

Translating national net zero policy into local implementation: A UK case study

Colin Nolden,

Law School, University of Bristol, 8-10 Berkeley Square, UK - BS8 1HH, colin.nolden@bristol.ac.uk & Management School, University of Sheffield, Western Bank Villa, UK – S10 2TN, c.nolden@sheffield.ac.uk

Jake Barnes

Centre for Research into Energy Demand Solutions, Environmental Change Institute, University of Oxford, 3 South Parks Road, UK - OX1 3QY Oxford, jacob.barnes@ouce.ox.ac.uk

Esme McMillan

Law School, University of Bristol, 8-10 Berkeley Square, UK - BS8 1HH, esme.mcmillan@bristol.ac.uk

Morag McDermont

Law School, University of Bristol, 8-10 Berkeley Square, UK - BS8 1HH, morag.mcdermont@bristol.ac.uk

Abstract

In the UK, the decarbonisation of subnational administrative levels such as cities and local authorities more generally can be mainly attributed to national efforts to improve energy efficiency and decarbonise the electricity system. This suggests that place-based transitions to net zero (NZ) are determined largely by the translation of national strategy into local delivery, resourcing, and capabilities combined with the effective balance of power and decision-making capabilities between administrative levels. In this paper we critically interrogate this translation process by comparing and evaluating Climate Action Plans (CAPs) across two English city regions – West of England and West Yorkshire Combined Authorities – which comprise a total of 12 local authorities within. Unlike jurisdictions where local authorities are required to develop energy and climate strategies aligned with national NZ targets, such as The Netherlands, England does not. Overall, our results reveal a misalignment of ambitions, motivations, and resourcing with local and regional NZ delivery being undertaken within a fragmented policy landscape. While UK climate law and resulting strategy collectively determine how supportive environments are for local NZ delivery, a myriad of subnational, regional and local tiers of government with widely diverging responsibilities over people, assets and land have developed their own CAPs with widely diverging NZ targets and ambitions. We find local NZ governance is further hindered by the competitive allocation of funding which favour short-termism over long-term planning horizons necessary to structurally lower energy demand. These findings challenge a top-down framing of NZ policy translation and highlight its detrimental impacts on local decarbonisation efforts and energy efficiency in particular. We conclude with policy recommendations to culture effective and just multi-level governance for NZ delivery.

Introduction

On the international stage, the UK has often been perceived (and more often has branded itself) as a nation leading on climate action. This builds on the Climate Change Act 2008 which committed the UK government to 80% emission reductions by 2050 compared to 1990, the first country to do so. In 2019, the Act was amended to include a net zero target, the second country to do so after Bhutan. Yet how its net zero (NZ) ambitions translated into local net zero implementation is unclear (NAO 2021). This is evident in the UK's Nationally Determined Contribution to the United Nations Framework Convention on Climate Change – which sets out the UK's self-determined climate pledges to meet the Paris Agreement and the steps to get there. While acknowledging that local authorities (LAs) “play an essential role in driving action to tackle climate change with significant influence in energy, housing and transport”, the only support it specifies for LAs to drive such action is (HM Government 2022: 16-17) :

- Establishing five Local Net Zero Hubs, each coving a region of England
- Funding work to develop business models to increase private sector investment in local net zero
- Running the Local Net Zero Forum to discuss local net zero policy and delivery issues

With the Local Net Zero Hubs receiving only £5m/a and a rebranding of existing Local Energy Hubs, business model development to harness private sector investment already core to policymaking, and the Local Net Zero Forum merely an opportunity for knowledge exchange, it is evident that this support amounts to no apportioning of responsibility and little apportioning of expenditure to reach net zero locally. This is complicated by the structure of local government in England. LAs cover the entirety of England and are structured as single tier authorities (unitary authorities or metropolitan boroughs, including many city councils) with sweeping responsibilities and tax raising capacity or two-tier authorities (including county councils and district councils) with divided responsibilities and tax raising capacities, with exception of London and the Isles of Scilly. At a lower level, there are around 10,000 parish and town councils. At a regional level, there are 10 combined authorities (CAs), without tax raising capacity (UK100 2023).

Given LAs' tax raising capacities and responsibility for services such as housing, transport, planning, education and waste, however, the official Net Zero Review recommended to "introduce a statutory duty for LAs to take account of the UK's net zero targets, based on a clear framework of local roles and responsibilities" (Skidmore 2023). This was countered with the statement the government does "not believe that a new general statutory requirement is needed because there is already a high level of local commitment with the sector" (Recommendation 91, HM Government 2023). This is undoubtedly true, with average NZ targets of 2035, ranging from 2022 to 2050, across 393 climate action plans (CAPs) and strategies (CASs), compared to the government target of 2050 (mySociety 2024).

However, without sufficient resourcing and institutionalised powers at a local level to deliver these targets, they will most certainly be missed (NAO 2021; Skidmore 2023). Moreover, there is no overview of the totality of funding available to LAs for NZ delivery with the National Audit Office (NAO) suggesting that only around £1.2bn in NZ-related grant funding was provided to LAs by government in 2020-21 through the 21 dedicated grant schemes. While this is a 16-fold increase from the £74m provided in 2019-20, it represents only a small proportion of the investment increase from 20-25bn/a to £50bn/a required to reach NZ ((NAO 2021; DESNZ 2023). According to Innovate UK and PricewaterhouseCoopers (2023), around 40% of these £50bn/a will be required in local investments to deliver NZ. At the same time, less and less public finance is available at a local level in the UK, with local tax raising the most centralised and local spending falling fastest among large Organisation for Economic Co-operation and Development (OECD) countries (OECD 2023a,b):

Country	Percentage of tax expenditure raised at sub-national level	Percentage expenditure at sub-national level
UK	4.84%	19.71%
Italy	10.93%	24.76%
France	14.24%	18.89%
Japan	22.57%	-
Germany	33.71%	39.65%
US	32.50%	40.64%
Canada	48.54%	66.58%

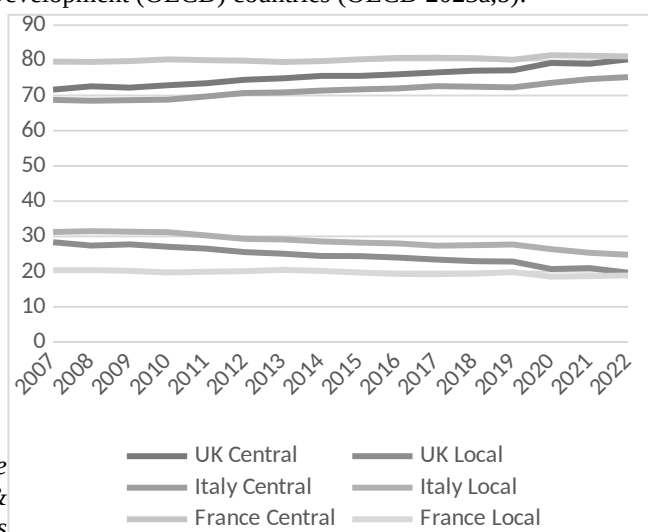


Table 1. Tax raising and expenditure in large OECD countries (left; OECD 2023a) & consolidated government expenditure as percentage of total general government expenditure in the UK, Italy and France (right; OECD 2023b)

After 15 years of austerity and with local expenditure highly controlled by central government, LAs rely entirely on limited capital funding budgets, competitively awarded public finance, and mobilising private finance, to progress on delivering NZ. With the latter mainly achieved by well-resourced LAs with the ability to apportion and manage risk, progress varies hugely between LAs (HM Government 2022; DESNZ 2023a; Innovate UK and PwC 2023; UKERC 2023). Well-resourced authorities benefit from support, resourcing, and directionality provided through national NZ policy while less well-resourced LAs are falling further behind (NAO 2021; Rankl et al. 2023; UKERC 2023). Either way, LAs are concentrating their efforts on responsibilities and capabilities around social housing - they are directly responsible for their estates and council housing, amounting to 7% of all homes - and have influence on private registered providers of social housing (10% of all homes), local transport, waste, planning, and local communities (NAO 2021; UKERC 2023).

Meanwhile, the Office for Budget Responsibility (OBR), the UK government's fiscal watchdog, suggests that reaching NZ will require investment of around £1.4trn by 2050 in 2009 prices (OBR 2021). This will require the mobilization of private capital alongside public finance at a ratio of 3:1 (Innovate UK and GFI 2022). To unlock such investment, the government has announced (Burnett et al. 2023):

- £30bn investment has been committed for the green industrial revolution since 2021 across offshore wind; low carbon hydrogen; nuclear power; zero emission vehicles; green public transport, cycling and walking; jet zero and green ships; greener buildings; Carbon Capture, Usage and Storage (CCUS); environmental protection; and green finance and innovation
- Up to £20bn additionally for CCUS
- £6.6bn for energy efficiency 2022-2025

The £6.6bn for energy efficiency is being delivered entirely through LAs (Burnett et al 2023). This is a welcome development as demand-side solutions are the main driver of decarbonisation followed by efforts to decarbonise the electricity system (Lees and Eyre 2021; Eyre et al. 2022). The place-based demand-side is also where people interact directly with policy, where co-benefits can arise, and, ultimately, where the legitimacy of the NZ transition plays out in practice (NAO 2021; PwC 2022). Yet NZ policymaking, which is evident in the allocation for up to £20bn for CCUS alone, is particularly skewed towards the supply-side (CCC 2022; Nolden et al. 2022).

Overall, NZ delivery at a local level is therefore limited by policy asymmetries which hinder translation and alignment: asymmetry between national NZ targets and local NZ ambition; asymmetry between the resourcing of priority areas at national level and priority areas at local level; and asymmetry between national energy supply-side priorities and local demand-side priorities. In this paper we critically analyse these asymmetries and the policy translation process in detail by comparing and evaluating CAPs across two English city regions – West of England and West Yorkshire Combined Authorities - which comprise a total of 12 local authorities within. Given the total of 333 principal LAs and 10 CAs, this is by no means a representative sample. Nevertheless, this analysis across two levels across two regions provides sufficient similarity, and diversity, to draw meaningful conclusions regarding the translation process and the asymmetry between national net zero strategy and local net zero delivery priorities. In doing so, we're answering the following questions:

- Which areas do local authorities prioritise to deliver net zero?
- Which national policy instruments translate into net zero delivery at a local level?
- What is the source of finance for local net zero delivery?
- Are cross-cutting areas less dependent on policy translation?

This study starts with the Methodology section which introduces the climate action plan (CAP) coding procedure which was undertaken using NVivo. This is followed by an overview of the two Combined Authorities (CAs) using information derived from their climate action strategies (CASs). In the Results section we test the hypotheses. To answer the questions we compare priority areas of action derived from the CAPs among the LAs which comprise the two CAs, across rural and urban LAs, and across CA and LA levels; we compare which national net zero policy instruments influence local delivery using the same comparators as above; we compare the sources of funding mentioned in the CAPs using the same comparators as above; and we assess the relative importance afforded to four cross-cutting areas of communication, data, planning, and procurement in the CAPs using the same comparators as above. We analyse the findings and draw out implications in the Discussion and conclusion section.

Methodology

Exploring the local delivery of NZ through the translation of national NZ policy is tricky for a variety of reasons. One, achieving NZ necessitates change across all sectors of the economy and wider society. Two, the process is ongoing. Three, the end point is not as clearly defined as many think, because, four, there are multiple ways of getting to NZ, and therefore multiple possible NZ futures. And five, local progress depends also on actions taken elsewhere, not least nationally. Any definitive approach to understanding local progress and the importance of local policy making within this is necessarily partial and incomplete.

In this work, we develop a strategy for incremental learning about local NZ policy and its implementation by analysing and comparing 12 Climate Action Plans (CAPs) of 12 LAs across two CAs in England. While there is no legal requirement to develop a CAP nor, as mentioned above, a statutory duty for LAs to take account of the UK's NZ targets, when such plans exist they typically contain details of how LAs seek to achieve their local climate goals and generally come under Climate Action Strategies (CAS), which tend to be more aspirational in nature, setting out the main sources of local emissions and the overarching strategies developed to reduce

emissions from associated sectors. In this paper we focus on CAPs because they contain more detail of local NZ policies and activities compared to CAS and their emphasis on implementation directly reflects the policy translation process.

Two regions were selected for comparison, the West of England and West Yorkshire. These two city regions gained the status of combined authorities (CAs) in the last decade. CAs are legal bodies with directly elected mayors established by the Cities and Local Government Devolution Act 2016, which enable multiple local authorities (LAs) in England to collaborate across LA boundaries. The West of England Combined Authority (WECA) comprises the local authorities Bath and North East Somerset Council (BANES), Bristol City Council (BCC), and South Gloucestershire Council (SGC). The West Yorkshire Combined Authority (WYCA) comprises the local authorities of City of Bradford Metropolitan District Council (CBMDC), Calderdale Metropolitan Borough Council, (CMBC), Kirklees Metropolitan Borough Council (KMBC), Leeds City Council (LCC) and Wakefield Metropolitan District Council (WMDC). With North Somerset Council (NSC) and City of York Council (CYC), both WECA and WYCA respectively include one additional local authority in their Joint Committees.

Both regions contain leading local authorities, Bristol and Leeds respectively, which are often considered at the forefront of climate action. Bristol recently pioneered the procurement of a place-based public private partnership, Bristol City Leap, to help finance and deliver the decarbonisation of Bristol City Council's estates, housing stock, and heating (Nolden et al. 2023). Leeds has led on citizen engagement, with its Leeds Climate Action Commission, Leeds Climate Change Citizen's Jury and Climate Action Leeds, as well as district heating development and tops the Forbes list of UK cities most promising for NZ delivery (Forbes 2023).

Our analysis started with a comparison of the CAS of the two CAs to build up an understanding of local conditions, including of their population and economy, sources of local emissions, local governance structures and if they had announced climate emergency declarations. Then the CAPs for the 10 LAs and two CA were analysed using NVivo qualitative data analysis software. To ensure consistency across the different CAPs, which ranged from glossy and professionally formatted publications (up to 56 pages in the case of NSC to simple lists of actions as little as 10 pages in the case of BANES), we only coded actions that are being implemented or scheduled to happen, ideally with a dedicated budget. We excluded aspirations and what actors can do, especially with regards to wording such as 'explore', 'consider', 'strive', 'develop a plan', 'investigate' etc. On the other hand, actions with regards to wording such as 'establish', 'commit', 'ensure' etc. have been included.

Thematic coding of priority areas was undertaken by two members of the team (one for each region), before codes were standardised through ongoing discussions and by merging files. Final priority area codes are presented in Table 2. Each CAP was then reviewed for references to national NZ policies, and coded against standard policy instruments based on Cairney (2020) (Table 2). Finally, all references to funding and finance were coded against three categories, public grant funding, public capital funding, and private funding.

Code	Code descriptions
<i>Adaptation</i>	Actions referring to climate change adaptation and resilience
<i>Buildings</i>	Everything related to buildings
<i>Business</i>	Actions involving commercial establishments
<i>Electricity networks and supply</i>	Action relating to grid upgrades and renewable energy supply
<i>Estates and public services</i>	Actions relating to council own buildings, housing and land, and provision of services such as social care
<i>Heat</i>	All actions associated with heating
<i>Nature</i>	All action related to natural environment, especially in the context of biodiversity net-gain
<i>Skills</i>	Actions that seek to improve green skills in the local workforce
<i>Transport</i>	All forms of mobility
<i>Waste and circular economy</i>	Actions related to recycling and resources as well as infrastructures of support
<i>Communication</i>	Both one- and two-way, e.g. campaigns and roundtables
<i>Data</i>	Actions related to collecting and managing evidence
<i>Planning</i>	All actions related to formal land use planning as well as energy planning

<i>Procurement</i>	How councils commission services
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Table 2. Codes and their descriptions of priority areas

Code	Code descriptions
<i>Economic disincentive</i>	Instruments that discourage use, e.g. taxation
<i>Economic incentive (subsidy)</i>	Economic instruments that encourage use, e.g. subsidies
<i>Economic incentive (Grants and funds)</i>	Economic instrument that incentives action through provision of discrete funds
<i>Funding scientific research</i>	Supporting Research and Development of low carbon solutions
<i>Organisational change</i>	Government supported consolidation/rebranding/expansion of remit of existing organisations or the founding of new ones
<i>Planning</i>	Refers to permitted planning policies
<i>Public expenditure</i>	Allocated expenditure rather than specific Grants and funds
<i>Public procurement</i>	National Procurement Policy Statements
<i>Regulations, legislation and standards</i>	Rules that enforce particular behaviours
<i>Regulated funding</i>	Mandatory action based on regulated income e.g. Energy Company Obligation
<i>Strategy</i>	Refers to government aims which are not enshrined in Regulations, legislation and standards
<i>Voluntary regulations</i>	Agreements between government and others to achieve certain standards

Table 3. Codes and their descriptions of national policy instruments

Code	Code descriptions
<i>Public – Capital</i>	LA expenditure directed towards NZ outcomes provided by core settlement funding
<i>Public – Grants</i>	Dedicated NZ funding and wider funding provided by central government which LAs can bid for
<i>Private</i>	All actions that aim to attract external private funding

Table 4. Codes and their descriptions of sources of finance

This form of quantitative analysis does not consider qualitative differences in climate actions which skews results towards particular variables. Actions on **Nature**, for example, often involved many individual actions involving less activity (such as not mowing grass verges) to yield outcomes beneficial for NZ, such as biodiversity net gain (the Environment Act 2021 which came into force in February 2024 makes biodiversity net gain mandatory of 10% for all but small sites and requires developers to leave natural habitat in a measurably better state than before development). In some CAPs, **Nature** therefore appears to be a leading area of action based on this quantitative assessment. Actions on **Heating**, on the other hand, typically require significant infrastructure investment which tend to be bundled in large projects in densely populated areas given the disruptive change they entail. In some CAPs, **Heating** is therefore rarely mentioned although they tend to entail significant investment. Using this quantitative approach is therefore at best useful for identifying trends between CAs and LAs and the two geographical areas. It is also possible to identify clusters of activities using statistical tests in NVivo.

Comparing two city regions

West of Yorkshire Combined Authority (WYCA) has a population of around 2.3m and a Gross Value Added (GVA) of around £55bn/a. The West of England Combined Authority (WECA) is around half the size of WYCA with a population of around 1.1m and a GVA of around £31bn/a. Both have benefited from devolution deals between the UK government and the LAs and the respective CA to drive economic growth, raise living standards and improve transport links (HM Government 2017; HM Treasury 2020).

Policy translation issues are evident in WECA's and WYCA's emission inventories as they include different sectors, although they use the same government data source (Table 5). To facilitate comparison, we combined WYCA's commercial, industry, and public sector sections under business and public sector. As agriculture and waste management cut across areas of business and public sector and transport, we have left them as stand-alone sectors in WYCA's inventory (WECA 2023; WYCA 2021).

	WYCA	WECA
Transport	35%	42%
Non-domestic	27%	27%
Domestic	31%	31%
Waste Management	5%	n/a
Agriculture	3%	n/a

Table 5. Emission by sector in WECA (2023) and WYCA (2021)

The CAs' net zero targets represent the aligned targets of their constituent LAs with the LAs driving the priorities within the CA's NZ strategy. As a result, WECA aims to be carbon neutral by 2030, which reflects the net zero targets of its constituent LAs. WYCA set a NZ carbon target by 2038 which aligns with all constituent LAs bar Leeds, which has set itself a 2030 target, and Kirklees, which had a 2041 target recommended by the famous Tyndall Centre for Climate Change Research but moved it forward to 2038 to align with targets across WYCA. These different targets provide a flavour of differences between LA CAPs, which are greater than alignments regarding the NZ target date suggest.

Findings

Local authority priorities

To establish LA priority areas for net zero delivery, we have created quantitative overviews of the median of how often priority area variables occurred in CAPs using the methodology described above (coding priorities being implemented or scheduled to happen), firstly across the four LAs which constitute WECA and the six LAs which constitute WYCA (left two columns of Figure 1), among urban LAs (BCC and LCC) and rural LAs (the other LAs)(middle two columns of Figure 1) and among the two CAs compared to the ten LAs (right two columns of Figure 1):

Priority Areas	Median WECA %	Median WYCA %	Median urban %	Median rural %	Median CA %	Median LA %
1 : Adaptation	4.3%	5.0%	3.21%	4.33%	1.27%	1.90%
2 : Buildings	14.3%	11.2%	15.26%	12.50%	11.46%	15.17%
3 : Business	6.0%	4.5%	4.82%	3.85%	10.83%	3.79%
4 : Communication	9.0%	11.7%	11.65%	10.58%	2.55%	12.32%
5 : Data	5.5%	3.3%	4.82%	3.85%	3.82%	3.79%
6 : Planning	5.0%	3.2%	2.41%	4.33%	3.82%	3.32%
7 : Procurement and	2.8%	3.3%	2.81%	3.37%	4.46%	3.32%
8 : Electricity network	9.5%	4.3%	6.02%	6.73%	8.28%	6.64%
9 : Estate and public	14.0%	14.1%	16.06%	15.38%	2.55%	17.54%
10 : Heat	3.0%	3.0%	8.84%	0.96%	1.91%	1.90%
11 : Nature	5.0%	10.8%	2.01%	12.50%	15.92%	8.53%
12 : Skills	3.0%	3.2%	3.61%	3.37%	6.37%	3.79%
13 : Transport	15.5%	15.9%	16.47%	13.46%	24.84%	15.17%
14 : Waste and circular	3.0%	6.4%	2.01%	4.81%	1.91%	2.84%

Figure 1. Priority area occurrences in CAPs, depth of shading indicates prevalence of priority area within a column

Figure 1 points towards the different emphasis in CAPs among LAs across the geographical areas, between urban and rural LAs, and between CAs and LAs. Key priority areas across all LAs are **Transport**, **Estates and public services**, **Buildings**, **Communication**, with significant variation on **Nature**, **Electricity networks and generation** and **Waste and circular economy**. Key priority areas of CAs are **Transport** and **Nature**, followed by **Buildings**, **Business**, and **Electricity networks and generation**. Figure 2 provides an overview of the deviations identified in Figure 1. This simple overview uses average WECA area and WYCA area deviation (left two columns in Figure 1), average Urban and Rural LA deviation (middle two columns in Figure 1), and average CA and LA deviation (right two columns in Figure 1):

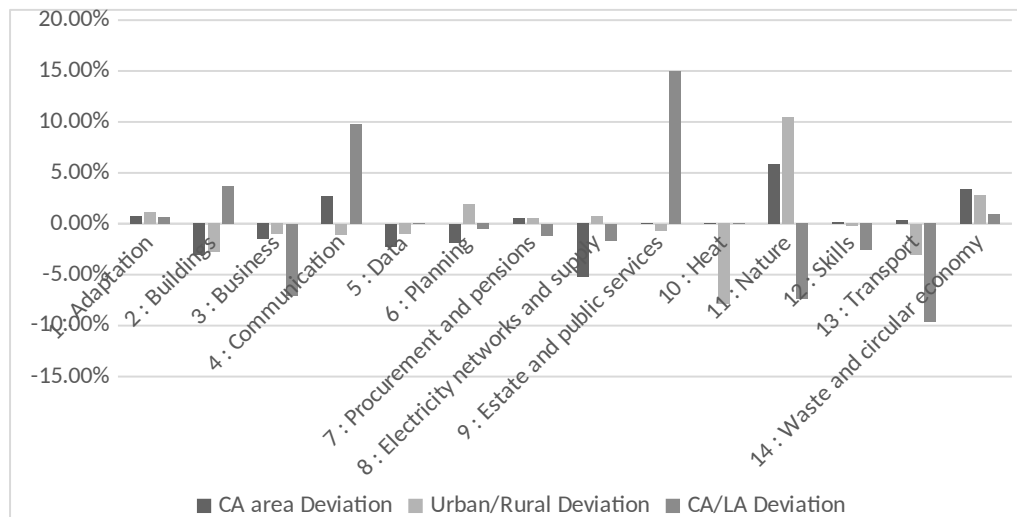


Figure 2. Priority area deviations derived from Figure 1

Bearing in mind the limitations of this quantitative approach, Figure 2 points towards the different emphasis in CAPs among LAs across the geographical areas, between urban and rural LAs, and between CAs and LAs.

Comparing the two regions is complicated by the fact that WYCA encompasses nearly twice as many LAs with over twice the population as WECA. WYCA also encompasses more rural areas which is reflected in the greater emphasis on **Nature** in CAPs. The LAs that constitute WECA place a lot more emphasis on **Electricity networks and generation**. This could be the result of the Bristol City Leap project which is a public-private partnership which will see £1bn invested over 20 years in **Electricity Networks and generation** alongside **Estates and public services** and **Buildings** (Nolden et al. 2023). Worryingly, **Adaptation** is hardly mentioned at both LA and CA level, which is probably linked to the fact that there are no associated Grants and funding available.

Predictably, Urban LAs place greater emphasis on **Heating** and (marginally) more on **Buildings**, while rural LAs place greater emphasis on **Nature** and **Waste**. The former is likely to be the result of densely populated urban areas lending themselves to heat networks and greater related grant award success among urban LAs. The latter is probably related to greater opportunities for nature-based solutions in rural areas (especially in the context of biodiversity net-gain) and the lower cost of associated projects vis-a-vis the poor track record of grant awards among rural LAs for **Heating** and **Building** decarbonisation (NAO 2021).

The comparison of CAs and LAs reveals more significant deviation, especially with regards to **Estates and public services**, **Communication**, **Transport**, **Buildings**, and **Nature**. LAs control large estates, land, and social housing and tend to target and leverage NZ investment through capital investment budgets which is reflected in the emphasis on **Buildings** and **Estates and public services** identified in Figure 1. While **Business** is also a significant contributor to carbon emissions (Table 5), these tend to be less obviously place-based with funding and engagement concentrated until recently in Local Enterprise Partnerships, non-statutory bodies responsible for economic growth, which stopped receiving government funding and sponsorship from April 2024 onwards. These were more closely linked to the geographical scope of CAs, which explains their emphasis on this priority area. The emphasis on **Business** is also linked to the increasing allocation of business support funding at CA level, especially in the wake of the COVID-19 epidemic.

The emphasis on **Transport** at CA level is the result of public transport funding increasingly allocated at CA level to develop and improve interlinking services across metropolitan areas. **Electricity networks and generation**, interestingly, do not feature prominently across CAPs although their complex balancing of supply and demand over large geographical areas might explain why they are more frequently mentioned in CA CAPs. Fostering an understanding of decarbonisation potentials among both the **Business** sector and the public more widely is the result of **Communication** strategies (see section below on **Cross-cutting activities**). These feature more prominently among LAs than CAs. This is unsurprising given the direct relationship people have with LAs through service provision (e.g., **Waste**), taxation (council tax), and the election of representatives.

National policy instruments

To establish which policy instruments translate into net zero delivery from a LA perspective, we categorised priority areas in CAPs which made reference to national policy according to the instruments identified in Table 3. Then, we created quantitative overviews of the average of how often National policy variables occurred in

CAPs, firstly across the four LAs which constitute WECA and the six LAs which constitute WYCA (left two columns of Figure 3), among urban LAs (BCC and LCC) and rural LAs (the other LAs)(middle two columns of Figure 3) and among the two CAs compared to the ten LAs (right two columns of Figure 3):

National Policy	Average WECA %	Average WYCA %	Average urban %	Average rural %	Average CA %	Average LA %
1 : Economic disincentives	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2 : Economic incentives	3.39%	4.05%	2.50%	4.17%	3.45%	3.76%
3 : Funding scientific research	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4 : Grants and funds	47.46%	37.84%	57.50%	38.54%	44.83%	42.11%
5 : Legal penalties	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
6 : Organisational change	0.00%	5.41%	2.50%	3.13%	3.45%	3.01%
7 : Planning	3.39%	8.11%	2.50%	7.29%	3.45%	6.02%
8 : Public education and awareness	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9 : Public Expenditure	3.39%	5.41%	5.00%	3.13%	10.34%	4.51%
10 : Public procurement	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
11 : Regulations, legislation and standards	27.12%	31.08%	15.00%	34.38%	24.14%	29.32%
12 : Regulated funding	3.39%	0.00%	2.50%	1.04%	3.45%	1.50%
13 : Strategy	11.86%	8.11%	12.50%	8.33%	6.90%	9.77%
14 : Voluntary regulation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Figure 3. References to types of National policy instruments in CAPs by distribution

Even a quick glance at Figure 3 suggests that most policy instruments we identified as potentially relevant among Cairney's (2020) do not feature strongly in local NZ delivery. The fact that only three policy areas, **Grants and funds** and **Regulation, legislation and standards**, and to a lesser extent **Strategy**, feature prominently points towards a messy policy translation process with many policies playing hardly any role and nearly half playing no role in this process.

The focus on **Regulation, legislation and standards** is nevertheless relevant as these mainly concern the demand side (Eyre et al. 2022), especially regarding **Buildings, Estates and public services** and **Nature**. The most important in the context of the first two are Minimum Energy Efficiency Standards. These stipulate that **Buildings** with a low energy rating (below C according to their Energy Performance Certificate) cannot be let out to tenants from 2028 onwards. This is of particular relevance to LAs through their direct responsibility for their estates and council housing (7% of all homes) and influence over private registered providers of social housing (10% of all homes).

Regarding **Nature**, recent **Regulation, legislation and standards**, the Environment Act 2021, requires development to result in more and better quality natural habitat than there was before development. Although some of these **Regulation, legislation and standards** have been watered down by government in recent years, they play a significant role in lowering energy demand and supporting nature-based solutions, especially at a local level. **Planning** features unevenly although it is one of the few areas where LAs (unitary authorities) have leeway to act on their net zero ambitions.

The dominance of **Grants and funds** reflects the established fact that at a local level, and in policymaking in general, the ability to act on climate change is mainly tied to the availability of finance (OBR 2021; NAO 2021). **Grants and funds** are the main source of such finance as LAs have very limited scope, or none at all, to increase the already very limited space for taxation in support of **Public expenditure**, which interestingly features more prominently among CAs who do not enjoy tax raising capacities. This is probably linked to devolution deals which increasingly shift the availability of capital funding from the LA level towards the CA level.

Funding sources

Closely tied to the section above on National policy are the sources of finance available to for local NZ delivery. Finance underpins the delivery of CAPs and climate action more generally across all levels of government and central government provides three sources of funding which can be used for NZ delivery locally (NAO 2021):

- Core settlement funding: allocated; some of which LAs may choose to spend on NZ
- Dedicated grant funding for NZ: LAs can bid for such funding through competitive processes
- Wider grant funding for NZ alongside more general outcomes such as economic growth

We designate core settlement funding under **Capital funding** while we combine dedicated grants and wider grants under **Grant funding** at it is impossible to separate them out from the CAPs without more detailed knowledge about the individual funding streams and LA budget allocation processes. Figure 4 provides an overview of the different funding sources mentioned in CAPs.

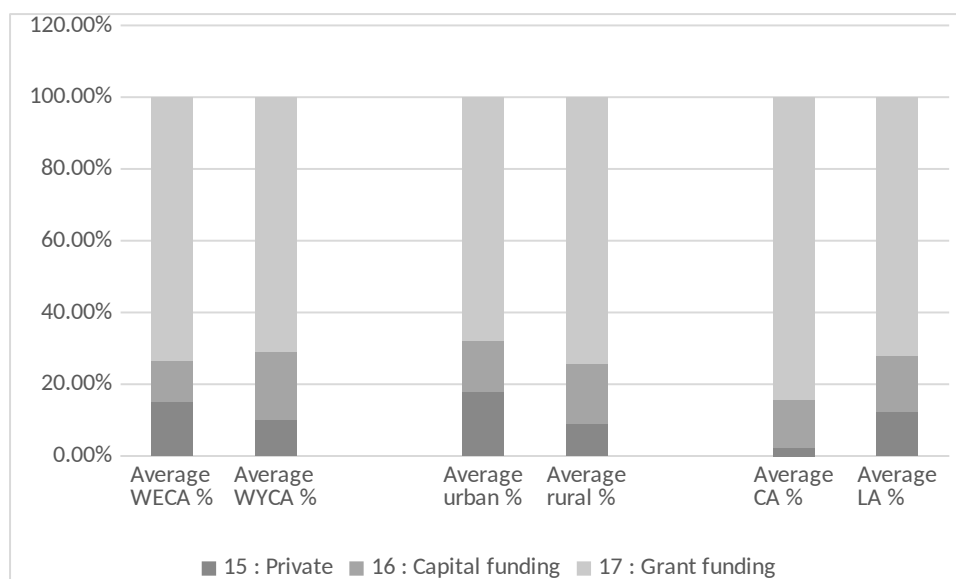


Figure 4. Sources of finance for local NZ delivery

Among dedicated NZ funding, only the Local Electric Vehicle Fund was pre-allocated, which is categorised as **Capital funding**. The £2.45bn Transforming Cities Fund and the Public Works Loan Board (PWLb), one of the main sources of infrastructure investment, also count as **Capital funding** in this context. However, a recent study suggests that the PWLB can only deliver 1.4% of the £1.4trn required for a nationwide net zero transformation of the UK (Innovate UK and GFI 2022). LAs' continuous investment into their social housing stock and estates which has been directed towards NZ outcomes also falls under this category.

However, the £6.6bn for energy efficiency 2022-25, which supports their efforts in decarbonising their **Estates and public services** and their **Buildings** falls under **Grant funding**. The main programmes included in this £6.6bn are the Public Sector Decarbonisation Scheme (PSDS) and the Social Housing Decarbonisation Fund (SHDF), which as their names suggests support public sector and social housing decarbonisation respectively (Burnett et al 2023). What **Grant funding** sources have in common is their competitive nature. The perilous state of LA finances and increasingly limited room to allocate **Capital funding**, however, implies that LAs are highly dependent on **Grants funding** for NA delivery. Yet only recently has the government created a website to provide an overview of live funding opportunities. This makes it easier for LA representatives to apply. Yet funding success is closely linked to the overall size and resourcing of councils.

Before the introduction of the £6.6bn for energy efficiency 2022-25 (£2.2bn/a), the £1.2bn of dedicated grant funding provided to LAs for NZ delivery through 22 programmes (including the PSDS worth £589m; the Active Travel Fund worth £247m; the Green Homes Grant Local Authority Delivery Scheme worth £203m; and the Social Housing Decarbonisation Fund Demonstrator £58m) in 2020-21 saw LCC received over £50 per capita, CBMDC, KMBC, and CMBC less than £12.50, and WMDC £12.50-£24.99. BCC received £25-£37.49, BANES £12.50-£24.99, and SGC and NSC less than £12.50 (NAO 2021). This distribution is indicative of the funding success enjoyed by urban LAs which employ large energy service and climate actions teams, especially LCC and BCC.

Given the need to increase NZ investment from £10bn/a to £50bn/a, private finance, which will need to contribute 75% to achieve NZ moving forward, is increasingly targeted by government (Innovate UK and GFI 2022). At LA level, however, there appears to be little understanding how to raise it in a NZ delivery context. Flagship projects such as Bristol City Leap suggest that investments into **Estates and public services** and **Buildings** assets can be used to raise private finance through the **Procurement** of public private partnerships using long-term concession agreements. However, associated costs of managing risk and due diligence, especially in the context of public asset transfer (Bristol City Leap involved the sale of BCC's heat network to the delivery partner at cost price of around £50m while the total procurement cost was around £9m), are out of reach for many LAs who lack the internal capabilities and CAs generally who lack assets to leverage private investment (Nolden et al. 2023).

Cross-cutting activities

Given the lack of finance available to support local NZ delivery, the state of LA finances, and the inconsistency in policymaking in recent years, cross-cutting activities, especially in the context of organising change, stand out as an area highly relevant to local NZ delivery but poorly recognised in the policy translation process. The four

areas we identified as cross-cutting Priority areas include **Communication, Data, Planning, and Procurement**. We have categorized them as such as they mainly feature in the context of other Priority areas and tend to be means to achieve an outcome with regards to a Priority Area.

Communication includes all efforts to communicate the issue of climate change, advising on actions to mitigate climate change, providing information regarding policy and funding support, public consultations on climate action and other activities which amplify or mitigate climate change, hosting websites, convening meetings and citizens assemblies, enhancing carbon literacy, and delivering capacity building and knowledge exchange. Information provision has long been recognised as an essential component of energy efficiency (Eyre et al. 2022). In recent years, however, a growing body of knowledge has highlighted the importance of consultation and engagement although benefits are difficult to capture in relation to the effort involved. While the exact effect of communication on NZ delivery is impossible to assess, NZ delivery is impossible without communication and the LAs play a key role in communicating their responsibilities for social housing, local transport, waste and planning and their ability to procure, spend, borrow, and invest (NAO 2021; UKERC 2023).

Data underpins climate action and funding bids, both public and private. As a result, the creation of emission inventories to establish a baseline (where we are now) and target date to achieve NZ (where we need to be) is typically the first step undertaken by LAs who have declared a climate emergency. Fundamentally, all LAs report their data to the Department for Energy Security and Net Zero (DESNZ) using the SCATTER tool so there is a degree of compatibility. In practice, however, some report using the internationally recognised Carbon Disclosure Project (CDP) or Tyndall Carbon Budget Reports which are only available to UK LAs. Meanwhile, UK100 (2021), an advocacy group, suggests that only 60% of UK LAs publish any emission data. Inconsistency in reporting makes it difficult to compare progress and make a stronger case for coordinated climate action across LAs and to communicate opportunities and limitations of local NZ delivery effectively (NAO 2021).

Planning, as mentioned above, is one of the key areas for local climate policy implementation as it is within the power of LAs (unitary authorities and district councils – not combined authorities and upper-tier authorities) to adopt progressive net zero planning policy which exceeds National Planning Policy Framework guidelines. Our analysis suggests that this potential is rarely realised although BANES is notable in establishing the most progressive planning policy regarding the built environment in the Southwest. A lack of NZ reporting requirements in the National Planning Policy Framework suggests that while such ambition is commendable, there are no statutory duties nor devolved power to deliver more place-based NZ delivery through the planning system (Rankl et al, 2023).

Procurement is another area where LAs can exceed government standards. Opportunities for net zero delivery are two-fold. Firstly, LAs can procure organisations to support their own emission reductions. Secondly, LAs can stipulate emission reductions in their supply and value chains and in those of the organisations they procure from. In practice, LAs rarely make use of NZ procurement opportunities as austerity measures have limited the capacity to engage in soft market testing and undertake due diligence procedures. With the passing into law of the Public Procurement Bill 2023, LAs have even greater flexibility regarding the implementation of NZ-oriented procurement projects supported by digital platforms and open data. The shortage of risk-taking capabilities however, results in a preference of Most Economically Advantageous tenders as opposed to riskier options which can accelerate NZ delivery (Sugar et al. 2022).

Discussion and conclusion

In analysing and comparing Climate Action Plans (CAPs), this paper provides a snapshot of climate action priorities among the constituent local authorities (LAs) of the West of England Combined Authority (WECA) and West Yorkshire Combined Authority (WYCA). Overall, our findings echo the government-commissioned Skidmore Review's assertion that "different tiers of local authority have varying degrees of power on net zero" (2023: 196). LAs, for example, are bound by statute. This implies that they are obliged to deliver statutory duties. While net zero (NZ) delivery is not among them, there is overlap, especially in the context of **Estates and public services, Buildings, and Planning**. Their ability to use their capital funds and control over associated assets to deliver NZ, however, varies according to resourcing and capabilities. Well-resourced LAs, especially urban LAs, benefit from much greater capabilities to both benefit from national policy and take risks with their capital funds compared to less well-resourced LAs, especially in rural settings.

Combined authorities (CAs), in contrast, are confronted with entirely different resourcing processes. While they lack assets especially with regards to estates and social housing to leverage private finance, and planning powers to directly influence decision-making on the ground, they are not bound by associated statutory responsibilities. Thanks to devolution deals, CAs increasingly find themselves in an enviable position of increasing availability of both public expenditure and grant funding, especially in the context of regional **Transport** provision and

Business support (HM Government 2017; HM Treasury 2017). CAs' engagement with **Business** is also linked to their hosting of abovementioned Local Enterprise Partnerships.

The weighting of different Priority areas across LA and CA level therefore reflects the ownership of assets (**Estates and public services** and **Buildings**) and land, and the responsibility and leverage this ownership entails regarding LAs; and a focus on regional solutions where these are most obviously addressed and increasingly resourced by government, such as **Transport**, regarding CAs. LAs' focus on **Communication** probably reflects their widely acknowledged role as the most critical actor for local NZ delivery (NAO 2021; Sugar et al. 2022; UKERC 2023). Communicating their role and their activities, as well as the role of government and other actors, is crucial for the legitimacy and transparency of NZ.

Regarding policy translation it is striking that most NZ policy is delivered and acted upon locally mainly through two channels only: **Grants and funds**, and **Regulations, legislation and standards**. The carrot and the stick. This is probably not surprising as funding and the ability to act at a local level are closely intertwined while the latter apply equally throughout England (sometimes also in Wales, Scotland and Northern Ireland). This is also highly relevant to the delivery of demand-side solutions. Current national NZ policy is of little direct relevance to local NZ delivery as it mainly addresses the supply side but **Grants and funds** at the LA level are mainly directed towards energy efficiency while **Regulations, legislation and standards** mainly concern end-use energy demand technologies (Eyre et al. 2022; Nolden et al. 2022).

Overall, funding for NZ delivery at a local level is mainly tied to the £6.6bn allocated to energy efficiency 2022-25 (Burnett et al 2023). In principle, this is good for energy demand reduction. Assuming the leverage ratio of 3:1 for private finance required to deliver NZ according to Innovate UK and the GFI (2022), these £2.2bn could potentially deliver a total of £8.8bn/a of NZ investment. While this is a potentially very significant, it presents less than half of the £20bn/a or so required to deliver NZ locally (Innovate UK and GFI 2022; Burnett et al. 2023; Innovate UK and PwC 2023). Nor does it take into account the highly uneven funding allocation resulting from competitive award processes (NAO 2021; Burnett et al. 2023). With up to £20bn allocated to CCUS, it is evident that asymmetrical policymaking at a national level continues to stymie energy demand reductions at a local level, despite their more significant contribution to decarbonisation to date compared to energy supply solutions (Lees and Eyre 2021)

Cross cutting themes, in contrast, are areas of local policymaking where LAs and CAs can act independently of both **Grants and funding** and **Regulation, legislation and standards** and which are consequently less dependent on direct policy translation. LAs in particular have wriggle room in the development and delivery of **Communication** strategies, in developing **Planning** policy, especially with regards to **Buildings** and the siting of **Electricity networks and generation**, and **Procurement** where recent National Procurement Policy Statements and the Procurement Act 2023 provide much greater powers to base decisions on NZ and social value outcomes as opposed to most economically advantageous tenders (Sugar et al. 2022; UKERC 2023).

These themes are areas where LAs in particular have the capacity to shape the NZ trajectory of their constituent areas with their **Planning** responsibilities and large **Procurement** and **Capital** budgets associate with statutory duties regarding social housing. As levers of action, however, they sit awkwardly if not invisibly beside headline priority areas and policy translation channels. As such they are often overlooked in the national NZ policymaking and delivery process while widely acknowledged as important levers for action in the local NZ delivery literature (NAO 2021; Skidmore 2023; UK100 2023; UKERC 2023).

Overall, our research suggests that at the lower administrative tier (LAs) in particular, national NZ strategy appears to equal a set of industry frameworks in support of particular technologies and sectors such as large-scale renewables, nuclear power, and CCUs with associated policy translation levers supporting their deployment irrespective of place specificities. Higher (CA) tiers face the same policy translation structure but benefit from devolution deals and allocation budgets. For LAs, on the other hand, the overarching framework is competition, not the delivery of NZ.

To deliver NZ cost effectively and as an opportunity for regeneration and the development of prospering local economies in the UK, funding needs to be allocated strategically (for example targeting LAs with the most inefficient building stock), not competitively. Local NZ ambitions need to be sense-checked and aligned to ensure their totality represents local and combined authority determined contributions to national NZ delivery. An overarching plan is necessary to align green industrial priorities with local economic strengths and weaknesses to ensure that green industrial challenges translate into green economies across multiple scales. Finally, a unified data framework is necessary to tie all these aspects together and help identify where NZ delivery is most economical, where co-benefits are the most significant, and where people are the most likely to lose out. In the absence of such knowledge, the UK will fail to deliver a just transition and never reach NZ.

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References

- DESNZ (2023). Mobilising Green Investment. Department for Energy Security and Net Zero: London.
- Eyre, N., Barrett, J., Bobrova, Y., Nolden, C., Rosenow, J. (2022). New times, new policies? Policies to change energy use in the context of zero carbon. ECEEE Summer Study 2022 Proceedings, 2-043-22 .
- Forbes (2023). [Revealed – The UK Cities Most & Least Likely To Achieve Net Zero Targets](#)
- HM Treasury West Yorkshire Devolution Deal. [West Yorkshire Devolution Deal.pdf \(publishing.service.gov.uk\)](#)
- HM Government (2017). West of England Devolution Agreement. [West of England Devolution Agreement.pdf \(publishing.service.gov.uk\)](#)
- HM Government (2022). United Kingdom of Great Britain and Northern Ireland’s Nationally Determined Contribution. [UK NDC ICTU 2022.pdf \(unfccc.int\)](#)
- HM Government (2023). Responding to the Independent Review of Net Zero’s Recommendations. [Responding to the Independent Review of Net Zero’s Recommendations \(publishing.service.gov.uk\)](#)
- Innovate UK and GFI (2022). Mobilising local net zero investment – challenges and opportunities for local authority financing. UK Research and Innovation and Green Finance Institute: London, [REPORT \(ukri.org\)](#)
- Innovate UK and PwC (2023). Local Net Zero Projects – Market analysis methodology. UK Research and Innovation and PricewaterhouseCoopers: London, [LNZI: Market analysis methodology](#)
- Lees, E., Eyre, N. (2021). Thirty years of climate mitigation: lessons from the 1989 options appraisal for the UK. Energy Efficiency 14: 37. doi: 10.1007/s12053-021-09951-2
- mySociety (2024). Local authority net zero commitments. [local authority net zero commitments.xlsx \(live.com\)](#)
- NAO (2021). Local government and net zero in England. National Audit Office, HC 304.
- Nolden, C., Eyre, N., Fawcett, T., Bobrova, Y. (2022). [The role of energy demand in policymaking for a just transition to net zero: a comparative survey in the UK, the Netherlands and Germany](#). ECEEE Summer Study 2022 Proceedings, 3-164-22
- Nolden, C., Moya Mose, T., Sugar, K., Kommidi, A., Fox, S. (2023). Bristol City Leap: A Novel Procurement Model for Delivery Net Zero. UK Energy Research Centre, <https://doi.org/10.5286/ukerc.edc.000965>
- OECD (2023a). Tax revenue as percentage of total general government tax revenue. [table9 tax rev rs tot-tax-rev.xlsx \(live.com\)](#)
- OECD (2023b). Consolidated government expenditure as percentage of total general government expenditure. [table5 gov exp-tot gov exp.xlsx \(live.com\)](#)
- PWC (2022) Accelerating Net Zero Delivery – Unlocking the benefits of climate action in UK city-regions. PWC, Otley Energy, University of Leeds.
- Rankl, F., Collins, A., Tyers, R., Carver, D. (2023). The role of local government in delivery Net Zero. House of Commons Library, CDP-2023-0122
- Skidmore, C. (2023). Mission Zero – Independent Review of Net Zero. [MISSION ZERO - Independent Review of Net Zero \(publishing.service.gov.uk\)](#)
- Sugar, K., Moya Mose, T., Nolden, C., Davis, M., Eyre, N., Sanchez-Graells, A., van der Horst, D. (2022). Local decarbonisation opportunities and barriers: UK public procurement Legislation. Buildings and Cities 3(1): 895-911, <https://doi.org/10.5334/bc.267>
- UK100 (2023). Powers in Place: The handbook of local authority Net Zero powers. UK100, [UK100 Powers in Place](#)
- UKERC (2023). Review of Energy Policy 2023. UK Energy Research Centre, [Review of Energy Policy 2023](#)
- WECA (2023). West of England Climate and Ecological Strategy and Action Plan. West of England Combined Authority [West of England Climate and Ecological Strategy and Action Plan 2023](#)
- WYCA (2021). West Yorkshire Climate and Environment Plan 2021-2024. West Yorkshire Combined Authority, [west-yorkshire-climate-and-environment-plan.pdf](#)