Bradford Climate Action Plan

Phase 2 Report
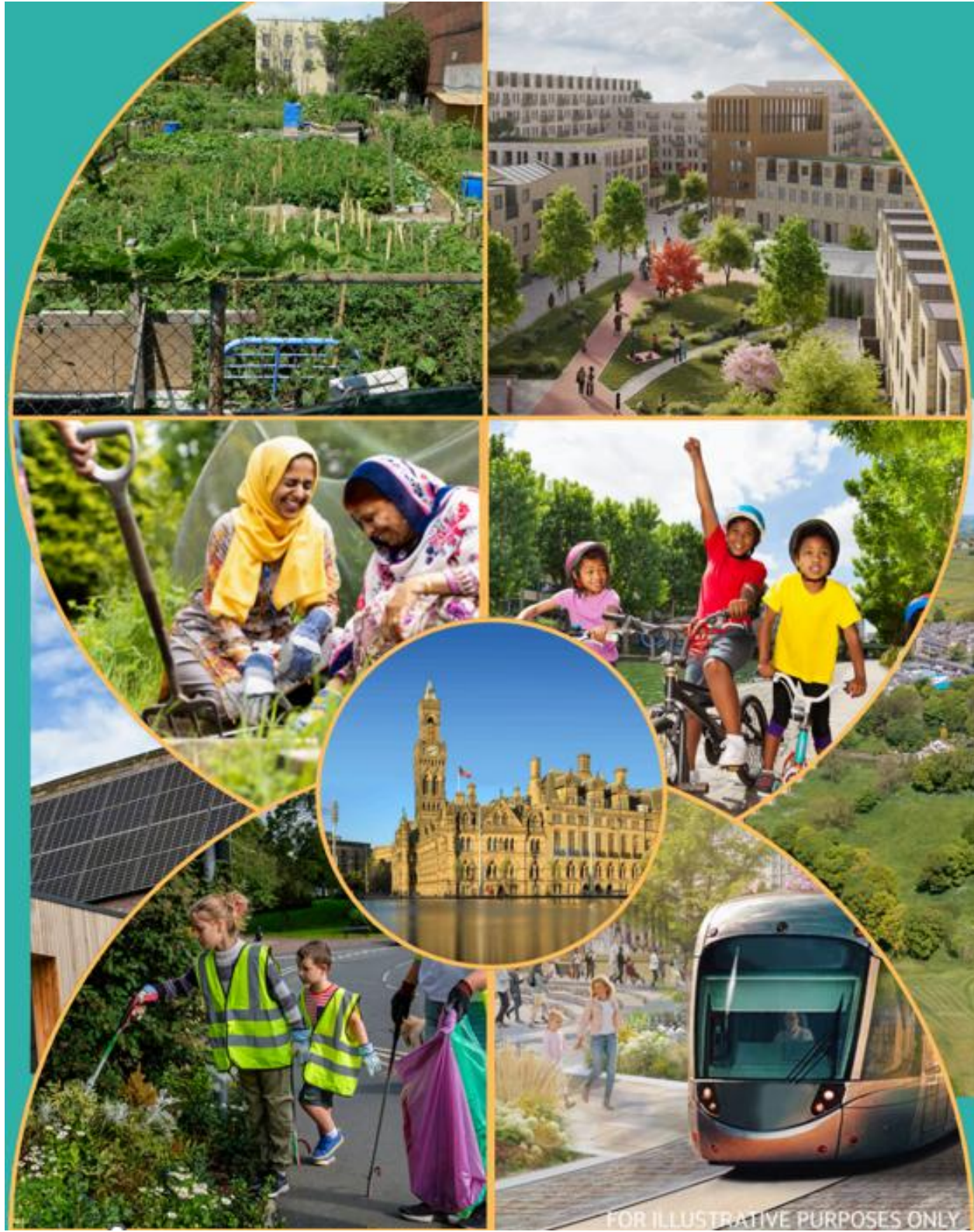
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1st August 2025

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1. Introduction

This report summarises the outputs of Tasks 4 and 5 under the Bradford Climate Action Plan (CAP) project. These tasks include the following actions:

1. Pathway Economic Analysis: High-level analysis of climate inaction and traffic-light costings of selected mitigation measures and enabling actions.
2. Strategy development: A climate strategy summary table with suggested action phasing across all eight priority areas.
3. Action detailing: Additional detail on enabling actions, relevant co-benefits, principles & approaches, as well as cost levels and possible key performance indicators (KPIs) is provided for selected actions.
4. Key Performance Indicators: Proposed metrics to measure the performance of the proposed pathway interventions and a greenhouse gas (GHG) progress tracking spreadsheet, which is provided separately.

This document should not be used as a standalone report but rather as a collection of content to support the CAP drafting and additional internal actions, such as progress tracking. This approach and format were chosen to support the City of Bradford Metropolitan District Council (CBMDC) team with the ongoing drafting of the public-facing CAP document.

2. Methodology Note

This methodology note provides a brief outline of the approach taken for each action, offering additional context for the CBMDC when utilising the outputs in this document. The task is undertaken for the eight CAP priority areas. These broadly match the sectors utilised for the net zero (NZ) modelling; however, there are some differences (see Figure 1).

Modelled Sectors

- Transport
- Energy System
- Industry
- Domestic
- Commercial
- Public Sector
- Agriculture
- Land Use
- Waste

CAP Priority Areas

- Transforming Travel and Transport
- Increasing Renewable Energy & Fuels
- Decarbonising Industry
- Growing a Sustainable & Inclusive Economy
- Providing Warm and Comfortable Buildings
- Enabling Community Action
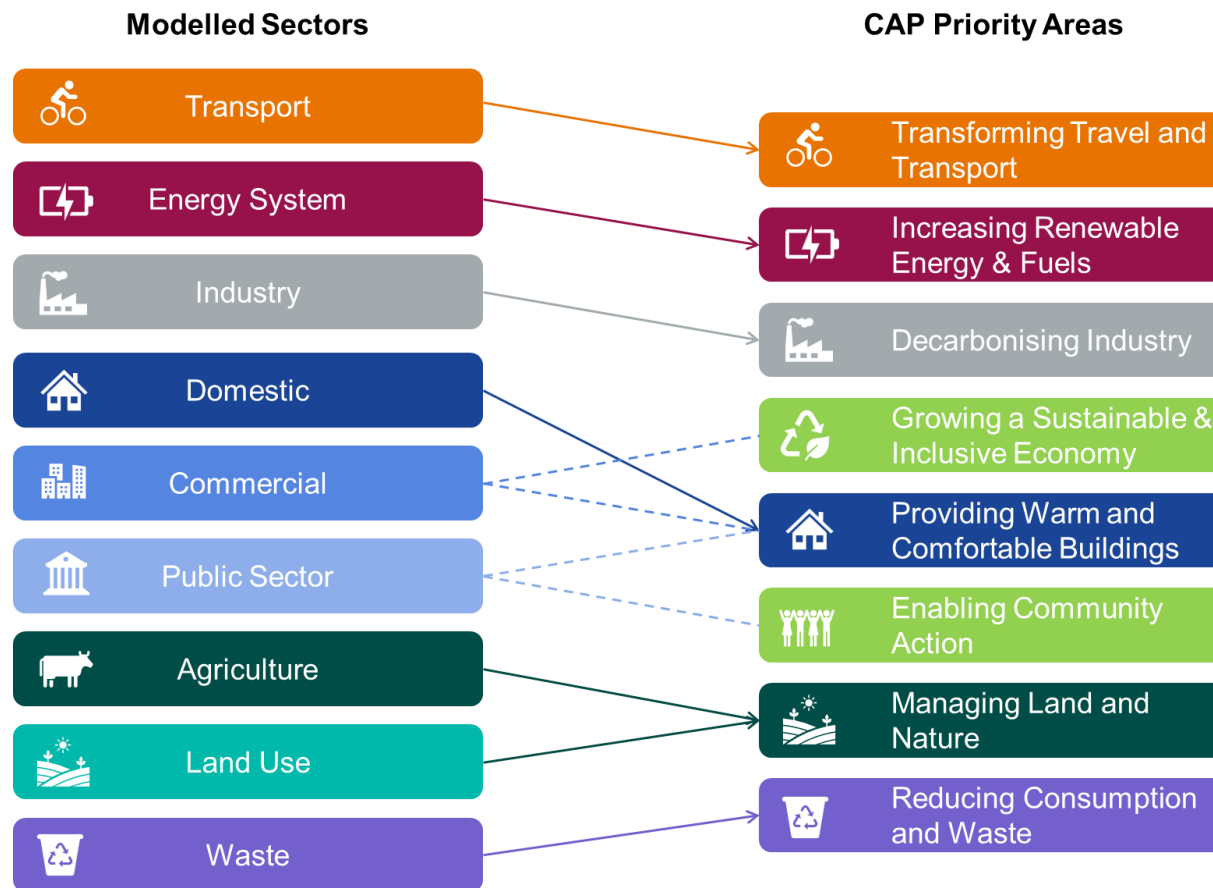- Managing Land and Nature
- Reducing Consumption and Waste

Figure 1. Sector and Priority Area Mapping.

2.1 Economic Analysis

A full economic pathways analysis requires detailed data on specific actions (i.e. at a project level), which was not possible given the large geographic and sectoral scope of the emissions modelling. In addition, to ensure alignment with the CAP principles and approaches, the economic analysis should also include detailed information on the specific groups affected by each action, as well as their socioeconomic characteristics. Given these challenges within the limited scope of the project, the economic analysis was undertaken at a high level, using a traffic-light system that categorises actions by low, medium, and high cost. This considers capital and operating costs, as applicable, and accounts for the level of required uptake (e.g., the number of units). Where possible, the costing differentiates between costs for residents or businesses, CBMDC, and the project as a whole. As CBMDC progresses with the realisation of the CAP, each action will need to be fully costed and include an exploration of the available regional or national funds and grants.

To put these individual cost assessments into context, a cross-cutting section on the costs of climate inaction has also been provided. Qualitative considerations of equity and affordability across the key actions further support the cost assessment. Where available, details on clear cost savings and benefit-cost ratios (BCRs) have been provided to put the required investments into perspective. Where possible, these are separated into financial BCRs and economic BCRs to understand the direct return on investment (ROI) and the impacts on the economy as a whole.

2.2 Strategy Development

A climate strategy table was developed using the modelled mitigation measures, existing Bradford CAP actions, and additional strategic considerations to put the range of climate actions into the context of a broader climate strategy. This table does not differentiate between mitigation and enabling actions (see Box 1). The strategy table extends beyond the CAP 2025-2028 timeline and was compiled for internal use by CBMDC, specifically to provide a starting point for longer-term planning and future CAP updates.

Box 1. Mitigation Measures and Enabling Actions

Mitigation Measures	Enabling Actions
These are specific interventions or technologies that directly reduce GHG emissions or enhance removals (carbon sinks). They change what is emitted or absorbed within a sector or activity. Examples of mitigation measures that were modelled under Phase 1 include: • Switching from gas boilers to heat pumps • Reducing private vehicle demand through active travel • Enhancing carbon sequestration through tree planting	These are policies, processes, capacities, or investments that create the conditions for mitigation measures to be implemented effectively, at scale, and sustainably. They do not directly reduce emissions but make mitigation feasible, faster, or cheaper. Examples include: • Infrastructure development, such as EV chargers and cycle lanes • Networks to share best practices and lessons learned • Community engagement to increase buy-in

2.3 Action detailing

To provide additional detail on key mitigation and enabling actions, the action detailing component includes actions that were selected based on the following guiding questions:

1. Does the action have a significant impact on emissions?[1]
2. Does CBMDC have to take important steps in the near term to ensure that the action is realised?
3. Is the action happening or starting in the 2025-2028 CAP period?

In line with these criteria, a list of actions was developed and has been reviewed by the CBMDC team. The action detailing includes a set of key considerations, including:

1. Enabling Actions
2. Co-Benefits
3. Cost Levels (Traffic Light System)
4. Key Performance Indicators
5. Principles & Approaches

The enabling actions and co-benefits were identified through stakeholder engagement workshops, as well as desk research conducted during Tasks 2 and 3. The costs have been estimated in line with the economic analysis detailed above.

The suggested key performance indicators are taken from the long list at the end of this document (not exhaustive or definitive, as these would need to be developed in line with 'SMART' targets). The chosen key performance indicators are merely suggestions in the absence of agreed-upon targets and should be critically reviewed by the relevant stakeholders before publication.

The principles and approaches were added to provide an applied consideration of Inclusion, Equity, Just Transition, Climate Justice, Intergenerational Fairness, and Collaboration. The examples provided are not exhaustive but are meant to provide some suggestions for future consideration when moving to more detailed planning of specific actions to ensure that these don't negatively affect any stakeholder groups within Bradford but instead improve existing socioeconomic challenges. The action detailing differentiates between *why* a specific mitigation action may contribute to achieving a particular principle or approach and *how* this can be done, i.e., what barriers may need to be overcome or what

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[1] Note that this analysis could not be undertaken for Priority Areas 4 – Growing a Sustainable and Inclusive Economy and 6 – Enabling Community Action as these were not part of the emissions modelling. In addition to this, there are a range of actions which cannot be quantified merely by the emissions modelling undertaken in Task 2 as there are Scope 3 considerations as well. This was assessed qualitatively to ensure that actions with significant out-of-boundary emissions reduction are not omitted.

considerations may need to be part of the process to achieve the principle or approach. An introductory section on the six principles and approaches at the beginning of the document (see Cross-Cutting Content) provides a common understanding of these for both readers and CAP owners.

The exploration of these principles and approaches in this document provides a starting point for inclusive and equitable climate action planning, but does not constitute a comprehensive analysis of how the CAP is likely to impact Bradford's residents from an equity and inclusion perspective. This was considered at a high level in the measure selection, with actions that provide more benefits to the community being prioritised over expensive, individualistic actions. However, there are still several measures which require high upfront investment, which cannot be avoided. This, especially, requires an assessment of how measures need to be designed to maximise benefits for vulnerable and marginalised communities and what funding and support can be leveraged to accomplish this goal.

To undertake a comprehensive equity and inclusion analysis, an in-depth needs assessment of the district is required, exploring disparities both spatially and socioeconomically.[2] This should further consider both climate change impacts (adaptation) and possible burdens of net-zero actions (mitigation).[3] The analysis should be conducted both for the city as a whole and on a measure-by-measure basis. Examples of the latter may be:

- Which neighbourhoods have particularly poorly insulated homes? What barriers do the residents face to improving fabric efficiency, and what support can be made available?
- Which neighbourhoods lack off-street parking? What are the costs of nearby EV charge points? Are there good public transport connections to and from these neighbourhoods?
- Which neighbourhoods are in a flood zone? What is the adaptive capacity of the residents?

Findings and progress should be tracked using a monitoring, evaluation, and learning framework (MEL).[4]

2.4 Key Performance Indicators

A selection of possible key performance indicators (KPIs) was chosen that could be used to track a range of targets across the eight priority areas. Where possible, a data source has been indicated, but several KPIs will require additional data collection and/or stakeholder engagement to secure the required data inputs. The list of KPIs is not exhaustive and should be expanded in line with additional, detailed actions. In turn, some of the KPIs will likely not be considered for progress tracking.

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[2] https://www.c40knowledgehub.org/s/article/Inclusive-Climate-Action-Planning-Conducting-a-City-Needs-Assessment?language=en_US
[3] While the long-term benefits – including cost savings – are significant, upfront costs of certain actions can be high and therefore require additional support.
[4] https://doi.org/10.1016/j.cosust.2023.101329

KPIs should always be used in conjunction with 'SMART' (Specific, Measurable, Achievable, Relevant, and Timebound) targets. As it was outside the scope of this contract to set SMART targets with the council across all priority areas, a brief introduction to target setting has been provided instead, and it is recommended that progress tracking be explored in more detail in the near future. KPIs should only be chosen after clear targets have been set.

3. Cross-Cutting Content

This section aims to capture cross-cutting content to help inform the Bradford CAP. Elements of this material may be included in the CAP or simply provide additional context for the CBMDC team. This section includes the 'costs of climate inaction', which cannot be analysed at the sector level for Bradford due to the limitations of the project scope. It also includes the 'principles and approaches' intended to guide Bradford's CAP, along with suggested definitions and examples that can be used at the start of the CAP to provide greater clarity to readers.

3.1 Costs of climate inaction

Climate inaction imposes substantial and escalating costs on UK local authorities and the communities they serve. These costs affect a wide range of stakeholders, including residents who face increased health risks and housing instability, local businesses that are vulnerable to infrastructure disruptions and economic losses, and local government leaders and service providers who must manage shrinking budgets while responding to more frequent and severe climate-related events.

Without effective mitigation and adaptation strategies, councils risk rising emergency response costs, long-term infrastructure damage, and growing pressure on health and social care systems, especially in deprived communities already struggling with structural inequalities. Studies estimate global GDP reductions ranging from 10–45% to up to 65%, with per capita income losses reaching 70% in worst-case scenarios (see Table 1). A recent assessment by the Office for Budget Responsibility (OBR) from July 2025 suggests that the UK is on course to reach a national debt of 270% of GDP by 2070 – up from estimates of under 100% and with climate inaction as a major driver.[5]

Future climate outcomes based on varying degrees of global mitigation and adaptation are typically quantified using Shared Socioeconomic Pathways (SSPs) and Representative Concentration Pathways (RCPs). SSPs describe different socio-economic futures ranging from sustainable development (SSP1) to regional rivalry and high inequality (SSP3), while RCPs represent greenhouse gas concentration trajectories. When paired, these scenarios help estimate the potential physical and economic impacts of climate change under different policy and behavioural conditions. In this context, higher SSP-RCP combinations (e.g., SSP3-RCP7.0 or SSP5-RCP8.5) represent futures with minimal mitigation and thus greater projected economic losses.

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[5] https://www.edie.net/economic-risks-of-climate-inaction-increasing-warns-obr/

Table 1. Projected scale of macroeconomic impacts by 2100 with specific regard to the SSP-RCP scenarios to which they relate (the associated ranges of projected global temperature increases are also shown).

Selected papers	Units of impact	SSP1 (RCP2.6) 1.3-2.4°C	SSP2 (RCP4.5) 2.1-3.5°C	SSP3 (RCP7.0) 2.8-4.6°C	SSP5 (RCP8.5) 3.3-5.7°C
Bilal & Kazing (2024)[6]	% Economic output	-	-	Up to 50%	-
NGFS (2024) [7]	% GDP loss	-	-	10-45%	ca. 60%
Kotz, M. Levermann, A., Wenz, L. (2024)[8]	% per capita income	-	-	11-29%	45-70%
WEF (2024) [9]	% GDP loss	-	-	16-22%	-
Cambridge Econometrics (2021) for IPCC[10]	% GDP loss	-	-	Up to 30%	Up to 65%
OBR (2025)[11]	% GDP loss	3.3% (annual)	7.8% (annual)		
Kalkul and Wenz (2020)[12]	% reduction of economic output	-	2.0-4.3%	7-14%	-

The most recently published impacts of climate change on UK GDP are shown in Figure 2 below. This shows a comparison between the 2024 and 2025 Fiscal risks and sustainability reports. The scenarios below illustrate medium to high global warming scenarios; however, inaction could result in global warming exceeding 4°C if key global commitments are abandoned or reversed.[13, 14]

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[6] See Figure 14 in https://www.nber.org/system/files/working_papers/w32450/w32450.pdf
[7] https://www.ngfs.net/system/files/import/ngfs/media/2024/11/05/ngfs_scenarios_high-level_overview.pdf
[8] https://doi.org/10.1038/s41586-024-07219-0
[9] https://reports.weforum.org/docs/WEF_The_Cost_of_Inaction_2024.pdf
[10] https://www.camecon.com/blog/ipcc-report-macroeconomic-impacts/
[11] https://obr.uk/frs/fiscal-risks-and-sustainability-july-2025/
[12] https://doi.org/10.1016/j.jeem.2020.102360
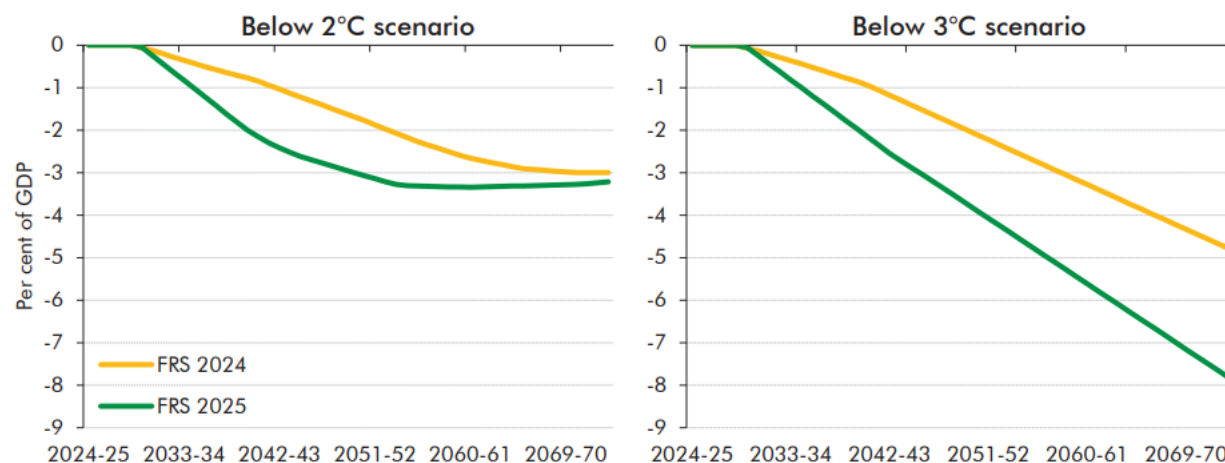[13] IPCC, 2023: Sections. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647
[14] https://doi.org/10.1029/2022EF002715

Source: NGFS, OBR

Figure 2. Impact of Climate Change on UK GDP under different climate scenarios.

The interaction between socio-economic status and climate impacts can create stark inequalities. The most economically disadvantaged groups in the UK are likely to experience the greatest impacts from climate change, such as increased heat-related illnesses and vulnerabilities during extreme weather events.[15, 16] The Local Government Climate Change Survey 2021 indicated that financial limitations impede local authorities' abilities to implement effective climate action, highlighting the challenge of addressing climate impacts in areas burdened by poverty.[17] This financial burden correlates with findings that the most deprived areas often have lower-quality climate action plans, which can lead to a feedback loop of inaction and exacerbated vulnerability.[18]

The public health implications of climate inaction are also noteworthy, as local governments are responsible for managing health risks stemming from climate change, such as flooding and heat stress, which require pre-emptive measures and infrastructure investment.[19] Inadequate climate

[15] https://doi.org/10.1186/s12940-017-0328-z
[16] https://doi.org/10.1088/1748-9326/ad376e
[17] https://doi.org/10.1186/s12889-023-16853-8
[18] https://doi.org/10.1371/journal.pclm.0000166
[19] https://doi.org/10.1186/s12889-023-16717-1

action can lead to rising costs in emergency response and recovery efforts, ultimately straining local government resources and budgets.[20] Economic output losses of up to 50% have been projected in SSP3 scenarios.[21]

Furthermore, while local Climate Commissions, such as the Yorkshire and Humber Climate Commission,[22] play a key role in adaptation strategies, their influence is often undercut by limited political engagement and resourcing.[23, 24] Without targeted support, these gaps in governance risk reinforcing systemic inequalities, as wealthier groups are better able to invest in adaptation or relocation, leaving the most deprived behind.[25, 26] As of the latest Index of Multiple Deprivation (IMD) release in 2019, Bradford ranks as the 5th most income-deprived and 6th most employment-deprived local authority in England. This includes:

- 19.8% of households below the poverty line;
- 40% of children below the poverty line;
- 12% of working-age people with no qualifications.[27]

Well-planned, equitable and inclusive climate action can lift Bradford's residents out of poverty, help close the wealth gap and provide opportunities for upskilling and community engagement. However, failing to address climate change can significantly exacerbate the existing socio-economic vulnerabilities faced by already disadvantaged populations in Bradford. The intersection of financial barriers, health impacts, and constricted local governance exacerbates the challenges of climate adaptation, indicating a critical need for informed policy-making that is equitable and inclusive.

3.2 Principles and Approaches

CBMDC has selected six important principles and approaches that underpin Bradford's CAP: Inclusion, Equity, Just Transition, Climate Justice, Intergenerational Fairness, and Collaboration. This section aims to define these principles and approaches, providing a common understanding for both readers and the owners of this CAP, who will need to draw upon these definitions when applying them in practice. Finally, this section provides a list of suggested guidance documents to help make climate action planning more equitable, fair, and inclusive.

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[20] https://doi.org/10.1080/21622671.2020.1837220
[21] https://www.nber.org/system/files/working_papers/w32450/w32450.pdf
[22] https://yorksandhumberclimate.org.uk/
[23] https://doi.org/10.21203/rs.3.rs-1676382/v1
[24] https://doi.org/10.17645/pag.v9i2.3794
[25] https://doi.org/10.1088/1748-9326/ad376e
[26] https://doi.org/10.1080/17583004.2022.2120418
[27] https://ubd.bradford.gov.uk/about-us/poverty-in-bradford-district/

3.2.1 Inclusion

Through the principle of inclusion, CBMDC recognises that both the effects of and mechanisms to mitigate climate change are often unfair and impact groups differently.[28] As such, it is crucial to include the community in the policy-making process, particularly marginalised groups, to ensure that the process is fair and delivers equitable outcomes.[29] In the context of climate action, it is vital to consider both the impact of climate *change* and climate *actions* on people and communities. These impacts typically differ significantly depending on their level of deprivation, well-being, and geographical location. [30] It is recommended that frontline communities, such as:

- those relying on natural resources for their livelihoods;
- socially or economically disadvantaged groups;
- people with limited economic and/or political capital; and
- those particularly vulnerable to climate disruptions

must be prioritised in the policymaking and action planning process.[31]

3.2.2 Equity

Through the equity principle, this CAP aims to ensure that all groups and people, especially those who have been historically or are currently marginalised or underrepresented, achieve parity in relevant policies, processes, and outcomes.[32] Achieving equity is different from equality. It does not always mean having equal access to something, but rather evaluating the needs of each group or person and providing the relevant tools and support that may be needed to ensure that the same outcomes can be achieved from these unequal starting points (see Figure 3).

The Sixth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC) highlights the importance of equity and inclusion in climate action. The experts found with *high confidence* that "Actions that prioritise equity, climate justice, social justice and inclusion lead to more sustainable outcomes, co-benefits, reduce trade-offs, support transformative change and advance climate resilient development."[33] It further

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[28] https://www.lse.ac.uk/granthaminstitute/news/unpacking-inclusive-climate-action/

[29] https://www.opml.co.uk/sites/default/files/migrated_bolt_files/a4952-c40-cities-report.pdf

[30] Ibid.

[31] Ibid.

[32] Ibid.

[33] IPCC, 2023: Sections. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf

highlights that "Adaptation responses are immediately needed to reduce rising climate risks, especially for the most vulnerable. Equity, inclusion and just transitions are key to progress on adaptation and deeper societal ambitions for accelerated mitigation."[34]
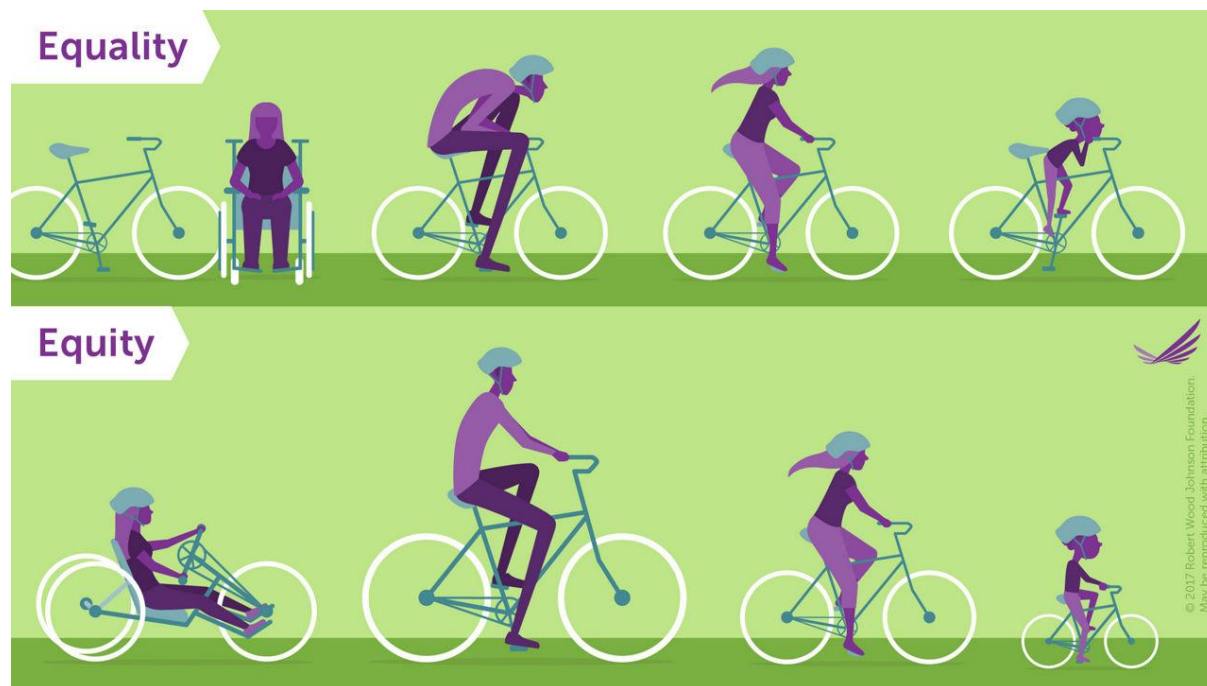
Figure 3. Equality vs Equity. Source: Robert Wood Johnson Foundation.[35]

3.2.3 Just Transition

'Just Transition' is defined as "A climate change mitigation & adaptation sector-, region- or economy-wide process of transition that includes both measures to reduce the impact of job and livelihood losses and industry phase-out on workers and communities, and measures to produce new low emissions and decent jobs, as well as healthy communities."[36] Through the just transition principle, this CAP aims to ensure that climate actions not

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[34] Ibid.
[35] https://www.rwjf.org/en/insights/blog/2022/11/we-used-your-insights-to-update-our-graphic-on-equity.html
[36] https://www.opml.co.uk/sites/default/files/migrated_bolt_files/a4952-c40-cities-report.pdf

only avoid negative impacts on Bradford's residents and businesses, but rather that the transition to net zero poses an opportunity to transition workers from emissions-intensive to future-proofed livelihoods, in an economy which is fair and inclusive, ensuring that no one is left behind.

The majority of climate mitigation actions will rely on new infrastructure, technology, and maintenance, which opens up new employment opportunities (e.g., in renewables, energy efficiency, and sustainable transport). With the right policies, these jobs can be accessible and fair, offering decent wages, training, and long-term security.

Box 2. Examples of just transition opportunities and considerations in the transport sector

> Increased public transport uptake creates green jobs in operations, vehicle maintenance, infrastructure, and service planning. The transition to EVs requires not only the manufacturing of the vehicles themselves but also the supporting local infrastructure, most notably charge points and their integration into the electricity grid. This is a challenge but also an opportunity for Bradford and the wider region. However, there are several important considerations when realising a just transition. For example, businesses and the local authority should engage with unions and affected workers in transport decarbonisation plans and invest in training and reskilling for zero-emission vehicle fleets and technologies. The electrification of the transport sector must be accompanied by community engagement, collaboration, retraining and upskilling programmes targeted at the groups that need it most, as well as ensuring that any new jobs adhere to fair labour practices and do not become exploitative.

3.2.4 Climate Justice

Through the principle of Climate Justice, CBMDC recognises that climate change disproportionately affects those communities who have contributed the least to it and commits to taking climate action in a way that does not further exacerbate this inequality. Instead, through this principle, the CAP aims to improve the livelihoods of all residents in Bradford, with a focus on elevating the most marginalised groups. Climate justice considers both intersectional and intergenerational elements of inequity.[37]

As many actions have the potential to contribute to climate justice and need to follow similar considerations to realise this, these have been summarised in Box 3 below.

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[37] https://www.opml.co.uk/sites/default/files/migrated_bolt_files/a4952-c40-cities-report.pdf

Box 3. Considerations of Climate Justice in Bradford's CAP

Most climate mitigation actions have the potential to contribute to achieving climate justice. From a global perspective, the Global North is primarily responsible for the climate crisis,[38] while the Global South has already been suffering from increasingly severe climate change impacts.[39] Therefore, in a global sense, any well-planned emissions reductions that also consider indirect emissions (such as the production of materials for renewable energy installations or batteries) have the potential to address existing climate injustices.

From a local perspective, however, climate justice is more complex and requires an in-depth understanding of local inequities. This includes planning climate adaptation actions in a way that prioritises those most vulnerable to climate change, appreciating that the degree of vulnerability results from both the physical impacts of climate change and the individual's or communities' capacity to cope with them.[40] There are also important considerations with regard to climate mitigation. While the Global North, as a whole, has dominated historical emissions, this does not apply equally to everyone. The wealthiest households in the UK contribute the most to GHG emissions.[41] In fact, a recent study found that the richest 0.1% Britons emit 12 times more transport GHG emissions than the average person.[42, 43] Due to both their lifestyle and resources, they have the ability to achieve deep emissions reductions through actions with high upfront costs, such as switching to heat pumps or purchasing an EV.[44] Poorer households, on the other hand, are not able to action this without additional support. As such, to achieve climate justice at the local level and not further exacerbate existing inequalities, it is crucial to focus on shared solutions which enhance people's participation in both society more generally and climate action specifically, as well as providing grants and funding for household-level actions, such as insulation and heating, which are inaccessible to many.

Examples of potentially climate-just transitions include:
- **Car sharing**: By creating more transport opportunities, marginalised groups without access to private vehicles, car-sharing can contribute to climate justice as it aims to elevate these groups through climate action. However, current car-sharing models are high-cost and therefore not accessible to economically disadvantaged groups.
- **Public transport and active travel**: A shift away from private car travel reduces emissions and air pollution in a way that can help ensure that those who contribute least to climate change benefit from climate action. To realise this, improvements need to be targeted in high-

[38] https://eos.org/articles/global-north-is-responsible-for-92-of-excess-emissions

[39] https://sites.manchester.ac.uk/global-social-challenges/2025/01/15/the-unequal-costs-of-climate-change-and-destruction-of-the-global-south-what-are-the-solutions/

[40] https://www.ipcc.ch/site/assets/uploads/2018/03/SREX-Chap2_FINAL-1.pdf

[41] https://www.carbonbrief.org/richest-people-in-uk-use-more-energy-flying-than-poorest-do-overall/

[42] https://www.ippr.org/media-office/richest-0-1-in-britain-emit-12-times-more-greenhouse-gases-from-transport-than-average-person

[43] Note that this includes private jet use, which is excluded from Bradford's GHG baseline.

[44] https://doi.org/10.1371/journal.pclm.0000573

emission and high-deprivation areas – these are best identified by involving marginalised communities in climate action planning. Climate justice is maximised if climate funding is used to enhance public transport rather than (exclusively) subsidising private vehicle transitions.

- **Community-owned solar farms**: These empower local communities by giving them control over clean energy production and reducing reliance on fossil fuels. Profits can be reinvested locally, supporting energy equity and reducing fuel poverty. This approach ensures that the benefits of decarbonisation are shared fairly, especially in underserved or marginalised areas.
- **Insulation**: Insulating homes reduces energy demand and heating costs. Households in rented homes and social housing are more likely to experience fuel poverty and live in colder, less efficient homes. By targeting insulation in this sector, mitigation efforts address inequality, improve health outcomes, and ensure that low-income renters share in the benefits of climate action.

3.2.5 Intergenerational Fairness

Intergenerational fairness aims to ensure that current actions and policies do not unduly harm future generations, while also ensuring that current generations have the opportunity to thrive. With that, Bradford's transition to net zero not only aims to protect today's and future generations from disastrous climate change impacts, such as flooding, heat waves, and wildfires; it endeavours to realise this goal without keeping today's residents from meeting their needs, e.g., by losing their livelihoods (see Section 3.2.3). Intergenerational fairness is underpinned by fairness, justice, sustainability, shared responsibility, equity, and collaboration.[45] It is the foundation of genuine sustainability or sustainable development, with the latter being defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" [46].

Box 4. Case Study: Intergenerational Fairness in Practice

The 'Well-being of Future Generations Act 2015' is an important example of putting the principle of intergenerational fairness into practice. It was passed in Wales in 2015 and contains seven guiding targets, five routes to reach these targets, and 50 indicators to measure progress. The indicators are matched to the seven goals. The Act includes Wales's 22 Local Authorities alongside a range of other public bodies such as Fire and Rescue Authorities, NHS Trusts, Social Care Wales, and Natural Resources Wales, among many others.[47] Their duties are to:

- Promote sustainable development;
- Take a deeper consideration of their long-term impact; and
- Monitor and assess progress against the well-being objectives.[48]

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[45] https://opil.ouplaw.com/display/10.1093/law:epil/9780199231690/law-9780199231690-e1421
[46] http://www.un-documents.net/our-common-future.pdf
[47] https://futuregenerations.wales/discover/about-future-generations-commissioner/future-generations-act-2015/
[48] https://futuregenerations.wales/discover/about-future-generations-commissioner/public-bodies/

> The **national indicators**, while specific to Wales, can provide a valuable starting point and learning opportunity for local authorities outside of Wales who strive towards intergenerational fairness. In fact, the Act has inspired other countries, including Scotland, Ireland, and Germany, to implement similar legislation.[49] To support them and others with their endeavours, the Future Generations Commissioner for Wales has developed the **Future Generations Policy Leader Toolkit** and the **Future Generations framework for projects**, with guidance and practical tips for public bodies, such as local authorities.

Intergenerational fairness fundamentally underpins all climate mitigation action, as this is crucial in ensuring a habitable world in which future generations can thrive. This includes all mitigation actions, from switching to energy-efficient light bulbs to electrifying the transportation system, as well as adaptation actions to minimise climate risks to current and future generations. To maximise on this principle, it is important to prioritise investments with long-term benefits over short-term political gains and embed sustainability goals into long-term planning (such as new transport infrastructure, housing developments, and land-use planning). It is further crucial to consider indirect (Scope 3) emissions, as global emissions reductions can only be achieved if the whole lifecycle is addressed.

3.2.6 Collaboration

People are at the heart of local climate action, whether by influencing GHG emissions directly by swapping their car for a bicycle or indirectly, by changing consumption patterns and influencing businesses.[50] In order to achieve lasting stakeholder buy-in, it is important that all key stakeholders are engaged at all stages of the climate action process. CBMDC has ensured that stakeholders are not only consulted on the CAP but are given the opportunity to co-create components of this important, district-wide plan, as well as provide the opportunity to collaborate with each other, sharing knowledge and best practices. Collaboration is at the heart of all other principles and approaches, which cannot be achieved without this.[51] Examples of collaborative actions may include:

- Consulting stakeholders, especially those with specific needs, on the design of active travel infrastructure,
- Co-designing solutions with diverse stakeholder groups, such as disabled people, to ensure that buses are truly accessible,
- Intrinsically collaborative action, such as ride and car sharing, especially community-level schemes, which require continued engagement between drivers and passengers,
- Developing peatland restoration programmes with landowners, farmers, and conservation charities, or
- Partnering with neighbouring local authorities and network operators on local renewables rollout.

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[49] https://www.the-ies.org/analysis/essential-environment-future-generations
[50] This is not to place responsibility for climate action solely on individuals, as national and global climate action can also target big polluters more directly. However, even big businesses are controlled by people who need to be engaged in this process. Further, at the local level, actions are more focused on individuals and local businesses.
[51] https://www.c40knowledgehub.org/s/guide-navigation?language=en_US&guideArticleRecordId=a3s1Q000001iahwQAA&guideRecordId=a3t1Q0000007lEWQAY

3.3 Resources

The six principles and approaches outlined in this section will be instrumental to making Bradford's CAP one that not only facilitates the achievement of net zero but also ensures that no one is left behind in this transition, endeavouring to address existing inequities and marginalisation through the CAP process. To support the CBMDC team in this challenging yet exciting endeavour, a selection of useful resources has been provided here to help substantiate the principles and approaches over the next 16+ years. Most of these resources contain step-by-step guides, checklists, or guiding questions for policymakers. The resources have been mapped against the six principles and approaches and sector focuses indicated, where relevant (see Box 5). The symbol key can be found on the next page.

Box 5. CAP Principles and Approaches – Resources

Resource							
Future Generations framework for projects	■	■	■	■		■	
Future Generations Policy Leader Toolkit			■			■	
C40: Powering inclusive climate action in cities	■	■	■	■	■	■	
C40: Inclusive Planning	■	■			■	■	
ICAT: Just Transitions Monitoring Guide	■	■		■	■	■	
NatCen and DfT: Inclusive Transport Strategy Evaluation	■	■					🚴
UK100 and Involve UK: A Toolkit for Effective Public Engagement in Decision-Making		■				■	
BITC: Involving Diverse Stakeholders in Climate Action Routemap	■	■		■		■	
NEA: Making heat pumps work for fuel-poor households	■	■					🏠
CPI: Public Engagement for Net-Zero	■	■			■	■	

Symbol Key

Equity ■

Inclusion ■

Intergenerational Fairness ■

Just Transition ■

Climate Justice ■

Collaboration ■

4. Climate Strategy Summary

The following table outlines the suggested strategic decisions and key actions within the eight priority areas. The table further indicates the suggested indicative timelines and key stakeholders that will likely need to be involved in realising these actions. As most actions will need to happen across the whole timeline between now and 2038 (with 2032 being displayed as the halfway point), it can be challenging to assign accurate timings to the actions – as such, the timings focus on when the action will likely need to be ramped up. Some actions, such as trials or pilots, are suggested to conclude in the near term; however, this does not mean that additional pilots and trials as new technologies emerge will not happen – in fact, an ongoing evaluation of this strategic summary is strongly recommended. Finally, it should be noted that the priority areas 4 and 6 only use the Bradford draft CAP as the basis for the action summary; therefore, important longer-term actions may have been omitted.

Priority Area and Key Actions	Now	2032	2038	Major stakeholders
Strategic decisions				
Approach to offsetting	██			CBMDC
Approach to Scope 3 emissions	██			CBMDC
Domestic heat networks	██			CBMDC, 1Energy
Local vs. large-scale renewables	██			CBMDC, WYCA, nearby LAs
Uses of biofuels	██			CBMDC, local businesses
Uses of hydrogen	██			CBMDC, N-Gen Energy Solutions and Hygen Energy
Transport demand restraint	██			CBMDC, WYCA
Low-carbon planning measures	██			CBMDC
Set tree cover and nature restoration targets	██			CBMDC, local landowners
Ask of Government				
Additional funding for climate action across the priority areas	████████			CBMDC
A clear and stable national policy framework	███			CBMDC
Changes to taxes (e.g., VAT) to favour circular economy practices	███			CBMDC
Impose stricter regulations (e.g., fast fashion, private vehicle size, energy efficiency)	███			CBMDC
Align national curriculum with intergenerational fairness principle & green skills needs	███			CBMDC

Priority Area and Key Actions	Now	2032	2038	Major stakeholders
Priority 1: Transforming Travel and Transport				
Incorporate net zero thinking into routine road network upgrades and maintenance	▮			CBMDC, National Highways
→ Deliver large-scale changes (as above)	▮▮▮			CBMDC, National Highways, local residents and businesses
Continue the rollout of active travel infrastructure projects (cycle lanes, etc.).	▮▮▮▮▮			CBMDC, WYCA
Continue the roll-out of public transport infrastructure projects, incl. mass transit	▮▮▮▮▮			CBMDC, WYCA, local operators
Large-scale EV charging roll-out	▮▮▮			CBMDC, WYCA
Large-scale shift to use of private EVs	▮▮▮▮▮			CBMDC, businesses, residents
Trial ultra-low-emission LGVs and HGVs	▮			CBMDC, WYCA, local businesses
Large-scale roll-out of ultra-low-emission LGVs and HGVs		▮▮▮		CBMDC, WYCA, local businesses
Franchise Bradford buses	▮			CBMDC, WYCA
→ Shift to electric and hydrogen buses	▮▮▮▮▮			CBMDC, WYCA, Transdev, FirstBus
Engage the community on car travel demand reduction measures	▮▮▮▮▮			CBMDC, residents, community groups, businesses
→ Pilot any additional demand reduction measures beyond those already proposed	▮▮			CBMDC, neighbourhood groups
→ Larger-scale roll-out of successful demand reduction pilots		▮▮		CBMDC, everyone in Bradford
Priority 2: Increasing Renewable Energy & Fuels				
Incorporate net-zero thinking into routine infrastructure upgrades and maintenance	▮			NPG
Engage with NPG, National Grid, Ofgem, etc., to plan for upgrades	▮▮▮			CBMDC, NPG, National Grid, Ofgem
→ Deliver large-scale infrastructure upgrades to accommodate future demand/generation		▮▮▮		NPG, National Grid
Engage with neighbouring LAs and WYCA to plan for renewables	▮▮			CBMDC and neighbouring planning authorities, WYCA
Complete Bradford Low Carbon Hydrogen Facility	▮			Bradford Low Carbon Hydrogen Ltd
Deliver and promote pilot/flagship renewable projects	▮▮▮			CBMDC and neighbouring planning authorities, WYCA
→ Deliver and promote larger renewable projects out of boundary		▮▮▮		As above + renewable energy developers, community energy groups

Priority Area and Key Actions	Now	2032	2038	Major stakeholders
Engage businesses and public sector bodies to encourage PV uptake and secure funding support	████			CBMDC, businesses, public sector bodies, residents
→ Deliver (and promote) solar PV projects		████████		As above

Priority 3: Decarbonising Industry

Priority Area and Key Actions	Now	2032	2038	Major stakeholders
Set up knowledge and green growth hubs	██			CBMDC, local businesses, industry bodies, BMF, University of Bradford
Engage businesses on options for reducing fossil fuel use in industrial applications	████████			CBMDC, local businesses, industry bodies, BMF
Implement demand-reduction measures	████████			Local businesses, BMF
Implement fuel-switching measures	████████			Local businesses, BMF
Implement solutions for hard-to-abate industrial emissions when available		███		CBMDC, BMF, local businesses, industry bodies

Priority 4: Growing a Sustainable & Inclusive Economy

Priority Area and Key Actions	Now	2032	2038	Major stakeholders
Continually assess and improve sustainability of procurement practices	████████			CBMDC
Engage with local businesses on sustainable economic practices	████████			CBMDC, local businesses
Promote sustainable economy-related opportunities	████████			CBMDC, local businesses
Pilot low-cost sustainability initiatives	███			CBMDC, local businesses
Embed sustainable development into the local plan	██			CBMDC
Reduce energy demand through energy efficiency actions	██████			Local businesses
Reduce fossil fuel consumption by switching to renewable alternatives	████████			Local businesses

Priority 5: Providing Warm and Comfortable Buildings

Priority Area and Key Actions	Now	2032	2038	Major stakeholders
Engage with stakeholders on retrofitting and low-carbon heating	████████			CBMDC, WYCA, residents, social housing providers, landlords, public sector bodies
Engage with stakeholders on demand reduction measures	████████			CBMDC, WYCA, residents, social housing providers, landlords, public sector bodies
Take all available steps to promote efficiency retrofits and secure access to funds	█████			CBMDC, WYCA
Take all available steps to promote low-carbon heating and secure access to funds	█████			CBMDC, WYCA

Priority Area and Key Actions	Now	2032	2038	Major stakeholders
Plan, deliver and promote pilot/flagship retrofitting and heat pump projects	████			CBMDC, social housing providers, landlords, public sector bodies
Complete EPC upgrades for social housing	████			CBMDC, social housing providers
Large-scale retrofitting rollout across all relevant properties		██████		CBMDC + everyone in Bradford
Large-scale heat pump rollout across all relevant properties		██████		CBMDC, Gov't (funding), landlords, homeowners, businesses, community groups
Compile initial roll-out of BEN and plan expansion or additional HNs	██			
Expand BEN or alternative heat networks		█████		CBMDC, 1Energy
Facilitate affordable solar panel installations for residents	████████			CBMDC, residents

Priority 6: Enabling Community Climate Action

Priority Area and Key Actions	Now	2032	2038	Major stakeholders
Engage with residents, schools, and community groups on relevant opportunities	████████			CBMDC, community groups, residents
Deliver community-level climate action projects	████████			CBMDC, community groups
Develop a community climate action network	████			CBMDC, community groups
Develop a climate education strategy	████			CBMDC, community groups

Priority 7: Managing Land and Nature

Priority Area and Key Actions	Now	2032	2038	Major stakeholders
Engage with landowners to identify and plan for carbon sequestration initiatives	█████			CBMDC, local landowners
→ Adopt best practices across all landholdings (parks, agricultural land, etc.)		█████		CBMDC, local landowners
Agree tree cover targets (2050 and interim)	██			CBMDC, local landowners, White Rose Forest
→ Accelerate tree planting efforts	████████			CBMDC, local landowners, White Rose Forest
Agree on peatland restoration targets (2050 and interim)	██			CBMDC, local landowners
→ Accelerate peatland restoration efforts	████████			CBMDC, local landowners
Engage with local landowners to improve agricultural practices	████████			CBMDC
→ Accelerate shift to low-carbon agricultural machinery		█████		Local landowners
→ Diversify agricultural outputs to reduce livestock		█████		Local landowners
→ Improve soil management		█████		Local landowners

Priority Area and Key Actions	Now	2032	2038	Major stakeholders
Priority 8: Reducing Consumption and Waste				
Engage with stakeholders to explore actions to reduce consumption				CBMDC, residents, businesses
Introduce trial re-use projects				CBMDC, residents, businesses
Introduce enhanced recycling and composting facilities				CBMDC
Continually increase recycling rates				CBMDC
Ban biodegradable waste from going to landfill				CBMDC
→ Explore Anaerobic Digestion potential				CBMDC
→ Deploy and enhance composting sites through aeration				CBMDC
Ban all waste to landfill				CBMDC

5. Action Detailing

The following section contains the detailed mitigation actions, including relevant enabling actions, co-benefits, principles & approaches, cost levels, key funders, and possible KPIs. The actions are organised by priority area:

1. Transforming Travel and Transport
2. Increasing Renewable Energy & Fuels
3. Decarbonising Industry
4. Growing a Sustainable & Inclusive Economy
5. Providing Warm and Comfortable Buildings
6. Enabling Community Climate Action
7. Managing Land and Nature
8. Reducing Consumption and Waste

It was assumed that average vehicle occupancy can be increased from 1.33 to 1.8 passengers per car. This could be actioned through informal or community and ride-sharing activities, as well as commercial schemes. Ride sharing is key to reducing direct emissions, while car sharing reduces indirect emissions.

ENABLING ACTIONS ━━━━

- Develop a ride- and car-sharing strategy, exploring both commercial and community-level options.
- Improve public transport provision and active travel infrastructure to reduce reliance on private cars.[53]
- Promote car-free school run options, such as walking or bike 'buses'.[54]
- Lobby Central Government, regulators, and the insurance industry to change the existing insurance model in favour of peer-to-peer (P2P) solutions.
- Implement parking restrictions to discourage private car ownership, specifically multi-car households.
- Encourage businesses to set up carpooling systems, provide guidance, and offer staff incentives.[55]

COBENEFITS

Improved air quality: Ride sharing results in fewer cars on the road, therefore reducing common air pollutants (NO_x, PM).

Reduced noise pollution: Ride sharing results in fewer cars on the road, reducing traffic noise.

Better health & well-being: The reduction in both air and noise pollution leads to improved physical health and reduced stress associated with noise.

Reduced costs: Especially for non-commercial options, from sharing repair, servicing, fuel, and road tax costs.

Scope 3 emissions reductions: Car sharing not only means that there are fewer cars on the road, but it also leads to fewer cars being purchased, with studies indicating 5-15 cars being replaced with each shared car.[52]

Sustainable & cohesive communities: Ride and car sharing should – in the medium to long term – result in fewer cars being parked on the roads, freeing up space for communities, including playing spaces, outdoor seating, and markets.

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[52] https://www.transportenvironment.org/uploads/files/Does-sharing-cars-really-reduce-car-use-June202017.pdf
[53] https://www.adlittle.com/sites/default/files/reports/ADL_Sharing_in_success_2024.pdf
[54] https://www.sustrans.org.uk/our-blog/get-active/what-is-a-bike-bus-and-how-can-i-set-one-up/
[55] https://www.swindontravelchoices.co.uk/wp-content/uploads/2021/07/Employers-guide-to-car-sharing.pdf

PRINCIPLES & APPROACHES

- **Inclusion**
  - Why: Those who may not be able to access this travel mode or certain routes which are not accessible via alternatives could see key barriers, such as upfront costs, maintenance, and storage, be removed.[56]
  - How: Commercial car-sharing schemes often come with high costs which currently makes this an exclusive option for more affluent members of the community.[57] These costs would need to be reduced (for commercial schemes) or insurance policies changed (for private car sharing) to make this a viable option for all.

- **Equity**
  - Why: Car sharing can reduce the effects of financial disadvantages experienced by less affluent members of the community by providing them with access to previously inaccessible transport modes and destinations.[58]
  - How: This can only be achieved if costs are reduced to ensure that currently disadvantaged members of society are able to access this transport mode.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	£ - ££	£ - £££
Running	£ - ££	£ - ££	£ - £££

The cost of ride and car sharing schemes are difficult to quantify as these depend on the exact type of scheme and the individuals starting point – whether they primarily drive alone or are unable to drive due to financial or other reasons. Non-commercial options, while coming with a range of challenges, do provide significant cost savings from sharing repair, servicing, fuel and road tax costs.[59]

Key Funders

- Corporations – for commercial ride shares
- National and Local Government – for community schemes and infrastructure support

KPIs

- Average vehicle occupancy
- Average car ownership per household

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[56] https://www.cogitatiopress.com/socialinclusion/article/viewFile/510/351
[57] https://pdfs.semanticscholar.org/a8c7/277a92b9daaa8c63045931ad3d19ce8c3fa7.pdf
[58] https://www.cogitatiopress.com/socialinclusion/article/viewFile/510/351
[59] https://www.rac.co.uk/drive/advice/saving-money/car-sharing-a-useful-guide-to-help-you-save-money/

Drivy, founded in 2010 and rebranded as Getaround after being acquired in 2020, partnered with Allianz to provide full-cover insurance embedded directly into rentals. This allowed users to share their private cars with different drivers without having to take out costly, separate insurance each time. The process works as follows:

1. Private car owners register their vehicle on the Getaround platform.
2. When the car is rented out via the platform, the owner's personal insurance is suspended for the duration of the rental.
3. A commercial insurance policy from Allianz takes over, automatically and seamlessly, for the renter's period of use. This commercial cover includes:
   a. Third-party liability
   b. Damage to the vehicle
   c. Theft and fire
   d. Breakdown assistance
   e. Cover for both the car owner and renter

Once the rental ends, the owner's original insurance resumes as normal.[60]

Action: Increase Active Travel Uptake

Active travel offers substantial emissions reductions by providing a (near) zero-emission transport mode. It includes a range of individual transport modes, such as walking, wheeling, cycling, and scooting. To realise the necessary emissions reductions, the increased uptake needs to be coupled with a shift away from private car travel.

ENABLING ACTIONS ───

- Cycling infrastructure provision to a high standard, ideally aligned with the LTN 1/20.[67]
- General active travel infrastructure, including wide pavements free from obstructions such as cars or bins, well-connected and safe active travel routes, as well as cycle parking.
- Cycle training programmes in schools and the community.
- Walking and cycling school bus initiatives.
- Bike rental schemes to allow people to trial cycling, including e-bike rentals, due to Bradford's hilly topography.
- Incorporation of active travel infrastructure, including transport links for new housing developments.
- Creation of liveable neighbourhoods or similar schemes.[68]

COBENEFITS

Improved air quality: Increased active travel means fewer cars on the road, therefore reducing common air pollutants (NO_x, PM).

Reduced noise pollution: Active travel results in fewer cars on the road, reducing traffic noise.

Better health & wellbeing: Walking and cycling can help reduce health risks like heart disease, stroke, and type 2 diabetes by encouraging regular physical activity,[61] ultimately improving overall health and wellbeing.[62]

Sustainable & cohesive communities: Safe and inclusive active travel infrastructure provides space for communities to meet in public spaces – Dutch *woonerfs* (here: living streets) allow residents, especially children, to safely use the space beyond their property boundaries.[63]

Cost savings & economic growth: Reduced car travel can significantly lower transportation costs for individuals and families.[64] Liveable neighbourhoods can encourage residents to spend more money in their local area;[65] cycle parking results in 5 times higher retail spend than the equivalent car parking area. Overall, cycling can achieve impressive benefit-to-cost ratios of between 5:1 and 35:1.[66]

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[61] https://bmjpublichealth.bmj.com/content/2/1/e001295
[62] https://www.sciencedirect.com/science/article/abs/pii/S2214140520301341
[63] Bruntlett, M. and Bruntlett, C. (2021). Curbing Traffic. The human case for fewer cars in our lives.
[64] https://www.productivity.ac.uk/wp-content/uploads/2022/09/WP026-The-WFH-revolution-and-performance-of-cities-FINAL-cover-061022.pdf
[65] https://www.mdpi.com/2624-6511/4/1/6
[66] https://assets.publishing.service.gov.uk/media/5a74ad3aed915d7ab83b5a59/value-of-cycling.pdf
[67] https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120
[68] https://www.sustrans.org.uk/media/4491/4491.pdf

PRINCIPLES & APPROACHES

- **Inclusion**
  - o <u>Why</u>: Active travel offers mobility options to a diverse range of people. This is evident in 'wheeling', but cycling can also open up mobility to residents. Active travel can also enhance access to public transport by improving the usability of routes to and from bus stops.
  - o <u>How</u>: To ensure inclusion, existing barriers across the different active travel modes need to be mapped out. This includes wide pavements clear of obstructions such as bins or cars, ensuring that road surfaces are smooth and dropped curbs kept free of cars to enable seamless wheeling journeys and removing barriers from cycle paths to allow those with adapted bicycles or cargo bikes to use them.

- **Equity**
  - o <u>Why</u>: By normalising and improving low-cost transport measures, existing mobility barriers can be addressed.
  - o <u>How</u>: It is vital to ensure that infrastructure improvements are not just focused on more affluent areas. Communities not currently part of typical cycling culture due to socioeconomic barriers such as culture or poor infrastructure, may require cycle training.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	££ - £££	££ - £££
Running	£	££	££

An increased uptake in active travel infrastructure includes a range of costs, including design, consultation, and engagement activities, large-scale infrastructure projects, infrastructure maintenance, cycle training, and progress monitoring. However, while there are significant upfront and maintenance costs, there are also significant savings, not just for residents who can utilise this cheap or sometimes even free mode of travel, but also for the community as a whole. Cycling reduces pressure on the economy by alleviating pressure on the NHS, reducing economic losses from congestion, and overall lowering maintenance costs as active travel causes minimal road wear compared to cars, vans, and HGVs. It also reduces public transport costs by reducing peak-time demand, especially for short trips.[69,70]

Key Funders

- Central Government (such as through the Active Travel Fund and Levelling Up Fund)
- Local Authorities, including both WYCA and CBMDC

KPIs

- km of active travel infrastructure
- Active travel modal share (%)

[69] https://www.gov.uk/government/publications/the-value-of-cycling-rapid-evidence-review-of-the-economic-benefits-of-cycling
[70] https://assets.publishing.service.gov.uk/media/5a74ad3aed915d7ab83b5a59/value-of-cycling.pdf

Box 7. Case Study: Local Authority Active Travel Schemes

Local Authorities are a key enabler in planning, supporting and facilitating access to active travel within their district, borough, or county, either directly through planning and investment, or by supporting community-led schemes in applying for Government funding.[71] Through Places for Everyone, the Scottish Government has provided millions of pounds to both Local Authorities and Community Groups to help create new and accessible walking, wheeling and cycling connections across Scotland (Scottish Borders to the Western Isles). Example case studies include:

- **Arbroath – A Place for Everyone**: Angus Council is leading a £14 million project to create a walking, wheeling, and cycling network across Arbroath. The project aims to unlock its active travel potential and considerably enhance accessibility and liveability throughout the town.[72]
- **Scottish Borders Council – Peebles to Eddleston Route**: 6 km active travel link has been completed in 2023, improving accessibility between rural communities in the Town of Pebbles and Eddleston. Backed by Places for Everyone, it's designed to support walking, wheeling, and cycling for people of all ages and abilities. To futureproof the project, flood mitigation and measures to increase biodiversity were built into the designs.[73]
- **Glasgow City Council – South City Way**: This £6.5 million project created a 3 km protected cycleway through the city centre, improving accessibility for cyclists and pedestrians. Safety and accessibility were key considerations for users along the route, providing fully segregated cycleways, protected junctions, and new crossing points ensures that people of all abilities are kept safe from traffic, particularly benefiting vulnerable and less confident road users.[74]

Successful examples from other local authorities can provide CBMDC with blueprints for Bradford, especially as the real-life successes or shortcomings can be evaluated post project completion. Examples that go beyond mere cycle infrastructure but include additional dimensions, such as climate adaptation, can be particularly valuable – although differences in local climate impacts need to be considered.

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[71] https://www.gov.uk/government/publications/active-travel-local-authority-toolkit/active-travel-local-authority-toolkit
[72] https://www.showcase-sustrans.org.uk/wp-content/uploads/2025/06/SUSR2280-Arbroath-Accessible-Design-qualitative-report-v2.0.pdf
[73] https://www.showcase-sustrans.org.uk/news/case-studies/the-new-shared-use-path-connecting-communities-in-the-scottish-borders/
[74] https://www.showcase-sustrans.org.uk/news/6-5m-south-city-way-officially-complete-as-route-makes-way-through-city-centre/

Action: Increase Public Transport Uptake

Public transport uptake includes a range of actions, including bus and rail travel. To realise the necessary emissions reductions, the increased uptake needs to be a result of moving away from private car travel, especially those with low vehicle occupancy.

ENABLING ACTIONS ──────

- Align land-use and transport planning to ensure housing, employment, and services are accessible by public transport.
- Introduce dedicated bus lanes, bus gates, and signal priority at junctions to reduce delays and improve reliability.
- Develop well-designed, accessible interchanges between bus, rail, cycling, and walking.
- Ensure bus stops and stations are safe, well-lit, and have shelters, seating, and real-time information.
- Offer subsidised or free bus and/or rail travel for youth, older adults, or low-income groups.
- Collaborate with local residents to identify issues with the existing public transport provision and align service planning with real needs.
- Run campaigns highlighting service improvements and the wider benefits of public transport.
- Franchise buses to have complete control of the bus network.

COBENEFITS

Improved air quality: Increased public transport means fewer cars on the road (NO_x, PM).

Reduced noise pollution: Public transport results in fewer cars on the road, therefore reducing noise from both combustion engines and tires.

Better health & wellbeing: The reduction in both air and noise pollution leads to better physical health and reduced stress. Public transport is also associated with positive effects on physical activity, as it often involves active modes to access rail stations and bus stops.[75]

Investment & job creation: Investing in electric bus infrastructure could also encourage local industry to manufacture clean buses or related infrastructure, contributing to job creation.[76]

Reduced costs: Public transport, especially buses, is an affordable and accessible mode of transport for most users. It is estimated that for every pound invested, there is a benefit of £4.55.[77]

Sustainable & cohesive communities: Investment in improved transport infrastructure and expansion outside of the city centre can improve social mobility and economic inclusion.[78]

[75] https://doi.org/10.1016/j.tranpol.2017.08.001
[76] https://www.transportenvironment.org/uploads/files/Electric-buses-arrive-on-time-1.pdf
[77] https://www.cpt-uk.org/media/dd5fqw3x/2025-cpt-spending-review-submission-final.pdf
[78] https://www.local.gov.uk/publications/how-local-transport-infrastructure-influences-economic-inclusion

PRINCIPLES & APPROACHES

- **Inclusion**
  - <u>Why</u>: Public transport makes mobility accessible to people who do not own or cannot drive a car, including young people, older adults, disabled people, and low-income groups.[80, 81]
  - <u>How</u>: It is crucial that public transport is physically and financially accessible to everyone. Inclusion can best be achieved by co-designing services with underrepresented groups.[82]

- **Equity**
  - <u>Why</u>: A focus on public transport redistributes public investment to support those with fewer resources or mobility options and reduces social exclusion. Research has also show a quantifiable reduction in deprivation from an improvement in local bus services.[83]
  - <u>How</u>: To achieve this, it is crucial to prioritise service improvements in underserved and deprived areas. Financial equity can be supported through fare capping, concessions, or free travel for targeted groups. Disparities in service quality or frequency should be monitored and addressed as they arise, which can be made easier through bus franchising.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	££ - £££	££ - £££
Running	£	££	££

An uptake in bus travel requires a range of enabling actions, such as bus priority infrastructure, bus fleet electrification, shelter & stop upgrades, and both on-road and depot charging facilities. While many of these are high-cost actions, public transport uptake can be increased through an increase in bus capacity in the first instance – making it key to identify why certain services are not being used to their full capacity. Additionally, bus service investments have high benefit-cost-ratios of typically between 2.5 and 6.8, depending on the specific measure.[79]

Key Funders

- Central Government
- Local Authorities (including WYCA and CBMDC)

KPIs

- Number of bus passengers
- Public transport modal share (%)
- Proportion of motor traffic bvkm travelled by bus and coach

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[79] https://www.cpt-uk.org/media/dd5fqw3x/2025-cpt-spending-review-submission-final.pdf
[80] https://assets.publishing.service.gov.uk/media/67ab8b62d41dfb0b59cec4ca/inclusive-transport-strategy-evaluation-understanding-confidence-to-travel.pdf
[81] https://www.cpt-uk.org/media/dd5fqw3x/2025-cpt-spending-review-submission-final.pdf
[82] https://doi.org/10.1016/j.jth.2021.101046
[83] https://www.cpt-uk.org/media/dd5fqw3x/2025-cpt-spending-review-submission-final.pdf

Box 8. Case Study: Bus priority to increase public transport uptake.

Bus patronage on Greater Manchester's Vantage corridor has more than doubled following the implementation of bus priority measures under the £122 million Greater Manchester Bus Priority Programme, which included the Leigh Guided Busway and improvements along the A580 corridor. Transport for Greater Manchester (TfGM) has noted that the morning peak travel time from Leigh to Manchester has been reduced from 65 minutes in 2013 to under 50 minutes — and that the investment has encouraged a modal shift on the corridor, with up to 25% of passengers switching from car to bus. Overall, TfGM found passenger satisfaction reached 89%, exceeding the regional average, and on other routes, such as the 18 and 50, had also seen significant increases in usage. The Vantage V1 route is now part of an overnight service pilot under the new franchising model.[84]

Image Source: S5A-0043

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[84] https://www.route-one.net/news/bus-priority-leads-doubling-of-patronage-on-vantage-corridor-tfgm/

Action: Switch to ultra-low emission buses

To support the transition to net zero in the public transport sector, it is crucial to decarbonise the bus fleet. It is assumed that during the 2025-2028 CAP period, this will focus on EVs, with hydrogen vehicles potentially being part of the wider solution.

ENABLING ACTIONS ———

- Develop a net zero transport strategy.
- Gain control over local services through bus franchising.
- Develop or upgrade bus depots with electric charging facilities.
- Carry out local grid upgrades to deal with the increased demand.
- Assess current routes and optimise to suit electric bus range limits.
- Plan charging times to avoid peak demand and ensure service reliability.
- Provide driver training to build skills in electric vehicle handling.
- Promote the benefits of electric buses to passengers and communities.
- Involve community in route and vehicle design.

COBENEFITS

Improved air quality: Electric buses produce no tailpipe emissions, therefore reducing NO_x and PM emissions.

Reduced noise pollution: Electric buses are significantly quieter than conventional models as they don't have a combustion engine.

Better health & well-being: The reduction in both air and noise pollution leads to better physical health (fewer respiratory and cardiovascular issues) and reduced stress through noise.

Investment & job creation: Electric buses can mean new opportunities in manufacturing, industry, and vehicle maintenance.

Energy Security: The reduced dependence on imported oil/diesel supports local energy security, especially when coupled with local renewable energy generation.

Sustainable & cohesive communities: If implemented with the necessary inclusion and equity principles in mind, cleaner public transport can support underserved communities with currently high exposure to pollution.[85]

Climate change resilience: The use of EVs can mitigate and reduce the effects of urban heat islands.[86]

[85] https://assets.publishing.service.gov.uk/media/67ab8b62d41dfb0b59cec4ca/inclusive-transport-strategy-evaluation-understanding-confidence-to-travel.pdf
[86] https://www.sciencedirect.com/science/article/abs/pii/S0967070X17308478

PRINCIPLES & APPROACHES

- **Inclusion**
  - <u>Why:</u> Bus travel itself (whether electric or conventional) can support inclusion efforts, e.g. by providing better services to marginalised communities without good transport links.
  - <u>How:</u> Embed accessibility considerations in vehicle design, such as sufficient space for at least two wheelchair users, ensuring that there are phone charge-points for wheelchair spaces, and/or ensuring that the 'next stop' display can be seen anywhere in the vehicle. Many potential considerations should be explored through collaboration with the local community, as this not only improves the quality of the vehicle design but also creates an opportunity for stakeholder buy-in in this mitigation action and fosters social cohesion.[87]

- **Equity**
  - <u>Why:</u> Switching to electric buses can reduce pollution-related health issues.
  - <u>How:</u> Air Quality Modelling outputs and socioeconomic data can be used to assess which areas are most polluted and which groups are most impacted. As such, EV roll-out can aim to address existing inequities.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	££	££ - £££
Running	£	£	£

Replacing Bradford's entire bus fleet with electric – and/or hydrogen – vehicles requires significant capital costs and requires Government funding. However, the cost level of this action depends on a range of factors, including whether (a) buses need replacing anyway and (b) what the cost of the ICE alternatives is, with a big range of £250k - 500k.[88] Overall, lower running costs mean that cost savings can be made in the long term (however, there are costs associated with the infrastructure maintenance).

Key Funders

- Central Government (such as ZEBRA2)
- West Yorkshire Combined Authority
- Local Operators (Transdev, FirstBus) – until bus franchising has been completed

KPIs

- Number of ULEV buses (electric, hydrogen)
- Proportion of ULEV buses of the total bus fleet

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[87] https://assets.publishing.service.gov.uk/media/67ab8b62d41dfb0b59cec4ca/inclusive-transport-strategy-evaluation-understanding-confidence-to-travel.pdf
[88] https://wrightbus.com/en-gb/faqs

Private cars make up the vast majority of current transport emissions in Bradford. For all journeys that cannot be avoided or shifted to active travel or public transport, a shift to EVs (or similar ultra-low emission vehicles) is crucial.

ENABLING ACTIONS ———

Most enabling actions rely on national-level support, such as setting phase-out targets for conventional cars, tightening emissions standards, and setting zero-emission vehicle mandates.

- Showcase the benefits of EVs by switching council-owned vehicles to electric.
- Use procurement powers to stimulate the local EV market.
- Roll-out of public charging facilities following the PAS 1899.[90]
- Collaborate with residents to understand concerns around EV uptake, provide clarity on technological benefits, and develop solutions to remaining barriers.
- Align EV rollout and car-sharing actions by ensuring that any commercial car-sharing schemes focus on EVs or other ultra-low-emission vehicles.
- Ensure adequate grid connection with sufficient power.
- Deliver upskilling programmes with a focus on marginalised communities with limited access to opportunities.
- Lobby the central Government to limit the size and weight of new EVs.

COBENEFITS

Improved air quality: EVs produce no tailpipe emissions, therefore reducing NO_x and PM emissions.

Reduced noise pollution: EVs are significantly quieter than conventional models as they don't have a combustion engine.

Better health & well-being: The reduction in both air and noise pollution leads to better physical health (fewer respiratory and cardiovascular issues) and reduced stress through noise.

Investment & job creation: EVs open up new opportunities in manufacturing, industry, and vehicle maintenance.

Energy Security: The reduced dependence on imported oil/diesel supports local energy security, especially when coupled with local renewable energy generation.

Climate change resilience: The use of EVs can mitigate and reduce the effects of urban heat islands.[89]

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[89] https://www.sciencedirect.com/science/article/abs/pii/S0967070X17308478
[90] https://www.bsigroup.com/en-GB/insights-and-media/insights/brochures/pas-1899-electric-vehicles-accessible-charging-specification/

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
    - o <u>How</u>: Current systems and processes require significant improvements to facilitate inclusivity. For example, EV users in West Yorkshire are reporting difficulties with apps reporting, due to having to use multiple apps across different charging networks. Adding to this, chargepoints in West Yorkshire currently don't give enough consideration to inclusive access, specifically for disabled drivers. There are also safety concerns for women that need to be addressed through site selection and design of public charging points. Alongside high upfront costs, which are a barrier for less affluent drivers, public charging is 59%-78% more expensive than at-home charging, which means that wealthier residents with space for off-street parking benefit from cheaper charging prices, further exacerbating existing inequalities. People from ethnic minority backgrounds who are less likely to have access to both off-street parking and public charge points are particularly affected by these challenges.[92]

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	££ - £££	££	£££
Running	£ - ££	££	££

Private EVs are, by themselves, an individual-level action that is financed only by the individuals, although Government grants are being made available. However, the supporting infrastructure results in costs for the local authority, Distribution Network Operators (DNOs), and Central Government. EVs are significantly cheaper than conventional ICE cars, especially when using at-home charging.

Benefit-cost ratios of private EVs are lower than shared / public solutions; however, strong net positives can still be achieved with benefit-cost ratios of 3:1.[91]

Key Funders

- Central Government
- Local authorities (for charging infrastructure)
- Northern Powergrid (for charging infrastructure)
- Individuals

KPIs

- Number of ULEV cars registered in Bradford
- Proportion of private cars that are ULEV

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[91] https://assets.publishing.service.gov.uk/media/64537b34c33b46000cf5e631/zev-mandate-cost-benefit-analysis.pdf
[92] https://westyorkshire.moderngov.co.uk/documents/s40254/Item%209%20-%20Appendix%201%20-%20WY%20EVl%20Strategy%20March%202025.pdf

Box 9. Case Study: Supporting EV uptake with accessible charging infrastructure.

In 2019, SP Energy Networks, working with two local authorities in Lanarkshire, launched Project PACE, a £7.5 million initiative (with £5.3 million funded by the Scottish Government) designed to pilot universally accessible electric vehicle charging hubs in areas with low provision and high social need. Under the DNO 'provider of last resort' framework, SP Energy Networks installed 44 accessible EV charging hubs, ensuring public infrastructure met the needs of disabled and mobility-impaired drivers in communities with limited off-street parking or charging options. Once operational, the local authority took over ownership and integration into the national Charge Place Scotland network.[93]

Box 10. The Role of Electric Vehicles in an Equitable and Inclusive Net Zero Future.

Electric vehicles (EVs) play an important role in the transition to net zero, as they enable people to switch to low-carbon alternatives without significant impacts on routines, comforts, and quality of life. They are effective at reducing in-boundary emissions as they do not create any tailpipe emissions and produce lower lifecycle emissions than conventional cars. However, they are associated with higher lifecycle emissions than shared solutions such as public transport, which is more efficient at transporting large groups of people. The benefits of shared solutions are greater if they go hand in hand with a reduction in car ownership.

In addition to these embodied carbon considerations, EVs risk maintaining or even exacerbating existing inequalities:

- EV charging infrastructure typically favours wealthier neighbourhoods. As this is an emerging technology with less widespread supporting infrastructure, the inequalities are higher compared to conventional private vehicle ownership.[94]
- Public EV charging is more expensive than at-home charging facilities. As the latter are typically only an option for wealthier residents with bigger properties with off-street parking, this risks a deepening of inequalities in the transition to a zero-carbon transport system.[95,96]
- Due to the high capital costs, EVs remain inaccessible to many people – with factors such as age, education, occupation, ethnicity, and gender influencing their ability to access this alternative.[97]

While the UK Government is providing EV and EV charging infrastructure grants, and efforts are being made to tackle generally less well-off groups, such as renters,[98] there are critiques that costly individual funding could instead be used more effectively for shared and public solutions, such as active travel, public transport, and car clubs – although it should be noted that funding should be provided for all of these actions.

Both private and public transport options form crucial elements of the net-zero future, and local authorities, such as Bradford, need to be mindful of existing inequalities and the risk of underfunding public options, thereby creating a two-tiered system of net-zero transport options.

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[93] https://www.ofgem.gov.uk/publications/case-study-uk-inclusive-access-electric-vehicle-charging
[94] https://www.sciencedirect.com/science/article/pii/S0306261924021780
[95] https://westyorkshire.moderngov.co.uk/documents/s40254/Item%209%20-%20Appendix%201%20-%20WY%20EVl%20Strategy%20March%202025.pdf
[96] https://www.stantec.com/en/ideas/topic/mobility/power-poverty-the-new-paradigm-for-social-and-economic-inequality-of-electric-vehicles
[97] https://sheffield.ac.uk/news/government-urged-tackle-inequality-low-carbon-tech-solar-panels-and-electric-cars
[98] https://www.gov.uk/electric-vehicle-chargepoint-grant-household/eligibility

Action: Accelerate shift to ultra-low emission LGVs

Light goods vehicles (LGVs) make up an estimated 23% of transport emissions in Bradford as of 2022. The most significant emission reductions can be achieved by shifting these vehicles to ultra-low-emission vehicles, such as electric LGVs.

ENABLING ACTIONS ——

- Transition local authority fleets (including contracted services) to electric LGVs to demonstrate leadership and build demand.
- Expand public charging networks by installing or facilitating the installation of publicly accessible charge points suitable for vans (e.g., larger bays, overnight depots).[100]
- Work with local businesses to identify suitable locations for private or shared depot charging facilities.
- Provide options for businesses that operate from home or don't have off-street parking.
- Strengthen the Clean Air Zone (CAZ) to encourage fleet turnover to electric LGVs.
- Engage with local businesses to share best practices, understand barriers, and identify opportunities.
- Coordinate with Northern Powergrid to ensure sufficient grid capacity in key areas.

COBENEFITS

Improved air quality: EVs produce no tailpipe emissions, therefore reducing NO_x and PM emissions.
Reduced noise pollution: EVs are significantly quieter than conventional models as they don't have a combustion engine.
Better health & well-being: The reduction in both air and noise pollution leads to better physical health (fewer respiratory and cardiovascular issues) and reduced noise-related stress.
Investment & job creation: EVs open up new opportunities in manufacturing, industry, and vehicle maintenance.
Energy Security: The reduced dependence on imported oil/diesel supports local energy security, especially when coupled with local renewable energy generation.
Climate change resilience: The use of EVs can mitigate and reduce the effects of urban heat islands.[99]

[99] https://www.sciencedirect.com/science/article/abs/pii/S0967070X17308478
[100] https://www.theccc.org.uk/wp-content/uploads/2022/09/Analysis-to-identify-the-EV-charging-requirements-for-vans-Element-Energy.pdf

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - o <u>Why</u>: Cleaner LGVs reduce air pollution, benefiting communities living near busy roads, depots, and delivery corridors.
  - o <u>How</u>: It is important to ensure that small businesses or sole traders who cannot afford new vehicles receive the support they need to comply with any restrictions (such as a stricter CAZ). This may include providing grants, leasing schemes, or second-hand EV markets targeted at micro-enterprises and self-employed drivers. As with private EVs, it's crucial that accessible charging infrastructure is provided in all neighbourhoods, not just affluent or urban areas.

Cost Levels and Funding Responsibilities

	Businesses	**CBMDC**	**Project**
Upfront	**££ - £££**	**££**	**£££**
Running	**£ - ££**	**£ - ££**	**££**

As with private EVs, this is generally a high-cost action for businesses and individuals due to the high upfront costs. The cost impact of this action depends on whether the purchase of the new vehicle is aligned with the replacement cycle and whether the vehicle owner would typically purchase new or second-hand vehicles, given the currently limited availability of second-hand EVs. For business owners specifically, the construction of charging depots adds significant costs. In addition to the direct costs for the LGV owner, there are indirect costs for the Local Authority, Central Government, and Northern Powergrid (the DNO) to build and maintain the required charging infrastructure.

Key Funders

- Businesses
- Central Government
- Local Authorities
- Northern Powergrid (DNO)

KPIs

- Number of ULEV LGVs registered in Bradford (total and new)
- Number of LGV-accessible public chargers

2 Increasing Renewable Energy & Fuels

Action: Accelerate large-scale, non-domestic solar PV roll-out

To support the decarbonisation of electricity locally and reduce reliance on national-level action, rolling out both ground-mounted and/or rooftop solar PV on commercial, industrial, and public sector buildings is key. Large-scale solar PV roll-out should also consider community-owned solar farms.

ENABLING ACTIONS ———

- Make installation easier by classifying solar PV as 'permitted development'.[103]
- Offer grants or low-interest loans for SMEs installing solar PV.
- Facilitate power purchase agreements (PPAs) for public buildings and communities.[104]
- Identify and allocate publicly owned or low-value land for community solar development.
- Procure renewable energy through local power agreements.
- Coordinate with Northern Powergrid to manage grid connection capacity.
- Encourage battery storage, formalised via the Local Plan.[105]
- Explore solar canopy car parks, combined with EV charging.

COBENEFITS

Investment & job creation: Local renewable energy generation requires investment in the local area and new job creation, providing the opportunity for upskilling and retraining.

Energy security: Diversifying and localising energy sources increases the resilience of the energy sector to external shocks such as disruption to supply and price fluctuations influenced by overseas imports and weather changes.[101] Resilience can be enhanced through the use of battery storage systems.

Reduced costs: Businesses, public sector organisations, and residents can reduce their energy bills by producing renewable electricity on-site. They can provide long-term income as well as increased control over the available finances.[102]

Sustainable & cohesive communities: Community solar farms build local capacity and strengthen civic engagement by involving residents in project decisions.

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[101] https://onunda.com/newsroom/the-imperative-of-diversifying-the-uks-national-grid-electricity-production
[102] https://ashden.org/storage/2025/05/Digest-of-evidence-about-the-value-of-community-energy.pdf
[103] https://noblegreenenergy.co.uk/articles/planning-permission-for-solar-panels-on-commercial-buildings/
[104] https://solarenergyuk.org/resource/power-purchase-agreements/
[105] https://www.theccc.org.uk/wp-content/uploads/2020/12/Local-Authorities-and-the-Sixth-Carbon-Budget.pdf

PRINCIPLES & APPROACHES

- **Just Transition**
  - <u>Why</u>: Local deployment of solar PV requires skilled green jobs in installation, maintenance, and manufacturing.
  - <u>How</u>: This requires training and apprenticeship opportunities for local workers, especially those from marginalised backgrounds with limited access to resources.
- **Collaboration**
  - <u>Why</u>: Empowers businesses and public sector organisations to co-own and manage energy, supporting their local community with the energy transition.
  - <u>How</u>: Enable cooperatives, schools, and communities to co-develop and finance projects through shared ownership models.

Cost Levels and Funding Responsibilities

	Owner	CBMDC	Project
Upfront	££ - £££	£ - ££	£££
Running	£	£	£

Solar PV installations, while having high upfront costs, deliver a high return on investment (ROI) typically within 5-10 years of installation.[106] For community-owned initiatives, by sharing the costs among many individuals, cost savings can be seen right away. This is increased by making use of available support, such as Government grants.[107]

Key Funders

- Central Government
- Businesses (Private Sector)
- Public Sector Bodies (schools, universities, NHS trusts)

KPIs

- Number of solar PV installations
- Installed (non-domestic) solar energy capacity (MW)
- Annual energy generation from solar PV (MWh)

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[106] https://assets.publishing.service.gov.uk/media/60edea3b8fa8f50c7f08ae1e/uk-rooftop-solar-panel-behavioural-research.pdf
[107] https://energy.sustainability-directory.com/question/what-are-the-long-term-benefits-of-community-owned-solar-farms/

Facing rising energy costs and net zero commitments, UK local authorities are increasingly exploring private-wire Power Purchase Agreements (PPAs) as a way to decarbonise their estates while achieving long-term cost savings. Unlike traditional supply models, private-wire PPAs involve a direct cable connection between a renewable energy generator (e.g., solar PV) and the offtaker, bypassing the national grid and avoiding associated transmission charges. This setup enables consumers to secure electricity at below-market rates, while generators earn more than they would through wholesale sales. Legal considerations include licensing exemptions under electricity legislation, property rights for cable routing, and the need for robust contracts outlining pricing, volume, maintenance responsibilities, and insurance.

Successful examples include Portsmouth City Council, which installed solar panels on 80 schools, significantly cutting emissions and energy bills, and Northumberland County Council, which built a solar carport meeting around 40% of its headquarters' electricity demand. These projects demonstrate how private-wire PPAs can deliver real financial and environmental returns when legal, technical, and contractual risks are proactively managed. With the right planning, this model offers councils a scalable, low-carbon energy procurement pathway aligned with local climate strategies.[108]

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[108] https://www.localgovernmentlawyer.co.uk/sharpeedge/810-sharpeedge-projects/57340-bitesize-ppas-local-authorities-and-private-wire-power-purchase-agreements

To support the energy transition, widespread solar PV rollout on domestic properties is key as the roof space offers significant potential for local renewable energy generation, directly reducing local GHG emissions from energy consumption.

ENABLING ACTIONS ───

- Make installation easier by classifying solar PV as 'permitted development'.[112]
- Offer grants or low-interest loans for households installing PV.
- Coordinate with Northern Powergrid to manage grid connection capacity.
- Encourage battery storage and demand flexibility to reduce grid pressure.
- Run local campaigns on the benefits and feasibility of solar.
- Provide free or subsidised advice services for households and community groups.
- Stipulate rooftop solar PV installations for all suitable new housing developments (Bradford Local Plan).
- Explore alternatives to foormounted solar PV, including balcony plug-in solar PVs.[113]

COBENEFITS

Investment & job creation: Local renewable energy generation requires investment in the local area and new job creation, providing the opportunity for upskilling and retraining.

Energy security: Diversifying and localising energy sources increases the resilience of the energy sector to external shocks such as disruption to supply and price fluctuations influenced by overseas imports and weather changes.[109]

Reduced costs: Businesses and public sector organisations can reduce their energy bills by producing renewable electricity on-site. They can provide long-term income as well as increased control over the available finances.[110]

Fuel poverty reduction: Installing solar panels could reduce energy spending by almost 25% for the poorest fifth of households in England, equivalent to a 3% boost in disposable income.[111]

[109] https://onunda.com/newsroom/the-imperative-of-diversifying-the-uks-national-grid-electricity-production
[110] https://ashden.org/storage/2025/05/Digest-of-evidence-about-the-value-of-community-energy.pdf
[111] https://www.resolutionfoundation.org/app/uploads/2025/02/Sunny-day-savings-1.pdf
[112] https://noblegreenenergy.co.uk/articles/planning-permission-for-solar-panels-on-commercial-buildings/
[113] https://www.euronews.com/green/2024/07/23/solar-balconies-are-booming-in-germany-heres-what-you-need-to-know-about-the-popular-home-

PRINCIPLES & APPROACHES

- **Inclusion**
    - <u>Why</u>: Residents previously only acting as energy consumers become part of the supply network.
    - <u>How</u>: Low-income households, especially renters and social housing tenants, have limited access to this action, given the limited control over properties. As such, these need to be supported with targeted schemes, ensuring that they receive a portion of the associated benefits.

- **Equity**
    - <u>Why</u>: Reduces reliance on fossil fuels and lowers bills, benefiting energy-poor households.
    - <u>How</u>: Energy-poor households are more likely to rent, making them unable to directly purchase solar energy installations, which is a key barrier. Renters may instead seek to tap into community-level schemes; however, this does need to remain reasonably flexible due to risks associated with no-fault evictions, which may force tenants to move on short notice. For those who do own, capital cost barriers need to be addressed, e.g., through the provision of targeted grants.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	££ - £££	£	£££
Running	£	£	£

As with non-domestic schemes, solar PV installations come with high upfront costs; however, the cost impact on residents can be mitigated through the use of available grants or loans. In the long term, residents can see a significant ROI both through reduced energy costs and a higher property value. However, if solar panels are leased, this can instead create a barrier to property sales. This barrier is mainly a result of mortgage lenders' reluctance to approve financing.[114]

Key Funders

- Central Government
- Energy Providers
- Local Authorities
- Individuals

KPIs

- Number of PV installations
- Installed (domestic) solar energy capacity (MW)
- Annual energy generation from solar PV (MWh)

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[114] https://www.propertysaviour.co.uk/is-it-harder-to-sell-a-house-with-solar-panels/

Action: Diverting Biodegradable Waste to Anaerobic Digestion

Diverting biodegradable waste from landfills significantly reduces methane emissions. Anaerobic Digestion (AD) offers an opportunity to reduce emissions from both waste and energy, as well as a range of cross-sectoral benefits.

ENABLING ACTIONS ————

- Simplify and fast-track planning and permitting for small- and medium-scale AD.
- Promote the use of household and commercial food waste, green waste, and wastewater sludge instead of energy crops.
- Provide kerbside collection bin for household food waste.
- Select brownfield or industrial sites, close to waste sources but away from residents.
- Coordinate local food and farm waste collection services.
- Explore potential of processing cuttings from council greenspace management.

COBENEFITS

Investment & job creation: Local renewable energy generation requires investment in the local area and new job creation, providing the opportunity for upskilling and retraining.

Security: Diversifying and localising energy sources increases the resilience of the energy sector to external shocks such as disruption to supply and price fluctuations influenced by overseas imports and weather changes.[115]

Soil Health: Both the solid and liquid digestate can enhance can be used to fertilise the soil, reducing the need for nitrogen fertilisers.[116] Additionally, AD reduces the need for herbicides by killing weed seeds.[117]

Agricultural improvements: Compared to slurry, digestate is easier to handle and enhances grazing. It also significantly reduces the odour.[118]

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[115] https://onunda.com/newsroom/the-imperative-of-diversifying-the-uks-national-grid-electricity-production
[116] https://www.sciencedirect.com/science/article/pii/S0960852417312464
[117] https://www.afbini.gov.uk/article/1-benefits-anaerobic-digestion
[118] Ibid.

PRINCIPLES & APPROACHES

- **Just Transition**
  - o Why: Replaces landfill/incineration jobs with cleaner circular economy roles.
  - o How: Offer retraining and secure job pathways for waste sector workers, targeting green job opportunities locally.
- **Environmental Justice**
  - o Why: Can contribute to environmental justice by reducing environmental pollution from landfill sites and protecting public health.[119]
  - o How: Site location must be chosen with care to avoid burdening already-disadvantaged neighbourhoods.[120]

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	££	£££
Running	£	£	££

As with any new infrastructure development, significant capital costs are associated with constructing an anaerobic digestion (AD) plant. There are several operating costs associated with AD, including feedstock logistics, maintenance, staff, and grid connection. However, AD is associated with positive benefit-cost ratios, particularly when considering economic (broad benefits) rather than financial ratios.[121]

Key Funders

- Central Government
- Operator
- Local Authority

KPIs

- Installed capacity (MW)
- Annual energy production (MWh)
- Total waste processed via anaerobic digestion

[119] https://www.walesadcentre.org.uk/media/1050/anaerobic-digestion-of-bmw-_compressed_-part1.pdf
[120] https://www.liebertpub.com/doi/10.1089/env.2021.0025
[121] https://www.sciencedirect.com/science/article/pii/S0956053X21005845

Industrial emissions make up 18% of Bradford's total emissions as of 2022, making this a key sector to decarbonise. Reducing fuel consumption (e.g., through heat pump deployment) is essential to reduce emissions and alleviate pressure on renewable alternatives.

ENABLING ACTIONS

- Enhance monitoring of industrial energy consumption.
- Encourage industrial sites to adhere to international management standards, such as ISO 50001.
- Replace equipment with higher efficiency models.
- Deploy technology to recover and reuse heat.
- Explore initiatives to support investment in heat recovery and reuse, such as the Industrial Heat Recovery Support programme and the Industrial Energy Transformation Fund.[125]
- Develop a 'Zero Carbon Knowledge Hub'.
- Showcase industrial decarbonisation leadership via Bradford Manufacturing Futures.
- Work with the Central Government to ensure access to UK-wide funding is channelled to Bradford's industry.

COBENEFITS

Reduced costs: Local industry can realise long-term cost savings through demand reduction measures.

Energy security: Reducing local energy use (ideally coupled with a shift to renewables) increases the resilience of the energy sector to external shocks such as disruption to supply and price fluctuations influenced by overseas imports and weather changes.[122]

Skills development: Demand reduction measures require new technologies, which, in turn, bring new green skills opportunities, benefiting Bradford both locally and within the supply chain.[123]

Economic growth: New technologies create opportunities for investment in the local economy. Ambitious and innovative actions can position Bradford's industry as a leader, providing a competitive advantage.[124]

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[122] https://onunda.com/newsroom/the-imperative-of-diversifying-the-uks-national-grid-electricity-production
[123] BMF Decarbonisation Masterplan
[124] Ibid.
[125] Ibid.

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
    - How: Smaller firms often lack the capital and technical expertise to implement energy-saving upgrades. This could be addressed through tiered grant schemes with higher intervention rates for SMEs (e.g., 60–80% capital cost support)[126], low-interest loans or on-bill financing, allowing payback from savings, or shared energy audits or regional energy hubs to provide no-cost assessments and retrofit guidance.[127]
- **Just Transition**
    - Why: The energy transition will require additional local, skilled employment to carry out energy efficiency installations, maintenance, and monitoring.
    - How: Enable inclusive, place-based skills development through technical colleges, reskilling programmes, and apprenticeships.

Cost Levels and Funding Responsibilities

	Businesses	CBMDC	Project
Upfront	££ - £££	£	££ - £££
Running	£	£	£

The BMF Decarbonisation Masterplan estimates capital expenditure needs of around £0.5-1.2 billion for all decarbonisation actions. Given the substantial demand reduction required, it is assumed that this is a high-cost action for local businesses. However, it is assumed that the firms will benefit from this in the long term, given the associated savings in energy consumption.

Key Funders

- Central Government
- Businesses

KPIs

- Industrial energy consumption (by fuel)
- Site-level energy consumption (by fuel)

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[126] https://www.westofengland-ca.gov.uk/growth-hub/green-business-support/green-business-grants/
[127] https://www.theccc.org.uk/wp-content/uploads/2022/06/How-can-policy-better-support-SMEs-on-the-pathway-to-Net-Zero-Energy-Saving-Trust.pdf

A significant proportion of industrial fossil fuel use cannot be shifted to electricity but requires other low-carbon fuels such as hydrogen. If produced sustainably (such as green hydrogen), this plays a key part in transitioning Bradford's industry to net zero.

ENABLING ACTIONS ━━━━

- Assess current fuel use and identify processes that cannot be shifted to electricity.
- Identify the preferred low-carbon alternatives and the relevant benefits and trade-offs.
- Engage with N-Gen Energy Solutions, Hygen Energy, and Bradford Low Carbon Hydrogen Ltd to understand priority uses within the region.
- Ramp up local renewable production (such as large-scale solar PVs on industrial sites).
- Develop regional distribution networks, leveraging existing grid infrastructure wherever possible to reduce disruption and indirect emissions.[131]
- Share best practice via BMF and zero-carbon knowledge hubs.

COBENEFITS

Energy security: Transitioning to renewable fuels enhances the energy sector's resilience to external shocks, including supply disruptions and price fluctuations driven by overseas imports and weather changes.[128] Hydrogen acts as long-term energy storage, therefore providing resilience against fluctuations in renewable energy generation.

Skills development: The production of renewable electricity and green fuels presents new opportunities for green skills, benefiting Bradford both locally and within the supply chain.[129]

Economic growth: New fuels and technologies create opportunities for investment in the local economy. Ambitious and innovative actions can position Bradford's industry as a leader, providing a competitive advantage.[130]

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[128] https://onunda.com/newsroom/the-imperative-of-diversifying-the-uks-national-grid-electricity-production
[129] BMF Decarbonisation Masterplan
[130] Ibid.
[131] Ibid.

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - Why: Smaller firms often lack the capital and technical expertise to deploy costly new technologies, such as hydrogen electrolysis. However, these may benefit from local hydrogen production if they are able to purchase the fuel without requiring costly on-site production.
  - How: SMEs could partner to co-finance or co-utilise hydrogen refuelling infrastructure for fleets. Leasing hydrogen vehicles or machinery reduces upfront capital costs.
- **Just Transition**
  - Why: The energy transition will require additional local, skilled employment to build the necessary infrastructure (such as PVs, electrolysers, and the distribution network).
  - How: Enable inclusive, place-based skills development through technical colleges, reskilling programmes, and apprenticeships.

Cost Levels and Funding Responsibilities

	Businesses	CBMDC	Project
Upfront	££ - £££	£	£££
Running	££ - £££	£ - ££	££ - £££

The Bradford Manufacturing Futures (BMF) Decarbonisation Masterplan estimates capital expenditure needs of around £0.5-1.2 billion for all decarbonisation actions. Deploying large-scale renewables (required for the production of green hydrogen) and the required infrastructure to use and distribute hydrogen are very costly. The cost profile is particularly high for continuous, high-temperature processes like steel, chemicals, ceramics, and cement.

Key Funders

- Central Government
- Businesses

KPIs
- Green hydrogen production
- Industrial hydrogen consumption (by fuel)
- Site-level hydrogen consumption (by fuel)

The transition to net zero requires a dramatic shift from emissions-intensive jobs and industries to sustainable alternatives. This requires training focused on green skills, such as energy efficiency, renewable energy, sustainable agriculture, and circular economy practices.

ENABLING ACTIONS ━━━━

- Define green skills in a positive, meaningful, and inclusive way.
- Map industries that are likely to see a decline in demand and identify synergies with emerging green jobs.
- Identify potential barriers for upskilling and retraining, focusing on marginalised communities.
- Facilitate coordination between industry, academia, and local governments to align training with labour market needs.
- Update school, college, and adult education curricula to include sustainability and climate-related topics.
- Provide financial support for training programmes, apprenticeships, and upskilling initiatives.
- Lobby Central Government to integrate green skills into national education and skills strategies, aligning national and local action.[134]

COBENEFITS

Investment & job creation: Supports new employment opportunities in the green economy.[132]

Sustainable & cohesive communities: Increases public understanding and support for sustainability and strengthens local capacity for climate action. Inclusive training opportunities can further strengthen community ties.

Economic resilience: Builds a future-ready workforce that can adapt to evolving industry needs.[133]

Equity & inclusion: Enables disadvantaged groups to access quality jobs and economic participation.

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[132] https://www.uk100.org/sites/default/files/publications/UK100%20%7C%20Skills%20for%20Local%20Net%20Zero%20Delivery%20%7C%20Insight%20Briefing.pdf
[133] https://assets.publishing.service.gov.uk/media/5a74c5c2ed915d502d6cae02/11-1315-skills-for-a-green-economy.pdf
[134] https://www.uk100.org/sites/default/files/publications/UK100%20%7C%20Skills%20for%20Local%20Net%20Zero%20Delivery%20%7C%20Insight%20Briefing.pdf

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
    - <u>Why</u>: Green skills training empowers communities to participate in and benefit from the green transition through locally relevant training and job opportunities. It can enable disadvantaged groups to access high-quality jobs and participate in the local economy.
    - <u>How</u>: Design programmes that specifically reach underserved or marginalised groups.[135] Provide wraparound support (e.g. childcare, transport, flexible learning formats). Ensure recognition of prior learning and skills, including for migrants or informal workers.
- **Just Transition**
    - <u>Why</u>: Enables those in carbon-intensive industries (e.g. fossil fuels, heavy manufacturing) to reskill or upskill into sustainable jobs, reducing job losses.
    - <u>How</u>: Anticipate sectoral shifts early through labour market analysis and planning. Develop targeted transition plans for affected sectors and regions, including skills development and job placement services. Provide income and social protection for those in transition, including during training.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£ - ££	££	££ - £££
Running	£ - ££	££	££ - £££

Education and training campaigns vary significantly in cost and funding responsibility. Assuming that the CBMDC may fund curriculum development, coordinate delivery, support access, and build partnerships, this action was costed as 'medium'. Informal collaboration efforts may incur few costs while a full, cross-sector programme across all ages (schools, adult education, reskilling centres), on the other hand, will require high investment. These costs do not consider the significant economic benefits that are expected to be realised from this action.

Key Funders

- Central Government
- Local Authorities
- Public Bodies and Delivery Agencies
- Private Sector and Industry
- Charitable Foundations
- Individuals

KPIs

- Number of trainees enrolled in green skills programmes

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[135] https://www.c40.org/wp-content/uploads/2024/10/RC4040b-Issue-Brief-B-Skills-for-Green-Jobs-v5.pdf

Action: Strengthen local supply chains and support circular economy opportunities

Developing and reinforcing local supply chains while promoting circular economy practices reduces waste, cuts emissions, and stimulates local economic resilience.

ENABLING ACTIONS ———

- Monitor, measure, and report Scope 3 (indirect, out-of-boundary) emissions, such as from supply chains.[136]
- Introduce local procurement policies favouring sustainable and local suppliers.
- Incentivise resource efficiency and circular practices by prioritising suppliers which demonstrate these approaches.[137]
- Provide grants, technical advice, or incubation for local businesses adopting circular models.
- Train workers in circular economy roles (repair technicians, materials auditing, sustainable design). Support re-skilling of those in declining industries.
- Facilitate cooperation between businesses, community organisations, and local authorities to build circular ecosystems.
- Lobby the Central Government to make changes to VAT to promote circular economy practices.[138]

COBENEFITS

Local economic resilience: Keeps value in the local economy and reduces dependence on global supply chains.

Investment & job creation: Supports new employment in recycling, repair, and sustainable manufacturing.

Reduced environmental impacts: Minimises resource extraction and waste.

Sustainable & cohesive communities: Encourages community ownership of resources and participation in local solutions.

Innovation & competitiveness: Fosters sustainable business models that are future-proof and regulation-ready.

Scope 3 emissions reductions: Considerations of the whole supply chain enables deep emissions reductions, both within and outside of Bradford's district boundaries.

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[136] https://www.theccc.org.uk/wp-content/uploads/2020/12/Local-Authorities-and-the-Sixth-Carbon-Budget.pdf
[137] https://www.wcl.org.uk/docs/Financial_Incentives_to_Grow_the_Circular_Economy.pdf
[138] Ibid.

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - <u>Why</u>: Empowers local initiatives (e.g. repair cafés, tool libraries) that are inclusive and accessible. Organisations that strive for circular practices are more likely to make efforts to be inclusive of marginalised and disadvantaged groups.[139]
  - <u>How</u>: Map who benefits and who may be displaced by the transition away from resource-intensive practices. Support transitions for existing firms and workers through training and business model innovation. Ensure access to finance and infrastructure for community groups and small enterprises.
- **Just Transition**
  - <u>Why</u>: Circular economy activities can absorb workers affected by industrial decline, particularly in manufacturing, retail, and logistics. Strengthening local supply chains reduces vulnerability to global disruptions, enabling communities to manage structural change more effectively.
  - <u>How</u>: Identify where job losses may occur (e.g. manufacturing) and offer targeted reskilling and business support. Develop clear pathways from traditional roles to new circular economy jobs, including training, job matching, and income support during the transition.[140]

Cost Levels and Funding Responsibilities

	Businesses	CBMDC	Project
Upfront	££	£ - ££	££
Running	£	£	£

This action encompasses a range of potential activities with different cost levels – the local authority may explore policy and coordination within existing teams or invest in hubs, grants, or procurement changes. It is expected that there is upfront expenditure required for businesses as they switch to more sustainable practices, which are recouped in the long run through energy and resource savings.[141]

Key Funders

- Central Government
- Local Authorities
- Private Sector and Industry
- Charitable Foundations

KPIs

- % of procurement spend within the local economy
- Number of local businesses adopting circular practices

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[139] https://just2ce.eu/wp-content/uploads/2022/10/D1.4-The-report-%E2%80%98Labour-in-the-Transition-to-the-CE.pdf
[140] https://www.justtransition.scot/wp-content/uploads/2023/03/JTC1-Final-Report.pdf
[141] https://democracy.devon.gov.uk/documents/s50632/Devon%20County%20Councils%20Low%20Carbon%20Supply%20Chain%20Strategy%20Report.pdf

Box 12. Case Study: Strengthening local supply chains through partnerships.

Bristol City Leap is a pioneering public-private partnership (PPP) between Bristol City Council and Ameresco, aimed at accelerating city-wide decarbonisation while generating long-term social and economic value. As part of its five-year delivery plan, Ameresco has committed to approximately £61.5 million in social value, including around £50 million in contracts directed to the local supply chain. This approach not only advances Bristol's climate goals but also reinforces the resilience and capability of local businesses, ensuring that the transition to net zero delivers shared benefits across the city.

Through a planned £424 million investment in low-carbon infrastructure such as solar, wind, heat networks, heat pumps, and energy efficiency measures, Bristol City Leap is creating 410 new jobs in Bristol, all paying at least the Real Living Wage, and supporting the development of a skilled local workforce through apprenticeships, training, and mentoring. By embedding these commitments in a long-term delivery model, the partnership is enabling Bristol to scale up action on climate change while strengthening local supply chains and community participation in the city's decarbonisation journey.[142]

Box 13. Case Study: Leveraging Local Enterprise Partnerships to support the circular economy.

The York & North Yorkshire Local Enterprise Partnership (now York & North Yorkshire Combined Authority) has strategically used its role to drive a circular economy through its Circular Yorkshire initiative. By bringing together over 80 stakeholders across business, local authorities, and communities, the LEP has embedded circular principles – reuse, repair, and waste minimisation – into local economic development. This has included piloting Circular Towns in places such as Malton and Norton, developing practical toolkits for councils and businesses, and delivering training and audits to build circular skills and capacity across the region.

Through targeted coordination of funding, procurement support, and business engagement, the LEP has established a framework that aligns economic growth with sustainability. This approach enables local authorities and businesses to shift from linear models to circular practices, supporting green jobs and resilient supply chains. The Circular Yorkshire model demonstrates how LEPs can leverage their position to embed circularity into regional strategy and delivery, supporting the goal of becoming the UK's first carbon-negative region.[143, 144]

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[142] https://www.bristolcityleap.co.uk/about/
[143] https://www.ynylep.com/circularyorkshire
[144] https://ashden.org/news/yorkshire-councils-create-green-economies-through-a-local-enterprise-partnership/

Action: Support SMEs through carbon literacy, knowledge exchange, and tailored resources

It is crucial to empower small and medium-sized enterprises (SMEs) to take meaningful climate action. This may be done by increasing their understanding of carbon impacts (carbon literacy), facilitating peer learning and knowledge exchange, and providing tailored tools, guidance, and funding to help them reduce emissions and build resilience.

ENABLING ACTIONS ——

- Develop and fund carbon literacy training programmes tailored to SME needs and sectors.
- Provide sector-specific toolkits and decarbonisation roadmaps for energy, transport, procurement, etc.
- Facilitate peer learning and local networks (e.g. business clusters, green business forums).
- Offer grants, loans, or consultancy support for energy audits, retrofits, or digitalisation.
- Embed climate action in business support services, growth hubs, and local economic development plans.

COBENEFITS

Local economic resilience: As the UK takes action to meet its net zero target, central Government is likely to impose stricter regulations on businesses. Anticipating these changes by making the shift early, organisations can become more resilient.[145]

Engagement & stakeholder buy-in: Carbon literacy training enabled direct and in-depth engagement on the drivers of climate change. This can help support stakeholder buy-in from local residents in broader emissions reduction measures.[146]

Reduced costs: Small changes, such as maintaining HVAC systems at reasonable temperatures and switching off unused equipment, can lead to cost savings through reduced energy consumption. As regulations become stricter, and carbon-intensive activities may incur additional charges, carbon-conscious businesses can gain a competitive advantage through established processes.[147]

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[145] https://riseretrofit.org.uk/storage/uploads/1739287372_AdvicePack_Carbon_Literacy_for_the_retrofit_supply_chain.pdf
[146] Ibid.
[147] Ibid.

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - <u>Why</u>: Tailored outreach and support for women-, minority-, or migrant-led SMEs can level the playing field in the green economy. Many microbusinesses lack the capacity or capital to engage with carbon reduction – targeted support ensures they're not left behind.
  - <u>How</u>: Map and target support to SMEs in disadvantaged areas or underrepresented sectors. Design inclusive materials, such as plain language, visual tools, and translation. Subsidise or fully fund training and audits for micro- and early-stage businesses. Collect and monitor disaggregated participation data to identify equity gaps.
- **Just Transition**
  - <u>Why</u>: Helps SMEs adapt early to changing regulations, markets, and customer expectations, reducing the risk of business failure or job losses. Supports low-carbon job creation in sectors like energy, construction, and sustainable logistics.
  - <u>How</u>: Target support to vulnerable sectors (e.g. logistics, hospitality, manufacturing) and help them decarbonise over time. Ensure accessible and timely transition planning so that SMEs can adapt rather than shut down.

Cost Levels and Funding Responsibilities

	Businesses	**CBMDC**	**Project**
Upfront	£ - ££	£ - ££	££
Running	£	£	£

Overall project costs depend on the level of ambition; pilot schemes are lower cost, while full-scale systemic changes (e.g. infrastructure or region-wide support) require more significant investment. Local authorities typically incur medium costs for coordination, training, and grants. Carbon Literacy estimates that the implementation of relevant actions can save between £400 to £1,000/year per employee.[148]

Key Funders
- Central Government
- Local Authorities
- Local Businesses

KPIs
- Number of SMEs implementing a decarbonisation plan
- Number of SMEs completing carbon literacy training

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[148] https://carbonliteracy.com/wp-content/uploads/2021/05/Making-the-Case-for-Carbon-Literacy-V3.pdf

The majority of Bradford's emissions come from the domestic buildings sector, with heating being a significant source of energy consumption. Heat pumps offer an effective solution, providing a low-carbon and highly energy-efficient alternative.

ENABLING ACTIONS

- Enable residents to overcome key barriers, such as not being able to envisage committing to this new technology, by delivering heat pump showcases.
- Incorporate heat pumps into retrofitting hubs.
- Partner with the private sector to unlock additional funding.
- Analyse clusters suitable for ground-source heat pumps (i.e. properties with gardens) to create opportunities for efficient large-scale projects.[152]
- Facilitate upskilling and retraining programmes for heat pump installation and maintenance.
- Maintain or recommend lists of vetted, high-quality local installers to address existing concerns.
- Lobby Central Government for additional funding, for both heat pumps and enabling actions (such as upskilling programmes).

COBENEFITS

Reduced costs: Although heat pump purchase and installation require significant upfront costs, they are more than three times as efficient as modern gas boilers, resulting in lower energy bills in the long term.[149]

Fuel poverty reduction: The long-term cost savings result in reduced fuel poverty. For rented properties or with sufficient grants, the cost savings are immediate.

Climate change resilience: Air-to-air heat pumps can provide cooling, which helps maintain thermal comfort during increasingly common heatwaves.[150]

Improved air quality: Heat pumps improve local air quality by replacing fossil fuel heating systems, such as gas boilers.[151]

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[149] https://www.theccc.org.uk/publication/sixth-carbon-budget/
[150] https://energysavingtrust.org.uk/advice/air-to-air-heat-pumps/
[151] https://www.wearepossible.org/parks-toolkit/7-cobenefits
[152] https://es.catapult.org.uk/insight/transforming-heat-pump-decision-making-for-local-authorities/

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - <u>Why</u>: By reducing fuel poverty through energy savings, heat pumps can address existing financial and health inequalities.[153]
  - <u>How</u>: Heat pumps are a high-cost action due to the significant upfront costs. As such, low-income households need to be supported with relevant grants and funding for both heat pump installation and fabric efficiency upgrades to maximise the operational efficiency of the heat pump itself and general energy savings.
- **Just Transition**
  - <u>Why</u>: Heating makes up a significant amount of local energy use, requiring significant building-level and network maintenance. A large-scale shift to heat pumps offers opportunities for job growth throughout the entire supply chain.[154]
  - <u>How</u>: Barriers to the uptake of the required jobs, such as inconsistent training quality, low apprenticeship wages, and challenges in breaking through into the sector for certain groups, need to be addressed.[155]

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£££	£ - ££	£££
Running	£	£	£

Heat pumps incur high upfront costs but achieve substantial savings over time, as they are 3-4 times as energy efficient as a modern gas boiler. Challenges around upfront costs (including insulation costs in a large proportion of homes) need to be addressed to enable suitable properties that cannot be connected to heat networks to access this technology.[156] Local authorities support this action by applying for funding, identifying low-income and fuel-poor homes, undertaking quality control, and installing heat pumps in any council-owned properties.

Key Funders

- Central Government
- Energy Utility Providers
- Individuals

KPIs

- Number of heat pumps installed
- Amount of funding spent in the local area (£)

[153] https://www.instituteofhealthequity.org/resources-reports/fuel-poverty-cold-homes-and-health-inequalities-in-the-uk/read-the-report.pdf
[154] https://www.heatpumps.org.uk/wp-content/uploads/2025/02/Heat-Pump-Supply-Chain-readiness-to-deliver-Net-Zero-Homes.pdf
[155] https://strathprints.strath.ac.uk/79774/1/Branford_2022_Executive_summary_heat_pump_skills_gap_and_the_just_transition.pdf
[156] https://housingevidence.ac.uk/wp-content/uploads/2024/01/Heat-pumps-report-final.pdf

Behavioural research shows that what people *say* about climate action often doesn't match what they actually do.[157] Neuroscience studies suggest that activity in the prefrontal cortex, linked to decision-making and planning, is a better predictor of climate-friendly behaviour than stated intentions.[158] One reason for this gap is that many sustainable technologies, like heat pumps, remain abstract to most households – with residents simply not being able to envisage their home with this new technology. Without personal experience or trusted, relatable examples, people struggle to move from thinking about adoption to taking concrete steps.

Nesta's 'heat pump show homes' project tackles this barrier by identifying where homeowners lack meaningful touch points with the technology. For many, they've never seen, heard, or felt a working heat pump in action. Aiming to change this, the project provides:

- open homes and showroom visits which let people see working heat pumps, talk to hosts, and ask questions;
- an online platform which makes it easy to find nearby show homes and book a visit;
- information on real user journeys to reduce confusion and decision barriers;
- a platform for feedback from visitors and hosts is used to improve and expand the programme.[159]

[157] https://www.mdpi.com/2071-1050/15/20/14859
[158] https://pmc.ncbi.nlm.nih.gov/articles/PMC9606619/
[159] https://www.nesta.org.uk/project/heat-pump-show-homes/heat-pump-show-home-running-progress/

Action: Deliver large-scale retrofitting (insulation) programmes

Enhancing the thermal efficiency of the existing building stock is crucial, as this will directly save energy and reduce emissions, while also facilitating the successful adoption of switching from traditional heating systems to heat pumps.

ENABLING ACTIONS ─────

- Create retrofit knowledge hubs to allow residents to explore different insulation/energy efficiency options.
- Lead by example: Retrofit public sector buildings and link this to showcasing and engagement opportunities.
- Use procurement powers to stimulate local supply chains.
- Fund training and certification programmes for insulation installers and retrofit coordinators.
- Enforce targets for landlords (such as the minimum Energy Performance Certificate (EPC) rating of C by 2030).
- Provide grants and other funding streams, especially for low-income housing.
- Lobby the Central Government for stricter standards for rented properties.

COBENEFITS

Reduced costs: Deep retrofits can incur high upfront costs but, in turn, realise significant energy and cost savings.[160]

Fuel poverty reduction: The long-term cost savings result in reduced fuel poverty. For rented properties or with sufficient grants, the cost savings are immediate.

Improved thermal comfort: Insulation results in more energy-efficient buildings, which not only reduces energy bills, but also makes the homes more 'warm and comfortable'.

Improved health & well-being: Improved insulation has been linked through various studies to reduced impacts for poor general mental health, poor general physical health, asthma, wheeze, and wall insulation has been significantly linked to a reduction in hospital admissions.[161]

Investment & job creation: West & North Yorkshire Chamber of Commerce (WNYCC) identified in their Local Skills Improvement Plan[162] (LSIP) that there is a shortage of 30,000 people needed for retrofit, meaning that there is an opportunity, but also challenges to meeting demand.

Grid capacity: The reduced energy consumption alleviates pressure on the electricity grid, which enables other important mitigation actions.[163]

[160] https://www.leti.uk/_files/ugd/252d09_c71428bafc3d42fbac34f9ad0cd6262b.pdf
[161] https://www.bmj.com/content/371/bmj.m4571
[162] https://www.wnychamber.co.uk/app/uploads/2023/08/LSIP_West_Yorkshire_2023.pdf
[163] https://www.leti.uk/_files/ugd/252d09_c71428bafc3d42fbac34f9ad0cd6262b.pdf

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - o <u>Why</u>: By reducing fuel poverty through energy savings, retrofits can address existing financial and health inequalities.[164]
  - o <u>How</u>: Deep retrofits can incur high upfront costs of over £100k per property.[165] As such, low-income households require support with relevant grants and funding for fabric efficiency upgrades. This will also maximise the operational efficiency of low-carbon heating systems, such as heat pumps.

- **Just Transition**
  - o <u>Why</u>: Heating makes up a significant amount of local energy used, requiring significant building-level and network maintenance. A large-scale uptake in fabric efficiency measures offers job growth along the entire supply chain.
  - o <u>How</u>: Barriers to the uptake of the required jobs, such as inconsistent training quality, low apprenticeship wages, and challenges in breaking through into the sector for certain groups, need to be addressed.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£ - £££	£ - ££	££ - £££
Running	£	£	£

Costs for fabric efficiency upgrades vary substantially depending on the building type and condition. Some homes may not require any upgrades, while others have very low thermal efficiency, which limits opportunities for switching to low-carbon heating systems. As such, it is recommended that the fabric efficiency measures at least enable heat pump installation (where possible).[166] Central Government funding continues to be essential to facilitate emissions reductions in the domestic buildings sector. This investment, however, can leverage both significant emissions reductions and alleviate multidimensional inequalities.

Key Funders

- Central Government
- Local Authorities
- Individuals

KPIs

- Average regulated energy consumption (kWh/m^2)

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[164] https://www.leti.uk/_files/ugd/252d09_c71428bafc3d42fbac34f9ad0cd6262b.pdf
[165] Ibid.
[166] Ibid.

Box 15. Case Study: Green Open Homes to Enable Behaviour Change.

Since 2013, The Centre for Sustainable Energy's (CSE) Green Open Homes network (initially launched as Bristol Green Doors) has invited homeowners to open their retrofit-upgraded homes for neighbours and visitors to explore, ask questions, and learn firsthand about practical improvements – from draft proofing to heating systems and insulation.[167] This peer-led model leverages the power of social proof: visitors see real-life examples, hear honest feedback from friends or local peers, and discover trusted local builders, often making them far more motivated to commission similar retrofits. In one notable example, a 'not-yet-green' home tour helped homeowners learn that removing outdated Vermiculite cavity insulation could resolve mould and heat loss, something they would never have known without expert intervention during the event.[168] This translates abstract retrofit benefits into relatable, tangible outcomes.

By pairing demand stimulation with local supply development, through initiatives like The Green Register (a vetted local retrofit professional directory), audit programmes like CHEESE, and training via Futureproof and Bristol Energy Network, Green Open Homes helps overcome the key barriers of trust, visibility, and skilled labour availability, driving retrofit uptake.[169] This community-led model effectively moves homeowners from awareness into action, helping the retrofit market transition from early adopters into the early majority, which is critical for scaling up to net-zero targets. It also builds local supply chains and knowledge-sharing networks, reinforcing a sustainable retrofit ecosystem across neighbourhoods and beyond.

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[167] https://www.greenopenhomes.net/
[168] https://www.cse.org.uk/news/annemieke-and-tims-story/
[169] https://www.energyrev.org.uk/media/1671/energyrev_skills_bristol-building-retrofit_final_20210722.pdf

Action: Ensure new builds are well-insulated

While it is estimated that c. 80% of all buildings in 2050 have already been built, additional properties need to be constructed to accommodate growing demand, which must be done with climate mitigation targets in mind.

ENABLING ACTIONS ──────

- Set ambitious minimum energy performance standards for new buildings via the planning framework.
- Mandate high insulation levels for roofs, walls, floors, and windows (e.g. U-value thresholds).
- Regularly update regulations to reflect technological advances.
- Engage with local developers to identify barriers and opportunities.
- Require on-site testing to overcome the performance gap.[172]
- Promote low-carbon materials and modern methods of construction (e.g. prefabrication with high insulation).
- Train architects, developers, and construction workers in energy-efficient design and construction.

COBENEFITS

Reduced costs: Well-insulated buildings enable significant energy and cost savings.

Fuel poverty reduction: The long-term cost savings lead to a reduction in fuel poverty.

Improved thermal comfort: Higher energy efficiency not only reduces energy bills, but it also makes the homes more 'warm and comfortable'.

Improved health & well-being: Improved insulation has been linked through various studies to reduced impacts for poor general mental health, poor general physical health, asthma, and wheeze. Wall insulation has been linked to a reduction in hospital admissions.[170]

Investment & job creation: Construction of new buildings requires a range of skills along the supply chain, which can stimulate local employment.

Grid capacity: The reduced energy consumption alleviates pressure on the electricity grid, which enables other important mitigation actions.[171]

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[170] https://www.bmj.com/content/371/bmj.m4571
[171] https://www.leti.uk/_files/ugd/252d09_c71428bafc3d42fbac34f9ad0cd6262b.pdf
[172] https://www.cibse.org/media/a1skdgsi/cb11.pdf

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - <u>Why</u>: By reducing fuel poverty through energy savings, retrofits can address existing financial and health inequalities.[173]
  - <u>How</u>: It is crucial that high-quality new builds do not outprice lower-income households. This can be achieved by coupling this action with affordable housing minimums.
- **Just Transition**
  - <u>Why</u>: Heating makes up a significant amount of local energy use, requiring significant building-level and network maintenance. New, high-quality housing developments offer job growth along the entire supply chain.
  - <u>How</u>: Barriers to the uptake of the required jobs, such as inconsistent training quality, low apprenticeship wages, and challenges in breaking through into the sector for certain groups, need to be addressed.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	££	£ - ££	££ - £££
Running	£	£	£

New homes must be built to high insulation standards to avoid locking in long-term energy waste and future retrofit costs. Strong regulation, enforcement, and skills across the supply chain are essential to delivering fabric efficiency at scale. While insulation incurs a modest upfront cost, it enables low-carbon heating from the outset, protects households from rising energy bills, and enhances health and comfort. With the right policy settings, this delivers long-term carbon savings and reduces pressure on public services.

Key Funders

- Developers
- Individuals
- Local Authorities

KPIs

- Average regulated energy consumption (kWh/m^2)
- Number of energy-efficient homes

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[173] https://www.leti.uk/_files/ugd/252d09_c71428bafc3d42fbac34f9ad0cd6262b.pdf

6 Enabling Community Climate Action
Action: Create a formalised community climate action network

Community engagement is central to making climate action work. Providing communities with a formalised climate action network – which may go beyond communities to include a range of stakeholders – can help facilitate knowledge sharing and make it easier for communities to access resources.

ENABLING ACTIONS ━━━━━

- Secure core funding and staffing to provide a dedicated climate action network coordinator and administrative support.
- Provide funding to community groups,[174] e.g. via the National Lottery Community Climate Action Funding pot.
- Show strong leadership and enable network building.[175]
- Develop a clear engagement strategy to target underrepresented communities.
- Map existing community initiatives and assets to identify gaps and opportunities.[176]
- Provide training and skills development, such as community climate leadership programs or peer-to-peer learning networks.
- Monitoring and evaluation frameworks to demonstrate impact and build credibility.

COBENEFITS

Sustainable & cohesive communities: Strengthened social capital by bringing diverse groups together around common goals.

Improved health & well-being: While this depends on the specific projects, it is assumed that engagement in nature-based and active travel projects can contribute to this co-benefit.

Reduced costs: Climate action networks can encourage people to be more mindful of energy consumption, retrofit their homes, or switch to active travel, all of which come with significant long-term cost savings.

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[174] https://www.pobal.ie/wp-content/uploads/2025/06/250047-Pobal-CCAP-Report-FINAL.pdf
[175] Ibid.
[176] https://www.tnlcommunityfund.org.uk/media/insights/documents/TF23_141_4_CAF-Engaging-Young-People-in-Climate-Action.pdf

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
    - <u>Why</u>: Engages marginalised communities who may be most affected by climate change but are underrepresented in planning processes.
    - <u>How</u>: It is often challenging to engage with marginalised communities, especially on topics that do not seem to impact them (such as GHG emissions) directly. As such, a co-benefits-centred approach can help meet people where they are and identify how climate action can improve their lives (e.g., through cost savings and improved well-being).

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	£ - ££	£ - ££
Running	£	£ - ££	£ - ££

Depending on the formality and activities offered under the network, costs are likely to be low to medium, both in terms of upfront and ongoing expenses. If this includes significant community grant costs, they may exceed initial estimates; however, the benefits of such funding should not be underestimated.

Key Funders

- Local Authority
- National Lottery Community Fund
- Businesses
- Charities and Philanthropy

KPIs

- Number of community groups part of the network
- Number of individuals part of the network

Box 16. Case Study: Bristol Climate & Nature Partnership

The Bristol Climate & Nature Partnership (BCNP) is a city-wide network of over 1,300 organisations, including Bristol City Council, charities, community groups, and underrepresented voices, which are united by a shared vision: a zero-carbon, nature-rich, socially just Bristol.

Central to BCNP's mission is its Community Climate Action Project, delivered in partnership with Bristol City Council and the Centre for Sustainable Energy, and funded by the National Lottery's Climate Action Fund. This initiative enables diverse communities, from residents in Bedminster and Brislington to Disabled people and cricket fans, to co-produce inclusive climate action plans around areas like transport, energy, food, waste, jobs, and inequality, ensuring local priorities drive local action.

By 2025, BCNP had grown its model to empower 17 community organisations, engaging more than 11,000 people and cutting some 382 tonnes of CO_2 emissions (equivalent to over 2,200 short-haul return flights) through initiatives, such as community gardens, zero-waste stores, retrofitting support, and entrepreneurship courses for refugees and migrants.

With a £1.75 million grant, this approach is now scaling across the wider West of England region, including Bath & North East Somerset, South Gloucestershire, and North Somerset, to continue building a blueprint for community-led climate and nature action across the UK.[177]

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[177] https://bristolclimatenature.org

Being a key stakeholder with influence over all priority areas, the council can create opportunities to co-design and co-deliver local climate and economic transition projects with community groups, unions, businesses, and educational institutions.

ENABLING ACTIONS ———

- Socio-economic vulnerability mapping should be carried out to identify communities and sectors most in need of support.[178]
- Dedicated funding streams should be created to support inclusion-focused projects such as youth green jobs, retraining programmes, and accessible transport initiatives.[179]
- Partnerships should be built with education and training providers, including colleges and universities, to support workforce development.
- The activities should be aligned with existing council strategies on climate, economic development, skills, housing, and public health.

COBENEFITS

Investment & job creation: Delivering inclusive projects with a focus on just transition can increase local employment, particularly in green sectors.

Improved health & well-being: Residents may experience improved health and well-being as a result of better housing, access to clean energy, and higher environmental quality.

Local economic resilience: The local economy may become more resilient through diversification and anticipation of future environmental regulations.

Sustainable & cohesive communities: Community cohesion can be enhanced as residents come together around shared priorities and work collaboratively on local projects. The projects can also lead to greater democratic participation, as communities feel a greater sense of ownership in the transition process.

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[178] https://www.gov.wales/sites/default/files/statistics-and-research/2025-01/exploring-a-potential-approach-to-understand-and-map-the-local-level-impacts-and-opportunities-of-a-just-transition-to-net-zero.pdf

[179] https://www.justtransition.scot/wp-content/uploads/2023/03/JTC1-Final-Report.pdf

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - o <u>Why</u>: Community-level projects can ensure that residents who cannot benefit from certain actions (such as rooftop solar PV) due to high capital costs, gain access through shared intiatives.
  - o <u>How</u>: It is crucial to identify those communities which need the most support, e.g. through socio-economic vulnerability mapping.
- **Just Transition**
  - o <u>Why</u>: The projects carried out under this action can and should put justice at the centre of climate action by ensuring that no one is left behind in the transition to a net-zero economy.
  - o <u>How</u>: It is crucial to engage with marginalised groups that are currently lacking the opportunity to participate in the district. By investing in reskilling and employment pathways, the action can enable upward mobility and economic empowerment.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	£ - ££	£ - ££
Running	£	£ - ££	£ - ££

As with other community-focused opportunities, costs vary significantly and depend on whether the focus is on engagement and collaboration or direct funding and investment. However, even the costs of collaboration efforts should not be underestimated, as this requires project coordination staff, venues, and monitoring and evaluation activities.

Key Funders

- Local Authority
- Businesses
- National Lottery Community Fund

KPIs

- Number of community-level projects delivered per priority area

Community education programmes should raise awareness about climate change, sustainability, and the just transition through accessible, locally relevant content.

ENABLING ACTIONS ━━━━━━━

- Practical, hands-on learning opportunities such as energy audits, growing spaces, and biodiversity activities.[180]
- Development of partnerships with local schools, colleges, cultural institutions, and community organisations to co-deliver and co-design the programmes.
- Secure funding to train teachers and facilitators in climate literacy, sustainability topics, and inclusive engagement methods.[181]
- Develop or adapt resources such as toolkits, lesson plans, and activity packs for use in schools and informal education settings.
- Put monitoring and feedback mechanisms in place to evaluate impact and continuously improve the content and delivery of programmes.
- Create opportunities for schools and communities to showcase their climate actions and celebrate success.

COBENEFITS

Engagement & stakeholder buy-in: Community education programmes can increase public understanding of climate science, solutions, and everyday actions, leading to more sustainable behaviours.

Sustainable & cohesive communities: These programmes can strengthen community connections by bringing people together through shared learning and collaborative projects.

Reduced costs: Schools and community groups can save energy and reduce costs by implementing ideas generated through education activities.

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[180] https://schools.essex.gov.uk/climate-and-sustainability/practical-topic-guide-climate-action/energy-efficiency-savings-schools
[181] https://www.ntu.ac.uk/about-us/strategy/sustainability/sustainability-in-curriculum/climate-literacy-training

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - o Why: These programmes can engage groups who are less likely to engage with traditional environmental messaging, such as low-income households or recent migrants.
  - o How: The programmes have to be built on a thorough equity and inclusion analysis, which assesses socioeconomic disparities across the district, ideally with spatial mapping, to understand who needs to be engaged before tailoring the programmes accordingly. Educational content should be adapted to reflect the lived experiences, cultural heritage, and languages spoken by Bradford's diverse communities.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	£ - ££	£ - ££
Running	£	£ - ££	£ - ££

As with other community-focused opportunities, costs vary significantly and depend on whether the focus is on engagement and collaboration or direct funding and investment. However, even the costs of collaboration efforts should not be underestimated, as this requires project coordination staff, venues, and monitoring and evaluation activities.

Key Funders

- Local Authority
- Businesses
- National Lottery Community Fund

KPIs

- Number of training programmes delivered
- Number of schools engaged

7 Managing Land and Nature

Action: Tree planting to enhance carbon sequestration and biodiversity

This action encompasses both urban and woodland tree planting actions, aiming to enhance carbon sequestration potential while improving local biodiversity.

ENABLING ACTIONS ─────

- Develop a phased, strategic planting programme partnering with local stakeholders such as BEAT to avoid ecological disruption and ensure resources are used efficiently.
- Host regular community tree planting days involving schools, local groups, residents, and businesses.
- Designate land for woodland creation in the Local Plan to provide a formal framework for identifying suitable sites.
- Ensure that tree species are matched to soil, climate, and ecological context.
- Aligning with national strategies like the Nature for Climate Fund[187], supported by DEFRA, or engaging with Northern Forest funding mechanisms[188] can unlock financial support for tree planting projects.

COBENEFITS

Better health & well-being: Green urban infrastructure has been shown to increase the overall well-being of residents.[182]

Access to nature: Increasing tree cover can be linked with enhancing green urban infrastructure, providing residents with access to nature

Climate change resilience: Tree planting enhances green spaces, which reduces urban heat island effects.[183] Tree planting also helps in disaster risk reduction and enhances community resilience to flood and landslide impacts.[184]

Enhanced biodiversity & ecosystem health: Tree planting efforts foster biodiversity and ecosystem conservation, as trees and forests provide wildlife habitats and help maintain and enhance biodiversity. Tree planting also enhances soil health and quality.[185]

Sustainable & cohesive communities: Community tree planting can improve social cohesion by reducing anti-social behaviour and creating safe spaces.[186]

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[182] https://www.researchgate.net/publication/257716045_Experiential_Contacts_with_Green_Infrastructure%27s_Diversity_and_Well-being_of_Urban_Community
[183] https://www.sciencedirect.com/science/article/abs/pii/S0048969723071073
[184] https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2024/07/Working-paper-410-Pagel-Sileci.pdf
[185] Ibid.
[186] https://cdn.forestresearch.gov.uk/2022/02/urgp_case_study_032_cydcoed.pdf
[187] https://www.forestresearch.gov.uk/about-us/our-work/nature-for-climate-fund/
[188] https://www.woodlandtrust.org.uk/about-us/what-we-do/we-plant-trees/the-northern-forest/

PRINCIPLES & APPROACHES

- **Inclusion**
  - o <u>Why</u>: Deprived communities may not have or be able to take part in community activities. Tree planting initiatives, such as community forestry, can encourage the creation of community initiatives and formalised groups which give residents a sense of belonging.[189]
  - o <u>How</u>: It is crucial that tree planting and other green space creation do not further exclude communities by focusing on affluent areas with existing community groups and green spaces.

- **Equity**
  - o <u>Why</u>: The Born in Bradford study identified that families living in deprived parts of Bradford have less access to quality green spaces and are less satisfied with their local green spaces. Annually, lack of access to green space contributes to around 16 preventable deaths.[190]
  - o <u>How</u>: Tree planting, coupled with plans to enhance local green spaces in deprived areas, can address existing inequities while enhancing the character of the district and local biodiversity.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	£ - ££	££
Running	£	£	£

Tree planting can be a relatively low-cost measure for local authorities, especially when utilising available grants, focusing on low-cost species, and engaging the community to save labour costs. Urban tree planting is generally more expensive, as it is more challenging to prepare the site and manage the plants.[191] However, this is vastly outweighed by benefits, such as increased climate change resilience, improved air quality, and enhanced well-being.

Key Funders

- Central Government (e.g., DEFRA)
- Woodland Trust
- Landowners
- Philanthropy & Private Sector

KPIs

- Number of trees planted in urban areas
- Number of trees planted in woodlands

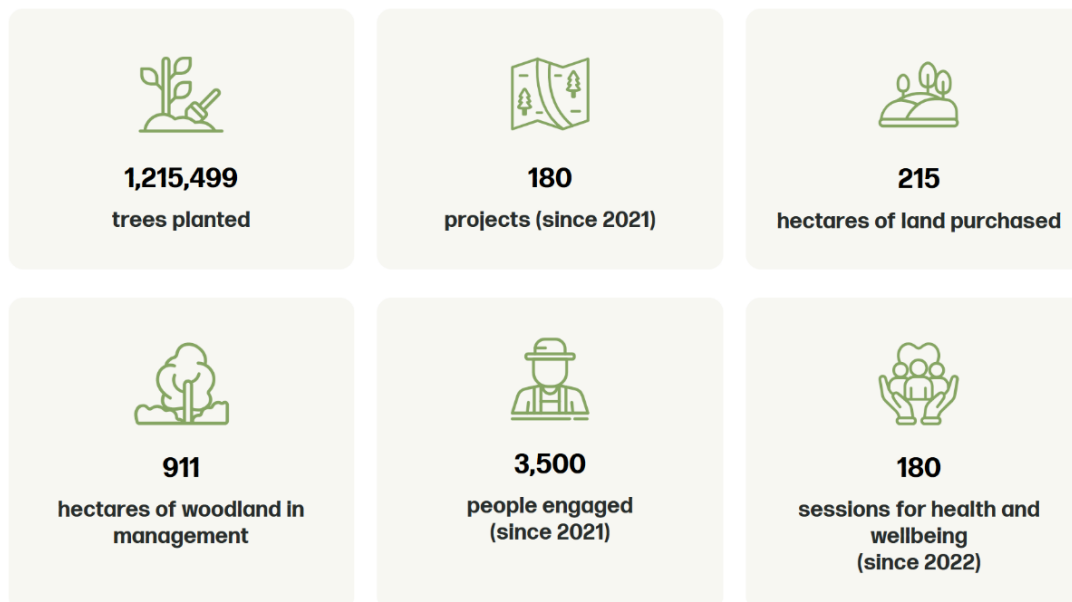[189] https://cdn.forestresearch.gov.uk/2022/02/urgp_case_study_032_cydcoed.pdf
[190] https://borninbradford.nhs.uk/wp-content/uploads/2024/10/10-Key-Findings-for-policy-and-practice-2019.pdf
[191] https://www.tdag.org.uk/uploads/4/2/8/0/4280686/what_does_it_cost_to_plant_a_tree.pdf

A cautionary example of large-scale tree planting comes from Turkey's 2019 'Breath for the Future' campaign, which aimed to plant 11 million saplings nationwide in a single day. Despite the ambitious goal and record-breaking planting efforts, reports indicate that up to 90% of these saplings died shortly after planting. The primary reasons cited for this high mortality rate include planting at the wrong time of year, insufficient watering, and lack of expert involvement in the planting process. Experts had warned that November's dry conditions were unsuitable for planting, but these warnings were not heeded. This case demonstrates the importance of proper planning, timing, and aftercare in tree planting initiatives. Without these components, even well-intentioned projects can fail to achieve their environmental objectives. It also highlights the risks of prioritising symbolic gestures over sustainable practices in environmental campaigns.[192]

In contrast, successful tree planting efforts, such as those by the Forest of Avon Trust, demonstrate the effectiveness of combining expert guidance, appropriate timing, and community engagement. Their projects have not only achieved high survival rates for planted trees but have also encouraged community involvement and delivered broader environmental benefits. One standout project, 'Friends Wood' in South Gloucestershire, was initiated by a local landowner inspired to create a new woodland following the Covid-19 lockdowns. With support from the Forest of Avon Trust and funding from the Trees for Climate grant scheme, the project transitioned from concept to implementation within six months. Despite poor weather, 445 trees were successfully planted with the help of scout groups

1,215,499 trees planted	**180** projects (since 2021)	**215** hectares of land purchased
911 hectares of woodland in management	**3,500** people engaged (since 2021)	**180** sessions for health and wellbeing (since 2022)

and community volunteers. The site is now being further developed, with plans for a mini tree nursery, hedgerow management training, and wildflower planting activities, thereby deepening its biodiversity and educational impact.

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[192] https://www.theguardian.com/world/2020/jan/30/most-of-11m-trees-planted-in-turkish-project-may-be-dead

This case study is part of a broader record of achievement by the Forest of Avon Trust. Since 2021, the Trust has planted over 1.2 million trees and delivered 180 projects, while also purchasing 215 hectares of land and managing 911 hectares of woodland. Their work has engaged over 3,500 people and provided 180 sessions focused on health and wellbeing since 2022. These figures reflect a holistic approach that combines large-scale carbon sequestration with community involvement, nature recovery, and mental health support. The Forest of Avon Trust's model offers valuable lessons for Bradford's own tree planting strategy. By combining targeted funding, expert support, and deep community engagement, their projects deliver measurable climate benefits while fostering local stewardship and resilience. This integrated, place-based approach to woodland creation can inform and inspire similar initiatives across the region.[193]

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[193] https://forestofavon.org/

Action: Restore degraded peatlands to reduce emissions and improve ecosystem resilience

This action encompasses suitable peatland restoration actions, such as damming with peat and sphagnum moss-based restoration. The restoration area includes Hebers Ghyll and Spicey Gill (Ilkley Moor) and Bingley and Penistone Hill (Harden Moor), where action is already ongoing.

ENABLING ACTIONS

- Hold community peatland restoration days.
- Include peatland priorities in Local Nature Recovery Strategies (LNRSs), local authority climate plans, and land management policies.
- Facilitate regional coordination (Yorkshire Peat Partnership)
- Explore different monitoring programmes (such as ground monitoring vs drone monitoring)
- Set up regional data sharing platforms and best practice dissemination from projects like Moors for the Future.
- Attract private investment via peatland carbon codes and blended finance models.

COBENEFITS

Enhanced ecosystem health: Improved biodiversity and regulated nutrient balance and hydrology.[194] Restoring peatlands results in greater access to clean drinking water, as water from healthy peatlands is of naturally higher quality given their natural filtration systems.[195]

Climate change resilience: Restoring peatlands enhances water retention and infiltration, which stabilises water flows, reduces surface runoff, and mitigates flooding, particularly under extreme rainfall events.[196] Peatland restoration also offers protection from wildfires[197] and helps maintain base water flows during periods of extreme heat and drought.[198]

Access to nature: Enhancing natural recreation spaces.

Sustainable & cohesive communities: Peatlands, like many other nature spaces, hold importance for local communities' recreation.[199]

Investment & job creation: Peatland restoration can lead to rural job creation by increasing demand for skilled rural workers, such as specialist digger operators, ecologists, land managers, and hydrologists. Local contractors tend to benefit greatly from peatland restoration efforts, given the remote locations where such efforts are focussed.[200]

[194] https://doi.org/10.1016/j.ecoleng.2016.03.018
[195] https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2019-07/2018_UK Peatland Strategy_DIGITAL_1.pdf
[196] https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2015WR017667
[197] https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2019GH000191
[198] https://www.sciencedirect.com/science/article/pii/S0959378021001023#s0070
[199] https://cinea.ec.europa.eu/document/download/a31c8dde-b350-4970-b13b-36cac57fbf60_en?filename=Peatlands%20Policy%20Brief_CINEA.pdf
[200] https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2019-07/2018_UK Peatland Strategy_DIGITAL_1.pdf

PRINCIPLES & APPROACHES

- **Inclusion**
  - Why: Peatland restoration can foster collaboration and ensure that diverse voices and communities are involved in both shaping and benefiting from nature-based solutions.
  - How: This action can foster inclusion by providing access to training and jobs in restoration work for underrepresented groups. Public engagement programmes can help raise awareness and foster a sense of stewardship across all age groups and backgrounds.

- **Equity**
  - Why: Restoration can address imbalances in who bears environmental harms and who benefits from environmental services.
  - How: Restoring degraded peatlands in areas with high flood or drought risk can reduce disproportionate exposure of vulnerable communities to climate-related hazards.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	£ - ££	££ - £££
Running	£	£ - ££	££ - £££

Peatland restoration is a relatively high-cost action requiring a range of actions, including surveying, damming, and monitoring. However, there are also several possible funding sources, mostly from different central Government bodies.[201] As such, the costs for local authorities and landowners can remain low. The local community further benefits from climate change resilience, thereby avoiding economic damages.

Key Funders

- Central Government (incl. non-departmental bodies like the Environment Agency and Natural England)
- Philanthropy & Private Sector

KPIs

- Ha of restored peatland
- Ha of restored peatland as a proportion of total peatland

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[201] https://www.yppartnership.org.uk/sites/default/files/2024-10/241016 YPP Report_2024.pdf

The agricultural sector presents complex challenges, as emissions are difficult to reduce. The biggest impacts are from reducing demand for livestock products and enhancing manure management, including via anaerobic digestion.

ENABLING ACTIONS ——

- Promote a shift to plant-forward diets, e.g. by showcasing appealing alternatives at environmental engagement events.
- Engage with communities to understand barriers to reducing meat consumption.
- Optimise feed and nutrition to reduce methane production from digestion.[205]
- Process manure and slurry in anaerobic digestion to capture methane and generate biogas.
- Explore feed additives (like 3-NOP or seaweed) that can suppress methane emissions from enteric fermentation in ruminants.[206]
- Lobby the central Government to require labelling of the carbon intensity of different food products.

COBENEFITS

Improved air quality: Reduced ammonia emissions from better manure management and fewer livestock leads to less air pollution.[202]

Improved health & well-being: Dietary change toward more plant-based diets can lower risks of heart disease, obesity, type 2 diabetes, and some cancers.[203, 204]

Reduced costs: While specific plant-based alternatives may be more costly, cultivating plants is ultimately far less resource-intensive than raising livestock. Whole-foods plant-based forward diets can therefore result in cost savings for the consumer. Improved overall population health outcomes can reduce the burden on the NHS.

Enhanced biodiversity & ecosystem health: Reducing livestock and grazing pressure enables habitat restoration (e.g., rewilding, afforestation) and improved management of uplands and peatlands.

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[202] https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-ammonia-nh3

[203] https://www.frontiersin.org/journals/nutrition/articles/10.3389/fnut.2022.952553/full

[204] https://pmc.ncbi.nlm.nih.gov/articles/PMC7400843/

[205] https://www.theccc.org.uk/publication/the-seventh-carbon-budget

[206] Ibid.

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - o <u>Why</u>: Shifting away from high-intensity livestock production may provide new opportunities for smaller and more sustainable farms.
  - o <u>How</u>: Farmers need to be supported in this transition, especially those in vulnerable sectors (e.g., upland sheep farming), by providing financial support and sustainable alternatives.
- **Just Transition**
  - o <u>How:</u> The transition to lower-emission livelihoods (e.g., agroforestry, renewable energy, agri-tourism) can help build resilience and inclusion in areas that might otherwise be economically left behind. However, it must provide alternatives for both farmers and other workers, e.g. those in meat processing or dairy sectors who may need retraining or income support.

Cost Levels and Funding Responsibilities

This action covers a range of different actions and pathways, which are very location-specific (some areas can be used for crop farming instead, while others can only be used for grazing), and the costs of which are therefore difficult to quantify. It is expected that consumers can benefit from this transition; however, it is crucial that livestock producers are not left behind. As such, the central Government needs to provide funding and alternatives, which may include innovative feed additives, supporting a shift to crop farming, or providing payments for ecosystem services.

Key Funders

- Central Government
- Private investors
- Farmers

KPIs

- Livestock figures

Box 18. Case Study: Sustainable farming in Yorkshire

Farmers, foresters, and other land managers can play a crucial role in the national effort to tackle climate change by reducing greenhouse gas emissions and increasing carbon storage.[207] Supporting farming in their journey to becoming more sustainable and climate-ready is key. A number of funding schemes are available to support farmers, such as the Sustainable Farming Incentive[208] and wider programmes.[209]

Example projects and initiatives within the Yorkshire Region include:
- **North Yorkshire Moors National Park – Farming in Protected Landscapes**:[210] A Defra-funded programme aimed at supporting farming and land managers to adapt to future changes, such as climate change, and also supporting nature within the National Park.
- **Yorkshire Dales National Park Authority & Nidderdale AONB – The Climate Friendly Farm Carbon Project**:[211, 212] The study was aimed at supporting farmers in the Yorkshire Dales to understand and reduce their greenhouse gas emissions by assessing carbon footprints across beef, sheep, and dairy farms; and identifying practical farm-specific actions to support climate-friendly agriculture.

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[207] https://www.gov.uk/government/publications/sustainable-farming-incentive-scheme-pilot-launch-overview/sustainable-farming-incentive-defras-plans-for-piloting-and-launching-the-scheme
[208] https://farming.campaign.gov.uk/
[209] https://farminginnovation.ukri.org/
[210] https://www.northyorkmoors.org.uk/farming-and-land-management/farming-in-protected-landscapes
[211] https://www.yorkshiredales.org.uk/wp-content/uploads/sites/13/2022/02/Climate-Friendly-Farm-Carbon-Project-public-final.pdf
[212] https://www.yorkshiredales.org.uk/park-authority/looking-after/climate-change/impact-on/

8 Reducing Consumption and Waste

Action: Divert biodegradable waste from landfill

Biodegradable waste disposed of in landfill sites creates significant methane emissions, which are around 28 times more potent than CO_2. As such, banning biodegradable waste from landfills is a key priority in the waste sector.

ENABLING ACTIONS ──────

- Provide kerbside collection for food waste and set up the required composting facilities.
- Implement techniques to reduce emissions from composting, such as aeration.[216]
- Send biodegradable waste to anaerobic digestion (AD) to generate energy and recycle nutrients into the soil.[217]
- Set a ban on biodegradable waste to landfill before 2030.[218]
- Engage with the local residents to understand barriers to reducing consumption.
- Facilitate community composting schemes.
- Engage with businesses to explore options for compostable packaging that requires specific conditions to break down.[219]

COBENEFITS

Improving soil health: Adds nutrients back into the soil, supporting the reversal of soil health deterioration.[213]

Climate change resilience: Compost, when used as mulch, can reduce flooding by improving drainage and water retention.[214]

Increasing crop yields: A healthier soil can lead to improved crop yields.[215]

Sustainable & cohesive communities: Community composting schemes foster sustainable collaboration and engagement as well as care for both the local community and environment.

[213] https://www.scirp.org/pdf/ojss_2022062314320512.pdf
[214] https://defradigital.blog.gov.uk/2022/03/14/why-composting-matters-to-me/
[215] https://www.scirp.org/pdf/ojss_2022062314320512.pdf
[216] https://www.theccc.org.uk/wp-content/uploads/2025/02/The-Seventh-Carbon-Budget.pdf
[217] https://defradigital.blog.gov.uk/2022/03/14/why-composting-matters-to-me/
[218] https://www.gov.uk/government/consultations/near-elimination-of-biodegradable-waste-to-landfill
[219] https://www.recyclenow.com/recycle-an-item/compostable-plastics

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - Why: Community composting projects can build social capital, support food sovereignty (e.g., compost for local gardens), and engage marginalised groups.
  - How: Marginalised groups are less likely to have the time and funds to set up such projects without external support, which must therefore be provided. Large-scale AD plants may raise concerns if located near disadvantaged communities without consent or benefit-sharing. Noise, traffic, and odour are common issues if poorly managed.
- **Just Transition**
  - Why: Composting and AD facilities create local employment, such as site operators, waste collectors, education officers, and technicians.
  - How: Ensure access to training for underrepresented groups (e.g., women, youth, people of colour, rural workers). Integrate just transition principles into procurement, requiring fair work standards in contracts with private operators.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£ - ££	£ - £££	££ - £££
Running	£ - ££	£ - ££	££

Diverting biodegradable waste from landfill includes a range of actions such as kerbside food waste collection, AD, and community initiatives. With this, costs range from low to high depending on the specific action. However, there are also several economic benefits, such as biogas production and the use of mulch for drainage, which help manage climate change impacts.

Key Funders

- Local Authorities
- Central Government (e.g., Green Gas Support Scheme (GGSS))

KPIs
- Tonnes of biodegradable waste collected
- Tonnes of biodegradable waste sent to landfill

Box 19. Case Study: Anaerobic Digestion - a risk to environmental justice?

In eastern North Carolina, anaerobic digestion has been promoted as a climate solution within the industrial hog farming sector, where methane captured from animal waste is used to generate biogas. While marketed as a renewable energy win, this approach has deepened environmental injustices for predominantly Black, Latin, Indigenous, and low-income communities living near Concentrated Animal Feeding Operations (CAFOs). Although digesters capture methane, the remaining waste, still rich in pathogens, nutrients, and ammonia, is often stored in open-air lagoons or sprayed on nearby fields, resulting in persistent water and air pollution. Residents report increased health problems, foul odours, and limited ability to enjoy outdoor spaces, with little recourse or meaningful consultation in decision-making.

This case illustrates how anaerobic digestion, when implemented without strong environmental safeguards or community input, can perpetuate systemic harm under the guise of sustainability. Legal complaints, including Title VI civil rights filings to the U.S. Environmental Protection Agency, highlight patterns of racial and economic discrimination in siting and permitting decisions. Instead of alleviating pollution burdens, biogas infrastructure has reinforced the CAFO status quo while redirecting public funding away from more just and sustainable farming alternatives. It serves as a cautionary example of how climate technology must be evaluated not only for emissions reductions but also for equity and community well-being.[220]

[220] https://www.liebertpub.com/doi/10.1089/env.2021.0025

Action: Reduce consumption by expanding reuse and repair initiatives

Waste is reduced most effectively by ensuring that it does not occur in the first place. By reusing and repairing existing consumer goods, emissions from waste can be significantly reduced, both in Bradford and beyond.

ENABLING ACTIONS ———

- Engage with the local residents to understand barriers to reducing consumption.
- Run community engagement initiatives to promote conscious consumption and repair initiatives.
- Promote existing repair cafes.
- Explore options to provide funding for the repair initiatives.
- Engage with businesses to promote long-lasting product design and repair initiatives.
- Lobby the Central Government to enforce stricter regulations on businesses, such as requiring that products be designed for durability, repairability, reuse, and recyclability.

COBENEFITS

Cross-sectoral emissions reductions: Resource consumption affects all aspects of the low-carbon transition, from energy to transport and waste processing. Lower consumption results in fewer emissions from online shopping deliveries, industry (whether in- or out-of-boundary), and waste processing.

Scope 3 emissions reductions: By reducing the need for additional resource extraction and material processing, indirect emissions are reduced.

Conserve natural resources: Reducing consumption and repairing items contributes to the circular economy, reducing the need for additional resource extraction.

Preserve the local environment: Reduces the soil and water pollution associated with landfills.[221]

Sustainable & cohesive communities: Waste disposal fosters a daily connection between people and highlights challenges related to resource consumption. By actively reducing waste and engaging in repair initiatives, communities not only increase their awareness of sustainability but also engage with one another, e.g., at a repair cafe.

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[221] https://www.c40knowledgehub.org/s/topic/0TO1Q000000UECOWA4/cobenefits-of-sustainable-waste-management?language=en_US

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - Why: Currently, low-income households often fall into the trap of having to re-buy cheap goods that break easily due to not being able to afford large expenditures on high-quality products.
  - How: While this challenge requires systemic changes which cannot be fully realised at the local level, repair initiatives can support local residents by being able to fix existing goods, including those bought second-hand. They may also be coupled with the sale of low-cost, reused and repaired items for everyone to use. Making this an attractive option for everyone further reduces the stigma associated with purchasing used goods (which is especially prevalent in some cultures, to which these initiatives need to be sensitive).

- **Just Transition**
  - Why: Reusing and repairing existing goods offers retraining opportunities for workers, creates low-carbon local jobs, and keeps the economic value in the local economy.
  - How: However, there are challenges as repair initiatives are often volunteer-run, as they are not financially viable otherwise. As such, a robust legislative framework at both the national and international levels is required to establish the right market conditions, making this a profitable endeavour rather than a purely volunteer-run activity.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£	£ - ££	£ - £££
Running	£	£	£ - ££

The specific cost levels depend on the scale of reuse and repair initiatives, with the promotion of existing repair cafes having low costs, while large reuse centres may incur more significant costs. However, even community initiatives require space to run, such as third spaces, which have been declining due to insufficient public sector funding. Residents can realise cost savings from this measure as it enables them to reduce their consumption. The local authority may, in turn, see cost savings in waste management due to lower waste arisings.

Key Funders

- Local authorities
- Central Government
- Charities and social enterprises
- Businesses

KPIs

- Number of repair cafes
- Tonnes of waste arising

Recycling is crucial for any waste that cannot be avoided or composted, aiming to ultimately divert all waste from landfills. This includes both increasing recycling rates and improving the quality of recycled materials.

ENABLING ACTIONS ━━━━

- In the case of contamination or resource challenges, consider implementing different recycling bins for curbside pre-sorting.[223]
- Take stock of key contaminants ('wishcycling') in current recycling collections to target areas for improvement.
- Trial new initiatives, such as a 'not sure' recycling bin to reduce wishcycling.[224]
- Explore opportunities to expand curbside collection of recyclable materials to reduce the burden on residents (such as soft plastics, batteries, etc.).
- Tailor educational campaigns to address specific contamination issues in different areas.
- Engage with businesses to promote resource efficiency.
- Community-focused initiatives for local recycling.
- Lobby Central Government for stricter mandates for businesses for both the use and labelling of certain materials.

COBENEFITS

Conserve natural resources: Recycling contributes to the circular economy, reducing the need for additional resource extraction.

Scope 3 emissions reductions: By reducing the need for additional resource extraction and material processing, indirect emissions are reduced.

Preserve the local environment: Reduces the soil and water pollution associated with landfilling.[222]

Sustainable & cohesive communities: Waste disposal creates a daily connection between people and challenges around resource consumption. Recycling can therefore contribute to creating sustainable and environmentally conscious communities if trust in the system can be established.

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[222] https://www.c40knowledgehub.org/s/topic/0TO1Q000000UECOWA4/cobenefits-of-sustainable-waste-management?language=en_US
[223] https://www.bradford.gov.uk/recycling-and-waste/wheeled-bins-and-recycling-containers/get-new-wheeled-bins-or-recycling-containers/
[224] https://behaviourchange.org.uk/blog/wishcycled-recently

PRINCIPLES & APPROACHES

- **Equity & Inclusion**
  - o Why: Environmentally conscious but low-income households may not have the resources to participate in decentralised recycling schemes, such as dropping off recyclables at recycling centres or supermarkets (e.g., soft plastics). Improved kerbside recycling facilities can therefore facilitate inclusion in local climate action.
  - o How: There are potential risks to achieving this principle if enhanced recycling increases charges or reduces residual waste collections, as this can disproportionately affect low-income households.
- **Just Transition**
  - o Why: Enhanced schemes create green jobs and can improve access to recycling for flats or underserved areas.
  - o How: Investment needs to be prioritised in low-income or marginalised communities, and education programmes need to be accessible to different cultures and communities.

Cost Levels and Funding Responsibilities

	Residents	CBMDC	Project
Upfront	£ - ££	££ - £££	££ - £££
Running	£ - ££	££ - £££	££ - £££

Significant improvements to recycling can come with substantial costs, such as additional vehicles, bins/caddies, route changes, and depot upgrades. However, it is likely that this improvement will be gradual, and the private sector can support these efforts through its own innovative initiatives. Residents, while not paying for this directly, may see an increase in their council tax if the increased costs cannot be offset by other means, such as reduced waste arisings.

Key Funders

- Local Authorities
- Central Government
- Private Sector and PPPs

KPIs

- Tonnes of waste recycled (by material)
- Types of materials collected via kerbside collection

Box 20. Case Study: 'Not Sure Box' in Dorset to tackle Wishcycling

Recycling is a daily task for almost all of us – but the details remain opaque to most. With different recycling rules from local authority to local authority and non-standard information on packaging, residents are often unsure about what can be recycled and which bin it should go into[225], with less than 10% of people feeling 'very confident' about what can/can't be recycled.[226] With many well-meaning residents, with often leads to 'wishcycling' – disposing of materials in the recycling bin(s) that don't belong there, thereby contaminating recycling streams, which in turn, makes the process more costly and less effective.

To tackle the 82% of households that add non-recyclables to their recycling bins in the hope that they might belong there, working with Behaviour Change and WRAP, Dorset Council trialled a 'Not Sure Box' to give people a place to throw away anything they were uncertain about without having to resort to landfill. Within six weeks, contamination was reduced by 45%.

This very similar yet effective behaviour change tool can create quick, tangible improvements in recycling quality by meeting residents where they are and understanding and addressing their issues at the local level.[227]

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[225] Note that Bradford currently only has one recycling bin for all materials.
[226] https://www.wrap.ngo/resources/report/recycling-tracker-survey-uk-spring-2024
[227] https://behaviourchange.org.uk/blog/wishcycled-recently

6. Communications, Consultation & Engagement

6.1 Introduction

Bradford's CAP rightly recognises that achieving net zero requires meaningful public participation. The CCC estimates that around 60% of the changes needed to reach net zero involve some form of societal or behavioural change.[228] This means that the Council's ability to engage and empower residents, businesses, and communities—particularly on issues where the Council cannot directly influence action — is fundamental to achieving Bradford District's goals. The success of CBMDC's CAP depends on the extent to which residents, businesses, community organisations, and public bodies understand, shape, and participate in the journey. Effective stakeholder engagement and communications are, therefore, critical enablers of this transformation.

6.2 Activities to date

CMBDC has demonstrated a strong commitment to stakeholder engagement during the development of the CAP and has the opportunity to continue building on these efforts during its launch and implementation. Activities completed so far, prior to and during the project, include:

- Establishing an understanding of internal and external stakeholders through an early process of mapping, analysis, and engagement;
- The Mendelow matrix[229] has been used to categorise identified stakeholders into appropriate engagement channels,[230] based on their level of potential interest and influence;
- A co-facilitated workshop with c. 40 internal and external stakeholders to gather ideas for potential mitigation and enabling actions across the CAP key themes, as well as grounding these in the district's specific challenges and priorities;
- A co-facilitated webinar and Q&A providing an update on the CAP, pathways modelling, and co-benefits assessments;
- A public consultation process is currently underway with a consultation plan of activities delivered since 13th May 2025, including a range of in-person and online events;
- Within the CAP, CMBDC has committed to the development of a Communications Plan to support the CAP's dissemination and promote ongoing climate awareness and action across the district.

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[228] https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/
[229] Mendelow, A. (1991) 'Stakeholder Mapping', Proceedings of the 2nd International Conference on Information Systems, Cambridge, MA (December 1991), pp. 113-125.
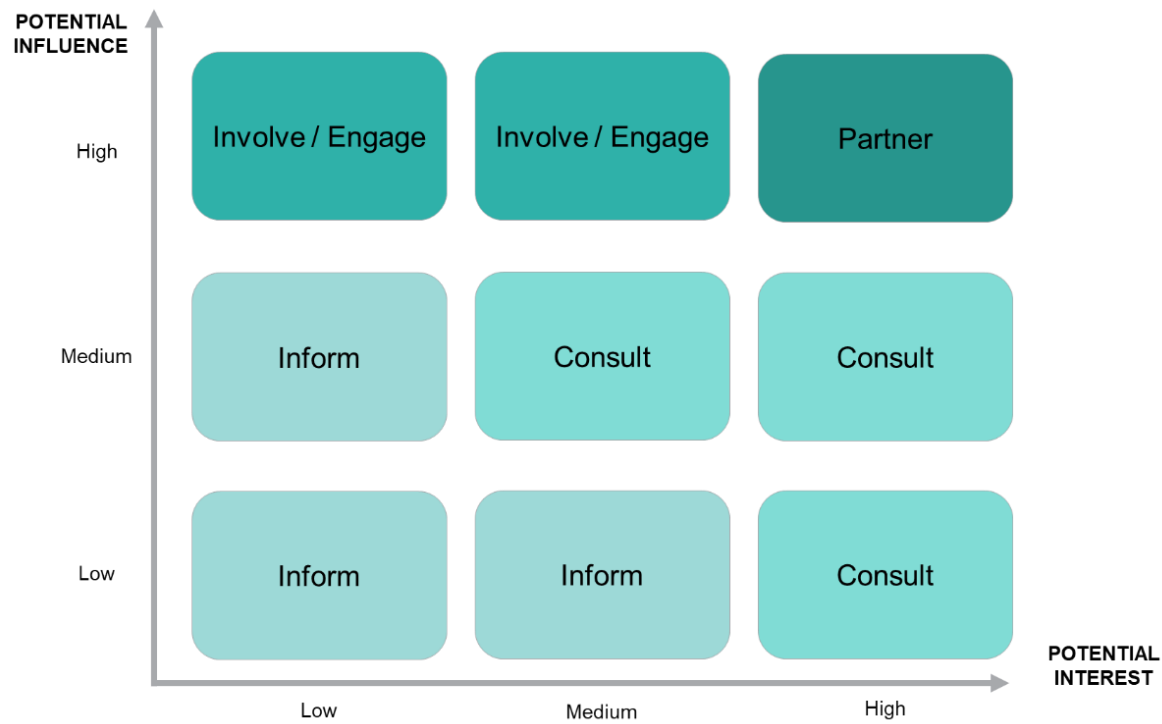[230] Inform, Consult, Involve/Engage, Partner

Figure 4. Adapted Mendelow's matrix for stakeholder mapping

Figure 5. Early stakeholder categorisation of external stakeholders using Mendelow's Matrix

6.3   Next steps for communications, consultation, and engagement

Develop a joined-up stakeholder engagement and communications plan

While they are intrinsically interrelated, a communications plan and a stakeholder engagement plan have fundamentally different focuses. A communications plan focuses on the mechanisms for sharing information on specific topics with relevant stakeholders, whereas a stakeholder engagement plan focuses on building relationships, fostering collaboration and participation, and managing expectations with stakeholders. A communications plan is often a facet of a wider stakeholder engagement plan. Clarifying the scope of these documents and ensuring alignment between the two is an important first step.

Both a stakeholder engagement strategy and a communications plan should be developed to support the launch and delivery of the CAP. These documents should be dynamic and interconnected, evolving in response to stakeholder and public feedback, emerging best practices, and the inclusion of new partners or delivery components. To ensure accountability and continuous improvement, each plan should include a clear monitoring framework with defined roles and responsibilities for tracking progress and impact over time.

Define stakeholder approaches within the communication and engagement plans

CBMDC has already laid important groundwork through stakeholder mapping and analysis using influence/power matrices. The next step is to translate this mapping into a structured stakeholder engagement plan with a range of approaches and engagement options. Mendelow's matrix divides stakeholders across four groups - Inform, Consult, Involve/Engage, Partner – depending on the level of interest and influence. Based on this framework, stakeholder management can be approached in a tailored way to ensure the right level of engagement/communication for each group.

Some options to consider for each matrix category are below:

Involve / Engage – high influence / low/medium interest	**Partner – high influence / high interest**
- Milestone events and launches - Tailored briefings on key decisions - Strategic involvement - Advisory roles - Periodic updates - Direct communication	- Working groups - Thematic workshops/taskforces - Collaborative planning/delivery roles - Steering group/governance roles - Joint strategic visioning - Frequent interaction - Regular updates - Direct communication

Inform – low/medium influence / low/medium interest	Consult – low/medium influence / med/high interest
- General awareness campaigns - Passive / light-touch information sharing (local press/community noticeboards) - Public events - Less frequent interaction	- Public meetings, community drop-ins - Participatory workshops - Surveys / digital tools - Panels or forums

Within this, it is important to ensure the engagement plan acknowledges the unknown. It is beneficial to recognise that some voices may not yet be visible and to actively seek out connectors, such as VCSEs (Voluntary, Community, and Social Enterprise) or other organisations, to bridge gaps, thereby avoiding assumptions or superficial segmentation. Ensuring the engagement plan is a live document with regular updates, as these connections are made, ensures that the engagement process becomes increasingly **inclusive** as connections are made.

Incorporate the CAP Principles into the engagement and communications plans

Bradford District's CAP is underpinned by a set of guiding principles and approaches – **Inclusion, Equity, Just Transition, Climate Justice, Intergenerational Fairness**, and **Collaboration** – which reflect the district's commitment to ensuring climate action delivers positive outcomes for all. Meaningful stakeholder engagement and clear, accessible communication are essential to bringing these principles to life. By actively involving a broad range of communities, sectors, and voices in the climate conversation, CBMDC can ensure that decisions are shaped by those most affected, that benefits are shared fairly, and that no one is left behind in the transition. At the same time, it is important to ensure these principles are considered and embedded into every stage of the supporting stakeholder engagement and communication plans for the CAP delivery, from who is invited to where events are held, the languages used, and the communication methods adopted.

Inclusion	Equity
Communications and engagement should actively seek to involve all parts of Bradford's diverse community, including those who may be underrepresented or face barriers to participation. This could involve: - Producing accessible materials in multiple languages - Varied formats of engagement and multiple channels to reach different groups - Co-designing engagement approaches with community leaders and trusted intermediaries	Stakeholder engagement and communication plans should recognise that different groups have different starting points, resources, and barriers. Equity means tailoring approaches to meet people's specific needs – providing the right support to enable fair participation and influence. This could involve: - Offering multiple ways to participate in activities - Using accessible, inclusive, and jargon-free language

- Choosing locations and times suitable for different participant groups

Just Transition

Engagement must highlight and address how climate action will be implemented in a way that supports workers, communities, and sectors through the shift to a low-carbon economy. Communications should openly acknowledge potential disruptions while promoting inclusive dialogue about opportunities for reskilling, support, and shared prosperity.

- Involve schools, universities, and colleges to understand green skills opportunities and gaps
- Partner with local job centres, training providers, and economic development organisations to align climate with skills and employment conversations
- Communicate the local economic benefits of climate change
- Use participatory approaches to understand the experiences of affected sectors

Climate Justice

Ensure that communications and engagement efforts centre the voices of those most affected by climate change and least responsible for it. This means creating space for lived experiences, supporting community-led storytelling, and fostering empathy and understanding across audiences. Engagement should also connect local climate impacts with broader social and environmental justice issues.

- Use vulnerability mapping to understand who is most at risk
- Use participatory approaches to understand how different groups experience climate impacts
- Use diverse, relatable voices from affected communities in communications

Intergenerational Fairness

Incorporate the perspectives of children, young people, and future generations by creating tailored engagement opportunities and using channels and formats that resonate with younger audiences. Communications should emphasise the long-term implications of climate decisions and the importance of acting today to safeguard the future.

- Involve and amplify young voices in all phases
- Involve schools, youth organisations, and universities
- Set up youth councils
- Facilitate dialogue between generations at events
- Use messaging that connects past, present, and future

Collaboration

Collaboration is often an integral part of stakeholder engagement, especially when the goal is to foster buy-in, responsibility, and empower stakeholders to act. Embedding collaboration strengthens the implementation of the other five principles as it is through collaborative spaces that inclusive voices are heard, equity barriers are addressed, just transition pathways are co-created, climate justice is championed, and intergenerational fairness is upheld. Communications should reflect this spirit of partnership, encouraging openness, shared learning, and joint responsibility across Bradford's diverse communities.

- Co-design engagement processes with stakeholders, particularly community groups, VCSEs, and business networks
- Engage early so their feedback can be incorporated and actioned
- Acknowledge contributors and partners in communications

Develop checklists

As the CAP transitions from development to delivery, a helpful approach to ensuring CBMDC's engagement priorities and the CAP principles are integrated into each stage of stakeholder engagement and communication is to develop practical checklists. These tools should ensure that activities are planned and delivered in line with the CAP's core values. Checklists ensure priorities and principles are transitioned from development to delivery, a useful approach to ensuring that they are embedded systematically into stakeholder engagement and communication (and can also be helpful for wider project delivery). Checklists can ensure that different teams and partners apply the same standards to engagement. They create clear, actionable steps to follow and maintain a transparent record of what has been considered and addressed, which supports monitoring and reporting progress. This can also support quality assurance. Inspiration can be drawn from wider climate mainstreaming and gender equality, disability, and social inclusion (GEDSI) checklists, such as the CRIDF GEDSI toolkit and UNIDO's Gender Mainstreaming Checklist. Questions that could be asked include:

- ✓ Have structural barriers to participation (e.g. language, transport, digital access) been identified and addressed?
- ✓ Are engagement activities planned in accessible locations, at convenient times, and using inclusive formats?
- ✓ Are multiple engagement methods being offered (e.g. workshops, surveys, drop-ins, online options)?
- ✓ Have trusted local partners been engaged to help reach and support marginalised groups?
- ✓ Is there a plan to evaluate communication reach, effectiveness, and inclusivity?
- ✓ Are materials available in relevant languages and accessible formats (e.g. Easy Read, audio, large print)?
- ✓ Is there a clear process for reporting back to participants on how their input has been used?

Build in continuous learning and improvement

Stakeholder engagement and communications plans should be treated as living documents that evolve in tandem with the CAP. Regular review and reflection points should be built into the process to assess both the delivery of engagement activities and the outcomes they produce. This includes tracking which approaches are most effective, identifying where improvements are needed, and spotting new opportunities to engage with different communities or sectors. It is also important to monitor the engagement of key stakeholders over time – evaluating whether their levels of interest and influence are shifting, and how this may affect their role in CAP delivery. By embedding a culture of feedback, learning, and adaptation, CBMDC can ensure its engagement and communication efforts remain dynamic, inclusive, and fit for purpose throughout the life of the plan.

7. Impact Measurement and Governance

7.1 Progress Tracking through SMART Target Setting

Effective climate action planning relies not only on well-designed actions and targets but also on clear and robust progress tracking. For any local authority aiming to reduce emissions at the local level, tracking progress is essential to ensure accountability, demonstrate transparency to local communities, and provide valuable evidence to refine actions and allocate resources effectively over time. A robust monitoring framework will enable CBMDC to determine whether the necessary emissions reductions and actions to enhance resilience to climate change are being implemented. It can further support the local authority with attracting additional funding by evidencing both the need for and planned use of these resources.

Every monitoring framework needs a set of targets against which progress is measured. One of the most effective ways to set strong targets is by applying the SMART framework:

- **Specific**: Targets should clearly state what is to be achieved; for example, to "reduce municipal building energy use by 20% by 2030," rather than simply "improve energy efficiency".
- **Measurable**: Each target must have a clear metric to track progress over time; for example, tonnes of CO_2e reduced, percentage of homes retrofitted, or hectares of green infrastructure delivered.
- **Achievable**: Targets should balance ambition with realism, based on available funding, local powers, partnerships, and delivery capacity.
- **Relevant**: Targets must align with GHG reduction targets, local climate risks, community priorities, and broader local authority objectives, such as fuel poverty, economic regeneration, or health and wellbeing.
- **Time-bound**: Every target should have a clear deadline to drive accountability and prioritisation. Any long-term objectives should have intermediary targets of no more than 5-10 years.

> **Example SMART target**: "*Retrofit 1,000 homes in the local authority to EPC Band C or above by 2030, prioritising low-income households.*"
> This is **specific** (retrofit homes to a defined standard), **measurable** (1,000 homes), **achievable** (assuming funding and capacity are realistic), **relevant** (aligned with net zero and fuel poverty goals), and **time-bound** (by 2030).

To identify which key performance indicators (KPIs) are relevant and should be used to track progress, there are several important considerations:

1) **Assess current environmental and climate-related conditions**, including emission levels and climate risks, to identify key impact areas and establish a baseline for tracking progress on both mitigation and adaptation goals.[231] This step has already been completed for climate mitigation using the LA GHG data and involved undertaking net zero modelling in Task 2 of this project. To also set SMART targets and select the relevant KPIs for climate adaptation and resilience, a climate impact and/or risk assessment should be carried out.
2) **Develop a long-term vision and objectives**, such as net zero by 2038 or a climate-resilient Bradford. This provides the overarching framework for setting more specific intermediary targets on the road to achieving the vision.
3) **Identify what success looks like**, such as reduced energy consumption, increased uptake of renewables, and reduced vulnerability to climate impacts such as floods or heatwaves. The relevant analysis has already been undertaken for climate mitigation
4) **Set SMART targets** which translate objectives into concrete, time-bound commitments
5) **Distinguish between different types of indicators** to capture all stages of monitoring and evaluation, and ensure all types are incorporated into the progress monitoring framework[232]:
   a. **Impact indicators**: Provide information about the observed impacts of climate variability and change on socio-ecological systems.
   b. **Implementation indicators**: Help measure the implementation of actions or strategies.
   c. **Outcome indicators**: Provide information to measure the results of actions or strategies.
6) **Select a clear, manageable set of measures** that align directly with your highest-impact actions and SMART targets. Avoid developing too many metrics that demand excessive human and financial resources, as this can lead to ineffective performance management and "reporting fatigue".[233] Indicators should be clearly defined so that they can be understood and used consistently across teams and partners.

Tip: Establish data quality controls and quality assurance systems to ensure both the quality and relevance of the data.[234] It is important to identify any key data gaps early and plan how to fill them, whether through partnerships, targeted data collection, or improving existing datasets. Effective data management is crucial for monitoring progress and maintaining credibility with the public, councillors, and funding partners.

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[231] https://bristolclimatenature.org/wp-content/uploads/2024/09/Guide-to-creating-an-engaging-climate-action-plan-1.pdf
[232] https://www.lgma.ie/en/publications/local-authority-sector-reports/local-government-climate-action-key-performance-indicators-in-an-irish-context.pdf
[233] https://www.cakex.org/sites/default/files/documents/C40%20Cities%20%282020%29%20CAP%20Monitoring%2C%20Evaluation%20and%20Reporting%20%28MER%29%20Guidance.pdf
[234] Ibid.

7.2   KPI Selection

A long list of possible performance indicators can be found in Table 2 below. Where available, links to publicly available, freely accessible datasets have been provided, while some indicators may require targeted data requests and local data collection. As highlighted in point 6 above, it is crucial that only the 'smartest' indicators are selected to avoid resourcing issues. It is preferable to have a shorter list of impactful KPIs with reliable, consistently available data over a long list of inconsistently reported and potentially irrelevant indicators.

The list below is not exhaustive and should merely be used as a starting point for KPI selection, providing examples of freely available datasets which may be used for progress tracking. In addition to this, the progress monitoring systems should reflect the social, environmental, and economic benefits expected from implementing the CAP, as well as the equitable distribution of those benefits across Bradford's residents, businesses, and communities, especially for the most vulnerable groups. This may require collecting and analysing data disaggregated by socioeconomic indicators (such as income level, gender, or ethnicity).[235] While this is out of scope for this project and therefore not included in Table 2 below, it is strongly recommended that the monitoring system be aligned with the CAP's six principles and approaches, which are defined in the cross-cutting section at the start of this report.

Table 2. List of potential performance indicators across the eight priority areas.

Priority Area	Indicator	Suggested Data Source / Provider	Link to Data Source	Guidance
1 – Transforming Travel and Transport	GHG Emissions from road transport, railways, and other transport	LA GHG Inventory	UK local authority and regional greenhouse gas emissions statistics - GOV.UK	This has been captured in the GHG tracking spreadsheet
	Energy consumption from transport	Subnational total final energy consumption	Total final energy consumption at regional and local authority level: 2005 to 2020 - GOV.UK	
	Motor vehicle traffic by vehicle type	TRA8905: Motor vehicle traffic (vehicle kilometres) by local authority and selected vehicle type in Great Britain	Road traffic estimates (TRA) - GOV.UK	

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[235] https://bristolclimatenature.org/wp-content/uploads/2024/09/Guide-to-creating-an-engaging-climate-action-plan-1.pdf

	Proportion of motor traffic vkm travelled by bus and coach	Not provided at LA level; however, a data inquiry to the DfT could be made, as this data exists at the Developed Administration level		
	Average car CO_2 emissions per vehicle km travelled	LA GHG Inventory and TRA8905: Motor vehicle traffic (vehicle kilometres) by local authority and selected vehicle type in Great Britain	UK local authority and regional greenhouse gas emissions statistics - GOV.UK and Road traffic estimates (TRA) - GOV.UK	This indicator is calculated by dividing total emissions from cars (LA GHG) by car vehicle km travelled (from TRA8905 dataset)
	Average vehicle occupancy figure	No known dataset; would require local surveys or more complex alternatives		
	Percentage of Bradford residents using active travel as a mode of transport	No known dataset; would require (regular) local surveys		
	Kilometres of active travel infrastructure	CBMDC, WYCA		
	Kilometres of Mass Transit Tram system constructed / proportion of target achieved	CBMDC, WYCA		This should be monitored in km constructed as km of goal or in %age of the target
	Number of new railway stations completed	CBMDC, WYCA, Northern		
	Proportion of cars that are ULEV	Vehicle licensing statistics data tables – VEH0132 and VEH0105	Vehicle licensing statistics data tables - GOV.UK	To calculate this indicator, the ULEVs (VEH0132) are divided by the total

				number of vehicles (VEH0105)
	Proportion of private cars that are ULEV	Vehicle licensing statistics data tables – VEH0132 and VEH0105	[Vehicle licensing statistics data tables - GOV.UK](#)	To calculate this indicator, the ULEVs (VEH0132) are divided by the total number of vehicles (VEH0105)
	Proportion of company cars that are ULEV	Vehicle licensing statistics data tables – VEH0132 and VEH0105	[Vehicle licensing statistics data tables - GOV.UK](#)	To calculate this indicator, the ULEVs (VEH0132) are divided by the total number of vehicles (VEH0105)
	Number of new / total ULEV LGVs registered in Bradford	Licensing statistics don't differentiate between vehicle types, potentially need to contact DfT		
	Number of buses that are electric or otherwise ultra-low emission	CBMDC, WYCA, Transdev, FirstBus		
	Proportion of buses that are ultra-low emission	CBMDC, WYCA, Transdev, FirstBus		
	Number of buses that have been franchised	CBMDC, WYCA		
	Proportion of buses that have been franchised	CBMDC, WYCA		
	Number of bus passengers (daily, annual)	CBMDC, WYCA		
	CBMDC investment in active travel	CBMDC		

	Investment in the decarbonisation of bus services	CBMDC, WYCA, Transdev, FirstBus		
	Investment in EV charging infrastructure	CBMDC, WYCA		
	Number of EV chargers	Zapmap, CBMDC	[Find EV charging stations and pay for charging - Zapmap](#)	
	Number of LGV accessible public chargers	Zapmap, CBMDC (may require qualitative assessment)		
	Number of low-traffic neighbourhoods	CBMDC (e.g., Local Plan)	N/A	
	Engagement with community and behavioural programmes, such as Social Prescribing, School Streets, Active Travel Neighbourhoods and Active Travel Hubs	Local surveys		
2 – Increasing Renewable Energy & Fuels	Renewable energy generation installed capacity	DESNZ, Regional Renewable Statistics	[Regional Renewable Statistics - GOV.UK](#)	
	Proportion of Electricity Generation from Renewables	DESNZ, Regional Renewable Statistics	[Regional Renewable Statistics - GOV.UK](#)	
	Renewable Energy Generation as a Proportion of Energy Consumption	DESNZ, Regional Renewable Statistics and Total final energy consumption at a regional and/or local authority level	[Regional Renewable Statistics - GOV.UK](#) and [Total final energy consumption at regional and local authority level: 2005 to 2022 - GOV.UK](#)	To calculate this indicator, the renewable electricity output is divided by the amount of electricity demand.
	Daily hydrogen production in tonnes	Bradford Low Carbon Hydrogen Limited		
	Number of solar PV arrays installed on council buildings	CBMDC		

	Number of solar PV arrays installed on domestic properties (total and specifically via the Solar together Scheme)	Not always possible to track, can approach MCS or track EPC data (only for property sales or new lets), WYCA (for solar together)	MCS Certified | Giving you confidence in home-grown energy	
	Number of solar PV arrays installed on non-domestic properties	Similar to domestic, possible through engagement with local businesses, BMF		
	Number of community-owned renewable energy projects	Local surveys and stakeholder engagement		
	Number of streetlights replaced with LEDs	CBMDC		
	Investment in renewable energy projects	WYCA, CBMDC, BMF, local businesses		
	Number of renewable energy projects supported	WYCA, CBMDC, BMF, local businesses		
3 – Decarbonising Industry	GHG emissions from light and large industry	LA GHG Inventory	UK local authority and regional greenhouse gas emissions statistics - GOV.UK	This has been captured in the GHG tracking spreadsheet
	Energy consumption by fuel: - Coal - Manufactured fuels - Petroleum fuels - Natural Gas - Electricity - Bioenergy and waste	Subnational total final energy consumption	Total final energy consumption at regional and local authority level: 2005 to 2020 - GOV.UK	
	Proportion of electricity consumption of total industrial energy consumption	Subnational total final energy consumption	Total final energy consumption at regional and local authority level: 2005 to 2020 - GOV.UK	

	Number of businesses supported to adopt or improve environmental sustainability strategies	Local surveys, e.g. through Bradford Manufacturing Futures		
	Participation in Climate Change Agreements (CCAs)	Climate Change Agreements	Climate Change Agreements - data.gov.uk	
	CCA scheme facilities emissions	Climate Change Agreements - Target Unit Performance Data	Climate Change Agreements - Target Unit Performance Data - data.gov.uk	
	Number of businesses signed up to Clean Growth Hubs	CBMDC		
4 – Growing a Sustainable & Inclusive Economy	Percentage of contracts including environmental sustainability criteria	CBMDC		
	Percentage of suppliers with a Net Zero or carbon reduction plan	CBMDC		
	Estimated social value created (£) via procurement	CBMDC		
	Tonnes of CO_2e avoided or reduced through procurement choices	CBMDC, suppliers		
	Number of users signed up to sustainable initiative pilots such as Ecosia	CBMDC		
	Development of a sustainability benchmark for UK Cities of Culture	CBMDC		

	Number of employees signed up to an EV salary sacrifice scheme	CBMDC		
	Number of trainees enrolled in green skills programmes	CBMDC		
5 - Providing Warm and Comfortable Buildings	GHG Emissions	LA GHG Inventory	UK local authority and regional greenhouse gas emissions statistics - GOV.UK	This has been captured in the GHG tracking spreadsheet
	Energy consumption by fuel: - Coal - Manufactured fuels - Petroleum fuels - Natural Gas - Electricity - Bioenergy and wastes	Subnational total final energy consumption	Total final energy consumption at regional and local authority level: 2005 to 2020 - GOV.UK	
	Number of heat pumps installed	Northern Powergrid	Northern Powergrid DFES Local Authority Level — Open Data | Northern Powergrid	For any DFES data, ensure you select the local authority and not just the substation.
	Number of properties connected to the heat network	1Energy		
	EPC ratings for domestic and non-domestic properties	Energy Performance of Buildings Data: England and Wales	Energy Performance of Buildings Data England and Wales	
	Launch of One-Stop-Shop	WYCA		
	Number of people visiting the One-Stop-Shop	WYCA		

	Number of energy assessments carried out via the Warm Homes Healthy People Scheme	HALE		
	Number of households supported via the Boiler Upgrade Scheme	DESNZ, Boiler Upgrade Scheme statistics (only at West Yorkshire level)	Boiler Upgrade Scheme statistics - GOV.UK	
	Number of low carbon heating upgrades delivered via the Warm Homes Local Grant	CBMDC		
	Proportion of social housing properties on EPC rating 'C' or above	Social housing providers such as Incommunities		
6 - Enabling Community Climate Action	Delivery against community fund (in £)	CBMDC		
	Number of members signed up to Bradford Council Climate Action Network (BCCAN)	CBMDC		
	Number of people engaged in awareness raising campaigns	CBMDC		
	Number of platforms developed for 'Community Conversations'	CBMDC		
	Number of subscribers to the CBMDC Climate Action Newsletter	CBMDC		
	Number of applications to Bradford's Play Streets Scheme	CBMDC		
	Number of organisations that sign-up to the Yorkshire and Humber Climate Commission's pledge	CBMDC, YHCC	Yorkshire and Humber Climate Commission - Climate Action Pledge	

7 – Managing Land and Nature	GHG emissions from Land Use (LULUCF) and Agriculture	LA GHG Inventory	UK local authority and regional greenhouse gas emissions statistics - GOV.UK	This has been captured in the GHG tracking spreadsheet
	Number of trees or ha of woodland planted	Surveys with local landowners, potentially via WCC	Home | Woodland Carbon Code	
	Proportion of woodland / tree cover	Surveys with local landowners, potentially via WCC	Home | Woodland Carbon Code	As a proportion of tree cover of the total land area
	'National Nature Reserve' establishment	CBMDC		
	Number of Local Nature Reserves established/designated	Natural England, CBMDC		
	Ha of land protected via Local Nature Reserves	Natural England, CBMDC		
	Livestock numbers	Local landowner engagement/surveys		
	Agricultural area and land types	Local landowner engagement/surveys		
8 - Reducing Consumption and Waste	GHG Emissions from Waste (note – does not include Scope 3 emissions from consumption)	LA GHG Inventory	UK local authority and regional greenhouse gas emissions statistics - GOV.UK	This has been captured in the GHG tracking spreadsheet
	Total waste collected	CBMDC, waste management companies		
	Total waste landfilled (ideally by waste type)	CBMDC, waste management companies		
	Total waste incinerated (ideally by waste type)	CBMDC, waste management companies		

	Total waste composted	CBMDC, waste management companies		
	Total waste processed via anaerobic digestion	CBMDC, waste management companies		
	Total waste recycled	CBMDC, waste management companies		
	Proportion of total waste landfilled, incinerated, composted, processed via AD, and recycled	CBMDC, waste management companies		
	Number of commercial waste offences enforced	CBMDC		
	Establishment of a New-to-Me Shop	CBMDC		
	Introduction of a Deposit Return Scheme (DRS)	CBMDC		
	Feedback to public education campaigns	CBMDC, Local Surveys		