The networks aim to support peer to peer trading and balancing of the supply and demand across the connected local resources for power, heat and transport.
- Superhub Oxford [3] demonstrates how smart, large scale local battery storage can help to smoothly match local generation and consumption needs, while working with the national grid to support electric vehicle charging and other additional needs.
- ReFLEX Orkney [4] demonstrates how excess of renewable energy can be utilised within a local grid. Orkney currently generates 1.3 times of its demand, and the demonstrator aims to provide a peer to peer trading platform for both local consumption of current generation (e.g., across heat pumps, heat storage, batteries, electric vehicle charging) and also for conversion of unused electricity into hydrogen for long-term storage and/or transportation to other localities.
- SmartHubs project [5] aims to demonstrate how a virtual power plant approach along with municipal heat networks can help to optimise energy resources across heat networks, storage assets, generation, and transport.

1.3 Bristol's Background

Bristol is home to a large and active community energy sector. It also has thriving environmental awareness as witnessed by the city's success in becoming European Green Capital 2015. Bristol Energy Network (BEN) has been working across the city region for over a decade. BEN represents over 20 local groups delivering a range of projects including energy generation, retrofit, smart technologies, energy storage, education, community engagement, behaviour change, training and skills. Many local community energy projects provide support to hard to reach groups and those in fuel poverty. The success of our community energy sector is clear, we are home to one of the largest community energy coops in the UK (Bristol Energy Cooperative with a generation capacity of 9.3MW). Bristol has also been a centre of community energy innovation, for example through developing a national model through Bristol Green Doors and developing innovative solutions such as the award winning [The C.H.E.E.S.E Project](#) which uses thermal imaging to identify where homes lose heat (winner of [Future Build Big Innovation Prize 2020](#).)

[Community Energy in Bristol continues to thrive in 2021](#) with the planning & funding secured for a hydro electric scheme on the river Avon by Bristol Energy Co-op and England's largest wind turbine being developed by Ambition Lawrence Weston, Ambition Community Energy C.I.C. However, while there is a huge appetite for action and change, this is often delayed or blocked by a lack of available financial support. The level of enthusiasm and skills within our community sector needs to be harnessed through policy action across a range of sectors. In doing so we must ensure that communities benefit from the move to NetZero.

This document sets out our key policy 'asks' for Bristol and the wider West of England Region. It brings together the voices of the community energy sector across Bristol to provide our recommendations on what is needed to achieve a smart local energy system that benefits our community and enables us to scale-up the action of our community energy sector, as well as delivering energy efficiency. For each of our ten policy asks we have provided suggested goals and opportunities as well as potential barriers and the resources

and policy changes that we feel are needed. While our 10 aims may be ambitious, such ambition is necessary if Bristol is to achieve its target of Netzero by 2030.

In order for this plan to be achieved, there are a number of prerequisites. Firstly, we need to be prepared to scale-up best practice examples of partnerships and network innovations already occurring in Bristol. We also need to lobby central government for policy change and greater support for community energy. There is a need for a robust smart data system including affordable internet accessibility and smart systems access for all members of the community especially those who are currently living in fuel poverty.

The more detailed summary of energy-focused projects and activities within Bristol is provided in Appendix C of the Bristol as a Smart Local Energy System of Systems case study [6].

Authors

This document has been produced by Bristol Energy Network on behalf of the network and our members. Thank you to the members who provided input and feedback into the document and to the authors: Ruzanna Chitchyan, Sophia Cockell, Rhianna Murgatroyd, Hannah Pankiw, Grace Spalton-Woods, Dave Tudgey and Rebecca Windemer.

2. Ten questions for a vision of a Smart Local Energy System in Bristol

Below we provide 10 key questions intended to guide the building of a common vision of Bristol's smart local energy system. Each question is supported with a body of examples and evidence of related practice and pilots across the world. These examples and evidence help us demonstrate how these questions have been addressed elsewhere, and also think about what similar or alternative solutions can be implemented in Bristol.

Community Energy

Q1: How can we grow and support our community energy sector to deliver a smart, local (community) energy system?

Analysis of current state in Bristol for Q1

<p>Goals: what should be done to address the question?</p>	<ul style="list-style-type: none"> ● Harness existing knowledge, skills and passion in local groups that have been working on the energy transition for many years. ● Provide greater support and funding for local community energy projects and groups. Potentially involving a new urban community energy fund, but ideally long term models of funding. ● Develop domestic community energy models of trading - involving local community energy generation and use. ● Provide increased partnership and collaboration around social value (for example through City LEAP programmes). ● Encourage BAME communities to participate in renewable/community energy projects. ● Increase connectivity between BCC and community energy groups, specifically in pre-planning stages. ● Use Community trust to engage community pilots to test new technology with low / zero carbon potential. ● Encourage engagement between business and community energy sectors to promote opportunities for collaboration and business support for local community energy projects e.g: <ul style="list-style-type: none"> - Businesses should pledge to support Net-zero targets and end fuel poverty and engage with community energy. - Businesses should engage with green champion rep opportunities i.e an energy champion for specific businesses to tie into the already existing Energy Champions programme. - Partnerships should form between businesses and community energy organisations to use buildings for rooftop solar. - Green rep champions; talking about community energy could continue to build relationships with unions so more community energy programmes and projects are promoted in the workplace.
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<p>Existing Opportunities for addressing the question in Bristol and WECA.</p>	<ul style="list-style-type: none"> ● City Leap and Community Energy Propagator group. ● One City Plan priority chosen for 2021/22 Goal 3 – Citywide activity launched to engage citizens on pathways to achieving Bristol's 2030 climate and ecological goals in the lead up to the Conference of the Parties (COP), with the Environment Board. ● Government funding for local authorities to deliver programmes that support decarbonisation. ● Rural community energy fund (for areas with populations of less than 10,000) https://www.swenergyhub.org.uk/energy-fund/. ● Naturesave provides funding for community renewable energy projects.
<p>Who is involved (currently)</p>	<ul style="list-style-type: none"> ● One City Environment Board. ● Bristol Advisory Committee on Climate Change. ● Business West / other business representatives. ● Community Energy England. ● Bristol City Council. ● Bristol Energy Network. ● Bristol Green Capital Partnership. ● Black and Green Ambassadors. ● TUC and other unions. ● Local businesses of all sizes. ● Cooperation with energy suppliers supplying the city (not just renewable).
<p>Potential Barriers</p>	<ul style="list-style-type: none"> ● While there is a huge appetite for action and change, setting up and running community energy projects is often delayed or inhibited by a lack of existing support mechanisms for community and the challenges of developing viable business models in the current regulatory and financial context. ● There are barriers to domestic community energy models of trading that need to be addressed and overcome. ● There is a lack of long term funding and consistent policy support from central government. ● Community structures / community energy groups have been given a lack of consideration or support in the recent UK Government energy white paper. ● There is a lack of engagement between businesses and community energy groups.
<p>Resources or policy change needed to achieve these goals</p>	<ul style="list-style-type: none"> ● Method of linking businesses and community energy organisations within Bristol, facilitating discussions and sharing examples of best practice. ● Policy and support to facilitate domestic community energy models of trading. ● An urban community energy fund or other long term funding. ● A resource to pool expertise on grant applications to support community energy groups. ● Accessible guidance on the evolving energy system and community energy opportunities for grass-roots organisations.
<p>Examples of solutions to Q1</p>	

[Good Energy and Community Projects](#) - Good Energy was the first UK energy supplier to offer a Local Tariff, helping local householders directly benefit from renewable generation in their area.

[BWCE and Carbon Coop - Flex Community](#) - BWCE (Bath and West Community Energy) is trialling a community approach to balancing supply and demand by utilising and refining smart technology designed by Stemy Energy in order to help householders install electric hot water heating, space heating and electric vehicle charging that can communicate with the electricity grid via smart technology. It also plans to combine households (together the 'Flex Community') to enable a collective response when the electricity grid requires demand to be turned up or down at specific times ('flexibility requests'), ensuring that householders retain control at all times so as not to compromise their comfort levels. It also allows them to explore the potential for income generation through providing flexibility services. This idea helps shift the emphasis from 'amount of consumption' to 'flexibility' of a consumer.

There are many benefits to this including that it has the potential to help reduce energy costs as well as generating income through the provision of flexibility, whilst increasing energy efficiency. Crucially, it also has the ability to reduce dependency on fossil fuel and allow more community organised energy to contribute to a localised grid which gives them more ownership over their energy transition.

Renewable Energy

Q 2: How can we ensure that more renewable energy is generated and community owned in Bristol?

Analysis of current state in Bristol for Q2

Goals	<ul style="list-style-type: none"> • Increase support for new community owned energy generation schemes. • Significantly increase rooftop solar both on domestic and commercial buildings. • Allocate locations for renewable energy across the city through a renewable energy plan. • Capture the value of energy locally. • Increase local ownership of energy assets. • Develop more microgrids to support community ownership.
Existing Opportunities	<ul style="list-style-type: none"> • EMPOWER Community - provides capital and management for community renewable energy and energy efficiency projects. This has mainly involved implementing solar PV on social housing. • MegaWatt Community Energy Fund Grant - Bristol Energy Cooperative and Low Carbon Gordano are providing grants up to £5,000 to increase awareness and empower communities in decarbonising and creating affordable energy systems. • The <i>Prospering from the local energy revolution</i> (PFER) programme is a 4 year Government funded programme of £102.5 million that looks to develop local smart energy systems and prove their use at scale to reach NetZero and create more affordable and resilient energy systems. • Ability to raise community funding - eg Bristol Energy Co-operative.

Who is involved	<ul style="list-style-type: none"> ● Planning team at BCC and WECA. ● Renewable energy specialists across the city. ● The SouthWest Energy Hub (WECA). ● Western Power Distribution - to provide capacity to connect new infrastructure; upgrading the system and supporting communities to connect; upgrading substations so there is more real-time visibility for renewable energy generators and domestic supply. ● Community Energy England. ● Centre for Sustainable Energy. ● Community energy co-operatives. ● Anchor organisations in Bristol such as Ambition Lawrence Weston & Lockleaze Neighbourhood Trust.
Potential Barriers	<ul style="list-style-type: none"> ● Infrastructure problems, the traditional power grid isn't ideally suited to renewable power sources. ● Availability of funding: <ul style="list-style-type: none"> ○ Difficulty in access to funding. ○ Lack of central government support, funding often stops and starts. ● Concerns for City Leap taking focus away from communities (however, also very good to have the investment). ● Democratic data, trust - how can we ensure City Leap maintains this? How could community energy play a role here?
Resources or policy change needed to achieve these goals	<ul style="list-style-type: none"> ● Long term export tariff guaranteed by WECA or SW Energy Hub or BCC. ● Subsidies for rooftop solar. ● Renewable energy plan at Bristol and WECA level providing a designation of sites for renewable energy and EV charge points. ● Funding and policy to provide EV charging points that provide revenue to local communities. ● Community energy groups should be invited to participate in any local trials for demand management, flexibility, peer-to-peer trading etc. ● Local authorities should work with existing community energy models to work out how they can support the ambitions of a local project. ● Greater engagement between business and community energy sectors to promote opportunities for collaboration and business support for local community energy projects.
<h2 style="color: green;">Examples of solutions to Q2</h2>	
<p>Distributed solar and local trading - Lockleaze loves solar.</p> <p>Facilitating wider take-up of solar PV for domestic households and local organisations (business model being tested by Lockleaze Loves Solar and other Next Generation groups).</p> <p>Low Carbon Gordano have been working in partnership with Lockleaze Neighbourhood Trust to develop a model for distributed solar and local trading in Bristol. They are aiming to develop a model that enables the local community to own and operate a 1 megawatt cluster of solar panels across 300 roofs in the city. The power generated from the solar panels will supply locally generated affordable energy to 300 households. This project will reduce costs for</p>	

households struggling with energy bills and help to create community assets. This is a model that can be replicated elsewhere.

[Swindon low-carbon economy](#)

The city of Swindon plans to develop a low-carbon economy by 2030. The municipal energy company (wholly owned by the city council) partnered in 2016 with a green investment platform called Abundance to co-finance two solar farms. For the first 4.8 MW solar plant, called “Common Farm”, the city was able to collect some £1.8 million from citizens in just two months (instead of the allocated three) and contributed the remaining £3 million. With adverts published in the local railway station and evening news, citizens were offered the opportunity to invest as little as £5.

[Netham Weir - Bristol Community Hydro](#) - Bristol Energy Cooperative

Bristol Energy Cooperative have raised enough funds now to support Bristol’s Community Hydro, which is planned to generate enough renewable electricity to power more than 250 homes, with a lifetime of at least 40 years. It will be able to generate approximately 900,000 kWh of electricity a year. The proposal saw a lot of support in its public consultation, and supporters are keen to get this up and running quickly to ensure that Bristol is that little bit closer to decarbonising the city. The hydro system will also be able to be used to help with the migration of some fish species and used to support their conservation.

Sustainably Heated Homes and building efficiency

Q3: a) How can we encourage take-up of energy efficiency measures in our homes (existing and future) to reduce heat demand?

b) How can our homes be supplied with heat from renewable energy sources?

Analysis of current state in Bristol for Q3

Goals	<ul style="list-style-type: none"> ● Rapidly accelerate the decarbonisation of heat through a fabric-first and ‘whole house’ approach with training involved. ● Put communities at the heart of retrofit, with a focus on addressing fuel poverty through sustainable heat sources. ● Develop a retrofit plan for both owner-occupied and rented homes. Moving away from reliance on EPCs to a built fabric assessment by thermal imaging with pressure reduction, as pioneered by Bristol’s C.H.E.E.S.E. Project. ● Address landlord/ homeowner information deficit. ● Create a visible portal to summarise options available. ● Develop a Green New Deal for existing gas boiler engineers to transition and be trained in air / ground source heat pumps. ● Develop heat networks - ensuring baseload is provided from genuine renewable sources, and for there to be a roadmap from the heat network
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	<p>designers to show how they will ensure that they are not relying on energy from waste. Doing so should involve:</p> <ul style="list-style-type: none"> ○ Exploration of mine water and local heat reserves. ○ Research on user cost, and reliability - eg the Local Authority communal boilers on estates and tower blocks (as a shared heat sources have a very poor record for affordability). ○ Connecting community buildings to the heat network.
Existing Opportunities	<ul style="list-style-type: none"> ● Expansion of Energy Trace® (C.H.E.E.S.E.) surveys to encourage 'First Retrofit' using DIY which can save a third of energy use at low cost (87% of those surveyed carry out retrofitting within 1 year). ● Development and delivery of Warm-Up, Skill-Up (WUSU). ● Further development of Social Value and the social economy. ● City Leap. ● UK Government opportunities: <ul style="list-style-type: none"> ○ The Government will launch a new Clean Heat Grant to encourage households to switch from fossil fuel heating to heat pumps, with details expected in 2022. This will build on the £3bn Green Homes Grant, launched as part of the government's "green recovery" plans and help pay for home upgrades including heat pumps, insulation and solar panels. ○ Energy Company Obligations (ECO)/Affordable Warmth Scheme - This is exclusively focussed on low income customers considered to be in vulnerable situations or living in fuel poverty, or in receipt of certain benefits (including disability, universal credit, child tax credit, income support etc). ○ Warm Homes Discount - single payment of up to £140 per household available between september and march, for people who receive Guaranteed Credit as part of Pension Credit or who are on a low income.
Who is involved	<ul style="list-style-type: none"> ● Housing associations/NGOs. ● Experts in the field - CSE (Futureproof), The Green Register, The C.H.E.E.S.E. Project. ● Landlords. ● BCC. ● WECA. ● South West Energy Hub.
Potential Barriers	<ul style="list-style-type: none"> ● Lack of skilled workers to implement retrofit plans - need to increase training opportunities for builders and contractors. ● Lack of access / awareness for developing new skills in whole house retrofit. ● Lack of funding to provide free Energy Tracing to those in Fuel poverty. ● Speed of action - rapid action needed.
Resources or policy change needed to achieve these goals	<ul style="list-style-type: none"> ● Create the commercial conditions to enable private investment to provide housing retrofit during 2020s. Including developing a local standard for building performance evaluation. ● Develop a retrofit plan for both owner-occupied and rented homes. Including an Energy Trace of every home. ● Funding for free energy tracing to those in fuel poverty, combined with Warm Up Skill Up (WUSU) first retrofit.

	<ul style="list-style-type: none"> • Develop a way of mediating conversations between tenants and landlords (housing association/NGOs) to facilitate more constructive conversations regarding making improvements to energy efficiency, whilst mitigating the risk of evictions. • Create resources to address landlord/ homeowner information deficit including a visible portal to summarise options available.
<p>Examples of solutions to Q3</p>	
<p>C.H.E.E.S.E. Project CIC , Bristol</p> <p>The C.H.E.E.S.E survey is employed as the first step for any domestic retrofit, it enables highly-targeted, fast payback, DIY-led 'First Retrofitting' which can save 30% of energy loss for a hundred pounds or so. Unlike the £10-20k needed for 'deep retrofit'. The figures speak for themselves: Two thirds of clients begin retrofitting within a month of survey. 87% within a year. It is trusted as it is community-led, popular, effective, has a fast payback and generates local employment and skills.</p> <p>The C.H.E.E.S.E project have developed their own survey protocol, Heatview® software, equipment, and customer interface. As all of the surveys are video-recorded, they already have a unique archive of faults in domestic buildings (including the almost universal national scandal of faulty dot-and-dab construction in new-builds). They have developed what amounts to a 'disruptive technology', capable of reforming the housing/retrofit industry.</p> <p>Affordable eco rooftop community in Bristol</p> <p>There is a Partnership between Emmanus and Agile Homes to provide 15 sustainable homes, of which 50% which will be at affordable rents.</p>	

Green Workforce

Q4: a) How can we employ and train a green workforce to deliver a smart local (community) energy system?

b) How can we ensure that the inequalities in our current energy system are addressed?

Analysis of current state in Bristol for Q4

<p>Goals</p>	<ul style="list-style-type: none"> • Develop a regional low carbon skills strategy, that includes consideration of the lower skilled members of society. • Develop a strategy for low carbon apprenticeships. • Longer term - everyone entering the workforce, irrespective of sector, should be equipped with skills and knowledge for the low carbon economy. There needs to be a strategy in place to ensure that this transition occurs in an inclusive way. • Ensure a continuous commitment to green jobs to ensure that local employers understand the immediate and long-term benefits of upskilling.
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	<ul style="list-style-type: none"> ● Address the digital divide in Bristol. Facilitate equal access for all through provision of affordable internet access.
Existing Opportunities	<ul style="list-style-type: none"> ● UK Government Funding opportunities (we need to make sure that our region is ready and makes the most of these): <ul style="list-style-type: none"> ○ New strategy for upskilling through the “Green Jobs Taskforce”, which will mainly focus on “<i>installers [to] retrofit existing buildings with energy efficiency and clean heat measures</i>”, and a National Skills Fund, to be launched in 2021. ○ Creation of green jobs with a £40 million second round of the Green Recovery Challenge Fund. ○ Increased incentives for apprenticeships in the latest budget.
Who is involved	<ul style="list-style-type: none"> ● BCC. ● WECA - has powers over spending on the region’s adult education. ● Business West / other business organisations. ● Ambition Lawrence Weston, colleges, Futureproof, The Green Register, people delivering training.
Potential Barriers	<ul style="list-style-type: none"> ● Awareness of funding opportunities. ● Inconsistent messaging to business about future needs.
Resources or policy change needed to achieve these goals	<ul style="list-style-type: none"> ● A regional low carbon skills strategy that includes consideration of the lower skilled members of society. This strategy should be produced through involving community organisations such as Ambition Laurence Weston and Heart of BS13 in order to understand the skills needs of those in low-paid jobs or struggling to find employment. ● A strategy for low carbon apprenticeships that is developed through involving community organisations. ● A longer term plan of how to facilitate low carbon skills and knowledge, particularly to the lowest skilled members of society. This should include paid training to improve inclusivity in the uptake of skills . ● The council should partner with community energy organisations to ensure that communities are involved in post-covid recovery plans.
<h3>Examples of solutions to Q4</h3>	
<p>Resource Futures- Working with South Hams District and West Devon Borough councils, Resource Futures and CSE introduced workshops for council members to help them envisage an action plan and positive steps to act on the climate emergency. This aimed to give them context to the reasons behind the declarations and present opportunities and challenges to help them work towards a low carbon future and be able to implement this knowledge within their everyday work.</p> <p>CSE also has a wider climate emergency support package for local authorities including an impact tool to help communities calculate their carbon footprint and climate emergency action days.</p> <p>Research on green jobs in the energy sector</p>	

- Edie’s research showed the energy industry needs to recruit 400,000 jobs between now and 2050 to get the UK to net-zero.
- While on the other hand, the London School of Economics estimates that over 6 million people have skills that will be affected by the transition to clean energy (representing 21% of current jobs), demonstrating the sheer impact of the shift involved and the scale of training needed.
- There is a need to engage with schools and raise awareness and inspire young people. E.g. National Grid has partnered with underrepresented talent specialists MyKindaFuture to encourage innovation in engineering and get more young people into STEM subjects.
- Apprenticeships are another way to develop a long-term workforce.
- How could Bristol help corporations target individuals from disadvantaged backgrounds?

[Green Influencers Scheme - CSE](#)

The Green Influencer scheme aims to inspire young people in Bristol and empower them to run social action projects in communities.

[Bright Green Future - CSE](#)

Bright Green Future is an environmental leadership programme for 14-18 years across the UK. To date, CSE have trained 191 young leaders through their programme of mentoring, training, qualifications, career webinars, and support to deliver their own local environmental projects. From 2021, Bright Green Future are predominantly recruiting young people from Black, Asian and minority ethnnc backgrounds to the programme, aiming to address the underrepresentation of minority groups in the environment sector.

[Futureproof](#), a market transformation initiative led by CSE aiming to stimulate low carbon retrofit in West of England by connecting homeowners and skilled building contractors. Other partners include The Green Register and Bristol Energy Network. Encouraging take-up of low carbon heat and energy efficiency, by facilitating installation for organisations and households in the community, by funding measures using community-shares and grants/incentives (where available), and by setting up ‘Pay as You Go’ or ‘energy service company’ (ESCO) arrangements for schools and community organisations (as being tested by [CREW Energy](#), [Chester CE](#), [Gloucestershire CE](#) and [Green Fox CE](#)).

NetZero Transport system for all

Q5: How do we transition to a NetZero integrated transport system that is affordable and accessible for all?

Analysis of current state in Bristol for Q5

Goals	<ul style="list-style-type: none"> • Reduce car dependency and promote active travel and public transport - ensure that travel is healthy, efficient, sustainable, safe and inclusive. This must include ensuring that active transport schemes don’t take space from or create challenges for disabled people. • Wider access for first and last-mile users ensuring all can access public transport.
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	<ul style="list-style-type: none"> ● Improved reliability and integration of public transport systems (bus to train etc). ● Increase car/ bike sharing programs. ● Invest in zero-emission public transport ● Facilitate Electric Vehicle (EV) charging points that provide revenue to local communities. ● Provision of grants to support disabled people who can't use public transport or engage in active transport to buy LEVs. ● Encouraging incentives for working from homes for those it is suitable.
Existing Opportunities	<ul style="list-style-type: none"> ● Opportunity from UK Gov - £4.2 bn on city public transport and £5bn on buses and active transport. Money to be spent on: redesigning franchise model (rail), rail electrification, integration of bus and train routes, integrated ticketing, bus lanes, zero emission buses, developing electric bus towns/city centres, new segregated cycle lanes, low pollution school streets, and low traffic neighbourhoods (LTNs). ● New Clean Air Zone in Bristol - can any funds raised from fines go towards community energy /transport projects? ● EV Charge points - Government Investing £1.3bn to accelerate the rollout of charge points for electric vehicles in homes, streets and on motorways.
Who is involved	<ul style="list-style-type: none"> ● BCC. ● WECA. ● Local Businesses. ● Sustrans. ● Business West. ● North Bristol Suscom.
Potential Barriers	<ul style="list-style-type: none"> ● Lack of public transport in most deprived areas of the city. ● People might still be nervous about the safety of public transport due to Covid-19. ● Some people can't / don't want to ride bicycles. ● EVs are still prohibitively expensive for many. ● Current lack of low carbon provision for disabled people. ● Very heavy traffic in the city centre / a lot of routes use the city centre.
Resources or policy change needed to achieve these goals	<ul style="list-style-type: none"> ● Strategy for increasing active travel in an inclusive way - encouraging behavioural change to walking and cycling. ● Increase car-free streets. ● Developing bike / car sharing programme. ● Increased cycle lanes and bike storage. ● Incentives from business to increase active transport from employees. ● Provision of grants to support disabled people who can't use public transport or engage in active transport to buy LEVs.
Examples of solutions to Q5	

[Evidence](#) suggests that reallocating street space away from private cars leads to improved street efficiency, meaning that streets can move more people. For example, the city of Copenhagen recently reported that the total number of people traveling across a main thoroughfare bridge increased following reallocation of the street space on the bridge. This was the result of reducing space for private motor vehicles and increasing space designated for walking, cycling, and public transport.

[REPLICATE project](#) developed an integrated travel planning app for corporate bike, electric car club vehicles, and electric taxi-bus in Ashley, Easton and Lawrence Hill.

[Nadder Community Energy](#), Wiltshire,

Nadder community Energy are exploring the possibilities for an electric vehicle car club. The model would be based on a membership scheme and use locally generated solar for charging. This is a model that could be applied to a rural context such as Bristol.

[Brighton Energy](#)

Brighton Energy are looking to work with sites where they currently own solar PV assets to identify opportunities to add electric car charging points. They hope to test the profitability of an integrated package of solar PV, EV charging and battery technology for community energy groups. In a congested city they hope their model will reduce air pollution and noise and bring social benefits such as bringing EV drivers to community centre chargers, providing free charging to disadvantaged citizens and creating a community fund for local residents.

Improved focus on Air Quality

Q 6: How can we ensure that in the future energy system air quality emissions are prioritised alongside reducing carbon emissions ?

Analysis of current state in Bristol for Q6

Goals	<ul style="list-style-type: none"> ● Improve air quality in order to reduce health inequalities. ● Carefully consider air quality implications of different housing and transport measures. ● Reduce the use of wood burning stoves within the city as 168 of the 300 premature deaths in Bristol each year come from PM2.5. 38% of PM2.5 comes from wood burning by 8% of the population, most of whom are home owners and 96% of them have alternative sources of heating. ● Educate the public about the impact of air quality and the problem of inner city wood burning stoves. ● Provide an integrated netzero transport system. ● Encourage the take up of electric vehicles and improve the infrastructure of electric charge points. ● Provide support grants & assistance to low income households, and in particular those with disabilities who are not able to afford upfront costs of a new electric vehicle and cannot use public transport,
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Existing Opportunities	<ul style="list-style-type: none"> • Air quality grant programme - DEFRA provides funding to local authorities to make air quality improvements. • More activities working with https://www.cleanairforbristol.org/ and local action groups to improve awareness. • Introduction of proposed clean air zones Clean Air for Bristol Bristol Clean Air Zone Clean air for everyone and NetZero Mass Transit Plans as per One City Plan. https://www.bristolonecity.com/connectivity/healthy-active-sustainable-transport/ • Enforcing non-compliance with the smoke control rules can result in a fine of up to £1000. The health impacts from PM2.5 pollution have been shown to occur at levels below EU and UK objectives. Recent evidence from national studies shows that domestic solid fuel burning contributes more than previously thought to particulate emissions. This new research suggests that the health impacts from local domestic wood burning are significant.
Who is involved	<ul style="list-style-type: none"> • BCC. • WECA. • https://www.cleanairforbristol.org/
Potential Barriers	<ul style="list-style-type: none"> • Lack of general knowledge about the problem of inner city wood burning stoves. • Local plans don't identify air quality impacts of development. • Resistance to low emission transport options.
Resources or policy change needed to achieve these goals	<ul style="list-style-type: none"> • We suggest the need for a public awareness campaign about the problem of inner city wood burning stoves and public awareness about air quality issues. • Local plans should identify potential air quality impacts of development and associated transport. • Reduce the ability to use cars within the city centre. <ul style="list-style-type: none"> ◦ Consider creating liveable streets in surrounding areas so traffic avoiding the city centre doesn't spill over into neighbouring residential areas. • Ensure employees (especially those in the city centre) have access to cycling incentives from their employers, as well as bike storage or EV charging availability.

Examples of solutions to Q6

[2020 Air Quality Annual Status Report \(bristol.gov.uk\)](#)

Having shops, employment, healthcare and schools on your doorstep is likely to influence both the distance and transport mode used for these everyday journeys and reduce the risk of transport poverty.

[Melbourne - 20 Minute Neighbourhood](#)

Melbourne, for example, has an ambition for all neighbourhoods within the city to have access to everyday services within 20-minutes of where people live.

[Proposed Bristol Clean Air Zone](#)

Daily charge paid for vehicles that do not meet required emission standards to enter this zone, of which approximately 71% vehicles are already compliant. This zone has been created to encourage drivers and businesses to update vehicles or change their mode of travel, or preferably not make the trip. Exemptions are available to support vehicle upgrades, vulnerable groups in the community, and some essential services (e.g. emergency services, waste collection, and gritters etc). The aim is to reduce nitrogen dioxide that is mainly produced by vehicle emissions and can cause breathing issues especially in vulnerable people, to meet the government's legal limits of air pollution in the shortest possible time.

Using the planning system to address NetZero

Q7: How can we ensure that climate change is addressed in new developments?

Analysis of current state in Bristol for Q7

Goals	<ul style="list-style-type: none"> • The local plan and other relevant plans (Sustainable Development Strategy (SDS) and local Sustainable Development Goals (SDG's) must reflect the local council's Climate Emergency targets. • All new homes must be NetZero and smart-energy-enabled. • Areas for renewables should be designated. • Increased support for low carbon neighbourhood planning. • Ensure that planning strategies consider longer impactful time periods. • Encourage more involvement of communities in housing and energy developments (including groups who are often less engaged). • Develop a positive green economic vision.
Existing Opportunities	<ul style="list-style-type: none"> • City Leap and Community Energy Propagator group. • One City Plan priority chosen for 2021/22 Goal 3 – Citywide activity launched to engage citizens on pathways to achieving Bristol's 2030 climate and ecological goals, in lead up to the Conference of the Parties (COP), from the Environment Board. • Bristol local plan review. • WECA planning policy update • South West Energy Hub. • Neighbourhood planning opportunities. • Local authorities are able to set their own building standards.
Who is involved	<ul style="list-style-type: none"> • BCC planning department. • BGC sustainable planning group. • WECA planning department. • Local planning, building and development industry. • Centre for Sustainable Energy.
Potential Barriers	<ul style="list-style-type: none"> • Objections from Developers arguing viability concerns • Lack of planning skills / knowledge for neighbourhood planning groups. • Engagement - how to engage those who are often less engaged in the planning system.

	<ul style="list-style-type: none"> ● Digital divide (preventing lower income communities accessing information /participating online).
Resources or policy change needed to achieve these goals	<ul style="list-style-type: none"> ● Make the positive benefits achieved by local and community schemes material in local and regional planning policy. ● Make addressing climate change a material consideration in local and regional planning policy. ● Ensure policy is inclusive and addresses challenges such as the digital divide and poverty premiums (see CSE's Smart and Fair Report). ● Provide greater support for neighbourhood planning groups including education and support for less affluent communities. ● The council needs to demand higher energy performance targets and developments that align with the cities wider decarbonisation goals e.g. transport provisions and heat networks.

Examples of solutions to Q7

[Kings Tamerton Community Led Housing](#)

Plymouth Energy Community are developing a set of approximately 38 clean and affordable housing units with strong involvement from the community. With £180,000 in funding from Homes England, there is also a plan to launch a community share offer so this new development is community owned, therefore local people can have a say in how this development evolves including planning and design, whilst potentially getting return on their investments.

[Lawrence Weston Neighbourhood Planning Group](#)

Local residents in Lawrence Weston can join a weekly group meeting to discuss planning applications and development proposals in the area. Before the pandemic representatives would also go door to door asking people for input on projects. This group and any new developments in the area are required to consider the Lawrence Weston Neighbourhood Development Plan which sets out key objectives to promote sustainable development, sustainable travel opportunities, ensuring high standards, and safeguarding community services and local employment opportunities.

[CSE Resources and advice for sustainable neighbourhood planning](#)

Free planning advice and research available to assist in drafting low carbon plans for neighbourhoods. Resources are also available on CSEs website such as self-assessments, engagement and education workshops, as well as step-by-step guides for identification of community energy project locations. All of these are freely available and aim to help local residents learn more and engage with creating policies to mitigate and adapt to climate change.

Alleviating fuel poverty

Q8: How can we eliminate fuel poverty in Bristol?

a) What strategy and action plan should we follow?

b) What is our timeline?

c) What should be our initial actions over the next two years?

Analysis of current state in Bristol for Q8

Goals	<ul style="list-style-type: none"> • Aim to alleviate fuel poverty across the city. • Upgrade /retrofit all existing housing stock to reduce energy consumption. • Increase responsibility of landlords. • Targeting of who receives help using smart energy technology. • Educate tenants about their rights and pathway to fulfilling these. • Direct low carbon investment in areas that have been severely impacted by the pandemic.
Existing Opportunities	<ul style="list-style-type: none"> • Green Home Grants - larger grants available for those with lower income. • Warm Home Discount- £140 reduction on electricity bill for winter 2020-21 as a one off payment. • The Ebico Trust- providing grants of up to £60,000 to community groups to fight against fuel poverty, as well as supporting education and research into housing stock improvements.
Who is involved	<ul style="list-style-type: none"> • BCC. • Businesses. • Community energy groups. • No Cold Homes Steering Group. • Acorn.
Potential Barriers	<ul style="list-style-type: none"> • Digital divide (not all members of our community have access to the internet or smart technology). • Landlords increasing rent due to improved energy efficiency. • Increasing community trust and engagement. • Often the burden of fuel poverty is carried largely by women who have young families, what can we do to encourage them to engage with their communities to tackle these issues?
Resources or policy change needed to achieve these goals	<ul style="list-style-type: none"> • Campaign to educate tenants about their rights and pathways to fulfilling these. • Ongoing education for landlords regarding their obligations in terms of Minimum Energy Efficiency Standards.

	<ul style="list-style-type: none"> • Retrofit strategy includes rented housing. • Direct low carbon investment in areas that have been severely impacted by the pandemic. • Develop the expansion of renewables on social housing, and use as a means to lower their bills and keep families out of fuel poverty whilst assisting Bristol in reaching a higher volume of renewable energy resources.
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Examples of solutions to Q8

[South Tees Affordable Warmth \(STWAP\) Partnership](#)

STAWP follows a 'Whole System Approach' to fuel poverty because it recognises that change needs action at a number of levels, including the individual as well as institutional. The Action Plan is divided into 5 key themes;

- 1) Ensure a high profile for Affordable Warmth - so that organisations and groups are aware of the issue.
- 2) Promote energy efficiency in the housing stock across all tenures - lowering the cost of heating a home through minimising the energy needlessly lost.
- 3) Improve Affordable Warmth through income maximisation and budgeting advice.
- 4) Improve health and wellbeing through Affordable Warmth.
- 5) Community engagement, awareness raising and frontline staff training - increasing knowledge of fuel poverty in communities.

[Cosy Devon Energy Advice Partnership \(LEAP\)](#)

A free service that is helping people by offering energy saving advice.

<https://www.cse.org.uk/projects/view/1360> Series of national pilots looking at how to enforce MEES regulations in the private rental sector

[WHAM Warmer Homes | Advice | Money Project](#) - impact report [here](#)

WHAM employs caseworkers who rotate between partner organisations coordinating a range of support and acting as a single point of contact for each client. A case is not closed until all of the support from the partners is complete. Home visits can be undertaken if needed (subject to Covid-19 restrictions).

Engagement in Energy Issues

Q9: How can we increase opportunities to educate Bristol on energy issues, particularly in less affluent communities?

Analysis of current state in Bristol for Q9

Goals	<ul style="list-style-type: none"> • Educate the community on energy and energy efficiency in a way that is accessible and understandable for all.
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	<ul style="list-style-type: none"> ● Increase awareness of opportunities for individual action, uptake of available funding and network support available. ● Deliberative democracy, and open involvement of people in green recovery plans. ● Share best practice examples from local businesses to homes and low carbon food and transport (include promotion of community sector best practice) to encourage long-lasting change toward more energy aware and efficient lifestyles. ● Co-operation should be pursued more explicitly and communities facilitated to take co-operative control of the facilities they need, and to represent themselves through co-operative action. This could also include informed mutual activity e.g. for the more “techie-minded” to get a little training but be facilitated in helping their immediate neighbours deal with their heating controls, get the best out of ‘smart metering’, ‘intelligent’ controls, etc.
Existing Opportunities	<ul style="list-style-type: none"> ● BGCP partnership to link low carbon community energy to other themed areas (Food, Transport, Housing, technology etc. ● Links to community resources, as they develop (BCC Climate Hub), Climate Action hubs, Ambition Lawrence Weston, Lockleaze Loves Solar.
Who is involved	<ul style="list-style-type: none"> ● BCC, WECA. ● Businesses. ● Community groups. ● BGCP. ● Bristol Green Open Homes.
Potential Barriers	<ul style="list-style-type: none"> ● Digital divide. ● Lack of accessibility of educational resources (e.g for those with learning difficulties or for whom English is not their first language). ● Technology and retrofit costs. ● New “austerity” causing a weakened focus on future issues and change and a business as usual approach. ● Lack of wider knowledge of the benefits of community energy.
Resources or policy change needed	<ul style="list-style-type: none"> ● Campaign / resources to educate the community on climate change, energy issues, opportunities for individual action and support available - potentially through support given to community energy organisations to achieve this. This should be accessible to all including those with learning difficulties or for whom English is not their first language. ● BCC / WECA to collaborate with community energy organisations to ensure that the community are involved in green recovery plans. ● Network promotion of localised good practice - local energy and climate groups. ● Platforms for learning, sharing and networking.
<p>Examples of solutions to Q9</p>	

[Centre for Sustainable Energy](#): energy efficiency advice, accessing loans and grants for energy saving measures, help with fuel supplier issues, budgeting advice, switching, Warm Home Discount applications.

[North Somerset Council](#): handy-person service to install energy saving measures.

[We Care Home Improvements](#): installation of small energy saving measures such as draught proofing, secondary glazing etc, and undertaking of safe and secure home checks. If larger work is needed they can apply for further funding.

[Bristol Energy Network](#) supports member organisations undertaking workshops, outreach activities and training of community energy champions.

[Bristol Green Doors](#)

Bristol Green Doors (open homes) is a scheme which is encouraging people to visit homes in their neighbourhoods that have made energy saving improvements as an effective way of inspiring them to follow. So far this has helped inspire 71% of visitors to install energy saving or low carbon technologies.

IMPACT: [CSE's Community Carbon Footprint Tool](#)

This tool is used to give communities a usable format to monitor their carbon emissions, in a way that is easy to understand, easy to share, and helps point out the big impact areas. This is hoped to be used to help community groups know where to take the most effective action.

Reducing Consumption and Waste

Q10: How can we reduce consumption and waste across the city?

Analysis of current state in Bristol for Q10

Goals	<ul style="list-style-type: none"> ● Bristol as a circular economy city. ● Reduce landfill waste. ● Reduce waste across different sectors of the economy. ● Reduce food waste - educate the public, redistribute unused food. ● Increase awareness of local reuse networks. <ul style="list-style-type: none"> ○ Contribute to improving digital inclusion. ● Increase knowledge about the right to repair. ● Reduce energy waste through education and retrofit activity.
Existing Opportunities	<p><u>Bristol waste and resource strategy aims to:</u></p> <ul style="list-style-type: none"> - Produce the lowest amount of residual household waste per person per year of any UK core city and aims for a target of below 150 kg per person per year by 2025.

	<ul style="list-style-type: none"> - Send less than 5% of waste to landfill by 2030. - Recycle and prepare for re-use (including composting) 50% by 2020 and 70% by 2025. - Reduce the amount of food waste going into residual waste (black bin) from almost 40% to 10% by 2025. - Aim to increase overall satisfaction with Streetscene by 10% in Bristol neighbourhoods identified as having the most significant issues by 2018. <p>Additionally:</p> <ul style="list-style-type: none"> - Decarbonise waste vehicles. - Encourage increased use of local suppliers- e.g food (see BGCP_Our-Future_2019-2.pdf (bristolgreencapital.org)) <p>Green homes grants and Energy Compliance Obligation grants are available to improve home energy efficiency and therefore reduce energy consumption.</p>
Who is involved	<ul style="list-style-type: none"> ● Bristol Waste. ● BCC. ● Resource Futures. ● Local businesses.
Potential Barriers	<ul style="list-style-type: none"> ● Reduced consumption is not always encouraged due to concerns that it will not lead to economic growth.
Resources or policy change needed	<ul style="list-style-type: none"> ● A highly progressive Local Plan, linked to other planning process/es. ● Greater community engagement and education. ● Emphasis on repairing, reusing, and trade in used goods. ● Prioritisation of a circular economy in Green recovery plans. ● Educational campaign ● Support and education for businesses to reduce their waste.

Examples of solutions to Q10

Digital inclusion scheme

Bristol City Council and Bristol Waste are donating 3,000 old council laptops to help reduce digital poverty in the city. This along with a starter data package and introductory digital skills course will increase inclusion of vulnerable people in the community as well as reducing unnecessary electronic waste.

'Bristol Bites Back Better'

Bristol Going for Gold's campaign aiming to inspire all Bristolians in their ability to create a more resilient food system. By creating a community around providing ideas, information, and stories it aims to encourage more sustainable, equitable, and healthy use of food so that we protect our environment and no one goes hungry.

MAZI Project

A project in Bristol supporting young people in supported accommodation to receive food. Bristol could invest in and encourage more network building for projects like this to encourage businesses such as small cafes who may otherwise be wasting food to participate in such projects.

Bristol Wood Recycling Project

keeping timber out of the waste stream

Bright Green Homes Project

Bristol City Council and North Somerset Council were awarded funding to support eligible households in improving their energy efficiency and low carbon schemes. Funding is available for around 200 homes across Bristol which will help to reduce the amount of energy being consumed in inefficient buildings.

Further Resources:

- [Bristol One City Climate Strategy.](#)
- [Bristol One City Climate Strategy - The Evidence Base.](#)
- [CSE's report for reaching net zero by 2030.](#)
- [Bristol One City Economic Recovery and Renewal Strategy.](#)
- [CSE list of funding opportunities for community energy](#)
- [Bristol Green Capital Partnership - our future](#)
- [IPPR report, The climate commons: How communities can thrive in a climate changing world](#)
- [URL to our slides](#)

References:

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- [2] Local Energy Oxfordshire (LEO), url: <https://project-leo.co.uk/>
- [3] Superhub Oxford, url: <https://energysuperhuboxford.org/about-the-project/>
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- [6] Bristol as a Smart Local Energy System of Systems Skills Case Study, EnregyREV Report. https://drive.google.com/drive/folders/1k9I_ScqDGvUE3DWHndY7axpGfBJvr_0m
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