

ENERGY AND ENVIRONMENT

An Investigation and Policy Recommendation
on how the UK National Government and
Local Authorities will transition to Net-Zero

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About Leeds Policy Institute

Leeds Policy Institute (LPI) is the first student-run policy unit and think tank located at the University of Leeds. Founded in April of 2023, LPI has united over 60 students across the University of Leeds from a large range of undergraduate and postgraduate degrees to tackle and research both local and national issues that are encapsulated within our six policy divisions of Macro Policy, Social Policy, Urban Planning and Transport, Energy and Environment, Financial Regulation, and Market Interventions.

LPI is dedicated to producing data-driven research from an initial non-partisan position to attract a wide range of talent with varying political beliefs and backgrounds from the University. Through this, we generate organic research conclusions while extending opportunities to all students across the University of Leeds. LPI's research is reviewed by our academic advisory council consisting of lecturers and researchers from the University of Leeds and through this, LPI ensures that all published research conclusions have undergone their respective review process.

The core mission of LPI is to create opportunity and to develop the professional academic, research, and interpersonal skills of students at the University of Leeds. In this year alone, LPI has created opportunities with members presenting at LSE's British Conference of Undergraduate Research while being published in external newspapers such as the Financial Times. LPI is a testament and example to the resilient and innovative spirit that is fostered and shared by all students at the University of Leeds, and we hope that our newly published research will reflect the values and mission of Leeds Policy Institute.

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Abstract

Despite the UK's commitment to the Net Zero innovation Portfolio through £100 million investment towards energy storage and flexibility innovation, the recent renege on the 2035 net-zero targets triggers questions about the UK's ability to achieve the green energy goals and its reputation as a global leader on climate change. By observing policies and strategies implemented by both local and national governments in West Yorkshire we assess the overall success of environmental policy in the UK and through observing its failings, analyse how future efforts could benefit the UK's goal of carbon neutrality. At the national level, the lack of infrastructure, as evidenced by UK business data, shows what is required for the transition to 'all-electric' transportation. The lack of proper frameworks, as explained by primary research and questionnaires aimed at local councils, shows the need for a more granular approach to targeting net-zero objectives. To overcome impediments to achieving neutrality, our report aims to address these climate challenges by examining whether local councils and communities have enough autonomy to take control of their own net-zero goals. In Leeds alone, the City Council (LCC) has already seen success in tackling air pollution and increasing electric vehicles, yet, more can be done to improve local air quality as Leeds remains the largest city in Western Europe without a tube/tram system. Consequently, our report recommends increasing investment in bus infrastructure to make it more frequent, interconnected, and reliable to reduce emissions and reliance on cars and from this, get closer to achieving net-zero targets through devolved strategies at local levels.



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Recommendations

- 1. Domestic job creation in the wind industry:** The UK has the potential to create 98,000 vacancies, should we maximise domestic production into wind energy and create an independent market (Emden et al., 2023, p.7). We propose a training and education initiative to strengthen the transitions of occupational labour mobilities to enable domestic production through offshore wind networks, significantly contributing to the scale of clean energy production in the UK.
- 2. Increased investment in EV infrastructure:** The infrastructure required for the transition to 'all-electric' transportation networks is notably insufficient. The lagging implementation of appropriate infrastructure and an ill-equipped network of charging stations is stunting the growth of electric car ownership in the UK. The UK government must seriously address the deep-rooted issues with our transportation and electrical infrastructure. The government must ensure firms and local councils are provided with clear information and targets and are given frameworks to implement the proposed strategies to ease our transition to electric transport. Failure to do so could seriously jeopardise the already postponed 2035 target for carbon neutrality, and undermine our emissions forecast.
- 3. Investment in Public transport:** Investing in the current bus infrastructure would reduce emissions and individuals' reliance on cars. Leeds is the largest city in Western Europe without a tube/tram system, making the bus system vital for the city's functionality. Introducing more frequent, interconnected, and reliable services would make bus routes a more attractive option as currently 80% of Leeds buses are late. The possibility of reintroducing a CAZ in Leeds is a more feasible option once the current public transport system has evolved.



- 4. Addressing Housing and Energy Efficiency:** The Brownfield Housing Fund has had several approved projects in central Leeds, a disproportionate amount in comparison to the rest of WYCM. This is due to the fact the housing schemes must generate a specific level of income that surpasses what was spent on the site. Other areas in WYCM, such as Bradford, have been rejected for the grants despite their vacant brownfield sites. Since acquiring the funding for these housing schemes is challenging, more policies that focus on improving the existing housing and tackling fuel poverty in Leeds should be addressed. The SHDF program has been a success in Leeds as the Holtdale estate (190 homes) achieved the UK's top energy efficiency rating which was funded by the LCC's SHDF grant.

1 Introduction

1.1 Paper Overview

Over the years, the UK government's climate change awareness has evolved from being neglected to becoming a national and global priority. Public apathy towards climate change, originating from asymmetrical awareness in the 1970s and 80s (Harris, 2017), has reversed since 1989 and from this, significant progress has been made in clean energy production. By pledging resources to various projects, the government is committed to continuing the development of a clean energy strategy and the creation of infrastructure that can support its 2035 net-zero targets with a strong R&D focus. So far, £100 million has been pledged towards the government's Net Zero Innovation Portfolio (BEIS, 2021, p.77), and, an additional £170 million has been allocated towards researching advanced molecular reactors that provide clean, carbon-free energy, which will be used to build a commercially viable fusion plant by 2040 (BEIS, 2020, p.51). Now, while all of these commitments and guiding documents have helped set governmental plans in motion, significant risks and a multitude of unanticipated problems remain that are inseparable from green development initiatives which we address in the following section.



2 The Current Risks to the UK Government

2.1 Offshore Wind

As it currently stands, UK infrastructure is preventing the government from achieving its policy goals due to two main structural issues: the lack of an integrated offshore wind network and inconsistent, unregulated metering from energy suppliers (Helm, 2023). Both of these problems are interlinked. Britain's offshore wind network has not been properly regulated which has led to the erection of a disconnected series of wind farms by energy competitors that now suffer from incredible inefficiency (Helm, 2023). Left unregulated, this un-integrated offshore wind network has been squandered and hijacked by market competitors, creating the necessary conditions for unregulated metering from suppliers (Whittaker, 2011). As such, existing UK infrastructure has hindered the potential to provide solid support for cleaner energy strategies. While this does represent a severe policy failure, it does leave room for significant improvement that we address later in this report.

2.2 Transport Emissions and EVs

Moreover, these risks extend towards the emissions sector. Despite drastic improvements in energy efficiency since the 1990s, as seen in Leeds and many UK cities (Slater, 2021), transport emissions did not show a significant decline until 2017 (**Figure 1**).



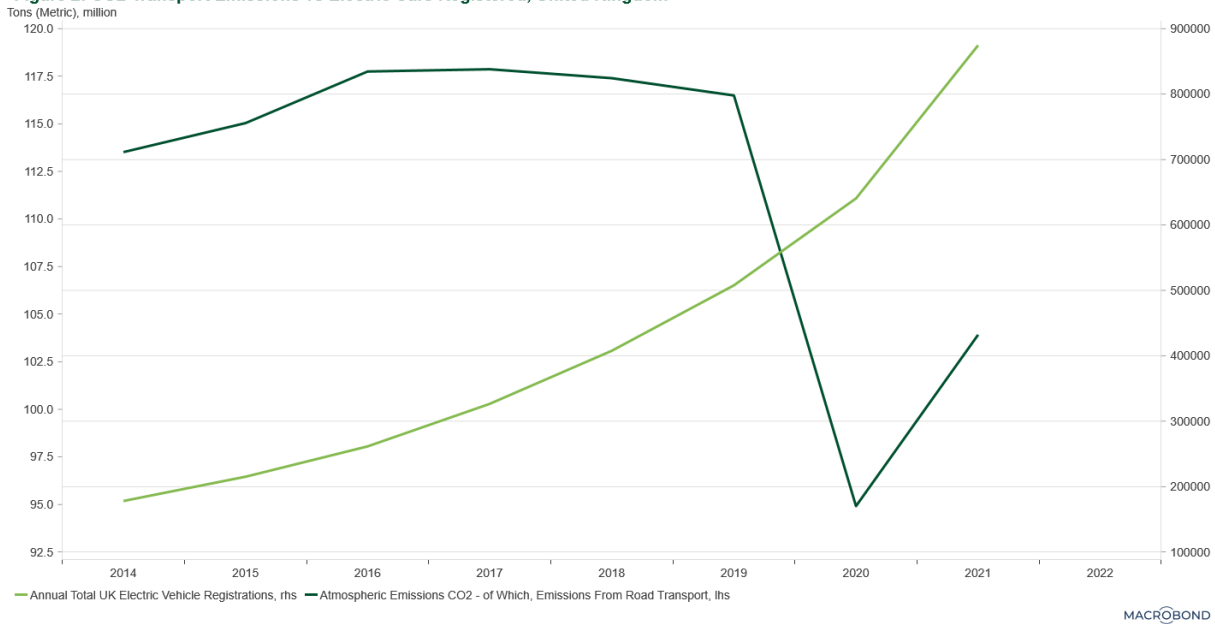
Figure 1: United Kingdom, Emissions, Data by Sector, GHG from Energy, Transport, Metric Tons of CO2 Equivalent



Source: Macrobond (2024), based on BEIS (2022) data

While transportation emissions have fallen in recent years, this decline must continue rapidly to meet UK regulatory commitments, especially considering the sudden emission spike after 2020. Using more recent data, the increased number of electric vehicles in the UK can be statistically compared to falling CO2 emissions in the UK since 2014 (**Figure 2**).

Figure 2: CO2 Transport Emissions vs Electric Cars Registered, United Kingdom



Source: Macrobond (2024), based on BEIS (2022) and DfT | DVLA (2023) data



This inference is useful in analysing the role that increasing electric car ownership has had in the UK. Since 2014, the ownership of electric cars has increased almost 10-fold (**Figure 2**). When regressing the data, we find interesting explanations between the increased registrations of EVs on the dependent variable, emissions, resulting in an R^2 coefficient of 0.671. This indicates that approximately 67% of the variation, and therefore a general decrease in CO₂ emissions, is explained by the increased electric car ownership. Intuitively, this makes sense, by taking more petrol/diesel cars off the road as consumers switch to EVs, CO₂ emissions decrease.

However, when inferring such data, it is extremely difficult to determine what biases may occur, especially in the face of omitted variables. These may include the increased efficiency of engines over this time (Leach et al., 2020), which may have led to falling emissions, or even policy changes which have led to the phasing out of coal power stations (Anon., 2023) which all may have contributed to this reduction. Truth be told, with this inference, there are many multitudes of factors that may influence reductions in emission data, and this is also hard to conclude that the test is significant considering the distortion of COVID-related years which have artificially lowered emissions. Furthermore, many of these variables likely confound and are bi-directional, especially regarding the influence of government legislation on most variables, and so this must be considered before advising policy recommendations.

Nevertheless, the government maintains its commitment to a 2035 ban on the sale of petrol/diesel cars. However, despite efforts to increase EV ownership through the rollout of charging stations—marked by a recent increase of around 20,000 stations (Zapmap, 2023) since 2021—these efforts are still too marginal to have a significant impact on emissions reduction. Proportionally, the increased use of EVs and the development of infrastructure to encourage their use is insignificant, when looking at the volume of petrol and diesel vehicles in the UK. The lack of developed infrastructure poses a huge risk that the UK government must consider when coordinating environmental policy in the coming



years. Focusing on electric transportation is vital, but there are fundamental problems with the reliability of such technology and the total costs of ownership (Ejeh, Roberts and Brown, 2023). The unavailability of charging infrastructure is also discouraging consumers from switching to EVs. Infrastructure is underfunded and oversubscribed, and existing logistical issues are crippling carbon-neutral efforts (Tyler, 2023). There is limited technology to supply charging electricity to homes with no driveway due to indecisive government funding allocations, and a lack of maintenance skills in the sector (Institute of the Motor Industry, 2021) as an estimated additional 35,000 skilled workers are needed to support the expansion of EV infrastructure by 2030 (Institute of the Motor Industry, 2021). These are all factors that must be considered in policy decisions, particularly looking at consumer awareness. There are clear opportunities regarding climate policy, but these must be seized if the UK is to compete globally, while understanding the potential risks to carbon-neutral efforts.

3 Problems with Postponing of Targets and Introduction of Mandates

3.1 Postponing of the 2030 Target for Carbon Neutrality

The government's recent move of delaying the ban on the sale of new vehicles with internal combustion engines (ICEs) to 2035 has become a cause for concern (Lancefield, 2023). According to PM Rishi Sunak, this move was done to prevent pressuring the public into immediately adapting to the green policies, yet it is equally likely that this was just an economic and political move (Holton & James, 2023). With the upcoming general election, the delay may be seen as a move to win over voters, especially those feeling the effects of the rising cost of living crisis. The increasing uncertainty is also alarming for manufacturers, who remain unsure of the utility of producing fleets of all-electric vehicles when consumers want ICEs. Though there will be an eventual transition to all-electric vehicles, postponing the ban on the sale of new ICE vehicles creates issues for automakers who may have invested as per previously set deadlines. Additionally, the delay could potentially undermine



momentum as it withdraws any incentive for the public to transition to all-electric vehicles at the earliest. Nonetheless, the Society of Motor Manufacturers and Traders Ltd (SMMT) presents data to indicate a surge in the sale of EVs compared to previous years, as shown in Table 1 below.

Table 1: Marginal Increase in EV Purchases as of Q3 2023

	YTD 2023	YTD 2022	% Change	Mkt Share - 23	Mkt Share - 22
Diesel	61,947	73,370	-15.6%	3.9%	5.5%
Petrol	658,249	582,792	12.9%	41.0%	43.4%
MHEV Diesel	60,264	61,524	-2.0%	3.8%	4.6%
MHEV Petrol	247,082	188,479	31.1%	15.4%	14.0%
BEV	262,487	195,547	34.2%	16.3%	14.6%
PHEV	113,278	82,861	36.7%	7.1%	6.2%
HEV	202,130	158,139	27.8%	12.6%	11.8%
Total	1,605,437	1,342,712	19.6%		

BEV - Battery Electric Vehicle; **PHEV** - Plug-In Hybrid Electric Vehicle; **HEV** - Hybrid Electric Vehicle; **MHEV** - Mild Hybrid Electric Vehicle

Source: SMMT (2023)

3.2 Problems with the Zero Emissions Vehicles Mandate

Moreover, concerns have been raised regarding the market’s reaction to the government’s Zero Emissions Vehicles (ZEV) Mandate, enforced from January 2024. The mandate requires that in 2024, 22% of vehicles sold must be “zero-emission” and by 2030, 80% of vehicles sold are to be ZEV, aiming for 100% by 2035 (Department for Transport, 2023). Yet, this mandate has seen criticism owing to a lack of clarity, the absence of guidance and a ‘consistent regulatory framework’ (Ibexus, 2023). A report by the Royal Society of Chemistry (2021) highlighted how a lack of governmental clarity creates confusion amongst manufacturers and local authorities, creating a rise in scepticism for the government's ability to deliver its ‘Electric Vehicle Infrastructure Strategy’. The inconsistency and uncertainty of policy can not only discourage investment in green infrastructure but also negatively influence public attitudes towards greener energy generation and usage. This is not just limited to the production of EVs, but the construction of charging points which are required in a robust, decarbonised



energy distribution network. According to the Climate Change Committee, with the ZEV mandate in place, the 2035 phase-out delay is only expected to have a “small direct impact on future emissions” (CCC, 2023) as seen. However, it does warn of the consequences of uncertainty, potentially creating the perception of the “weakening of government commitment to the (EV) transition” by both automotive companies and the public.

4 Opportunities for the UK

4.1 Eurozone Comparison

Despite these problems and setbacks, the UK economy possesses immense potential for growth through carbon neutrality, and as such, if opportunities are taken, then the comparative advantages will have widespread benefits (Emden et al., 2023, p.2). While we have identified the unregulated offshore wind industry as a risk to government environmental efforts, we can also see this as a clear-cut opportunity to create domestic manufacturing supply chains and associated jobs (Emden et al., 2023, p.6). Countries of similar development have all developed wind-manufacturing capabilities and are now leading exporters of wind farm components. Yet, despite Britain being the second largest installer of offshore wind in the world (DBT, 2023), there is a lack of employment in such sectors. Countries like Denmark, Germany and the Netherlands have all seized opportunities to become fully integrated in the sector (Emden et al. 2023, p.6), producing jobs, investment, research, and a coordinated industry which is infinitely more beneficial for domestic economies.

Another opportunity for the UK’s carbon neutrality efforts can be found when comparing Britain to what countries in the Eurozone already seize. On 31st October, Portugal ran its entire energy supply from renewable sources for almost 149 hours (Euronews Green, 2023). This feat not only shows the progress of Portugal’s carbon-neutrality targets, with Portugal sourcing 67% of its typical power from renewable sources (McGinn, 2023) but also sets a precedent as to how carbon-neutral investment can steer other economies such as the UK to attempt similar stunts to test capabilities. While Portugal's



achievement in running its energy supply entirely on renewables for an extended period is noteworthy, replicating this feat in the UK poses significant challenges. The UK would require substantial investment in energy and planning infrastructure, coupled with consistent government support and funding (Stokel-Walker, 2023). Other issues lie with the structure of the National Grid which cannot accommodate localised generation, which would allow for a swift transition to green energy. While the UK's reliance on coal and gas is significantly lower than in Portugal (Beyond Fossil Fuels, 2024), with the UK having access to cleaner alternatives such as nuclear energy, there needs to be greater attention and a need to strictly adhere to the climate commitments and targets. To achieve this, the UK government should utilise a regional scale approach and bottom-up strategies that can begin to promote collaborative efforts towards carbon neutrality in the UK and begin to benefit key contributors to underlying issues from such scales.

5 Local Scale Factors

5.1 The Benefits of Devolution

Devolution can be defined as the transfer of power by a central government to local or regional administrations (Torrance, 2023). Since 2014, the UK government has aimed to widen democracy and reduce the north-south divide to ten mayoral devolved areas in England (Henderson and Paun, 2023). For instance, Bradford City Council (BCC) informed us during our investigation that they are currently working with the Combined Authority on proposals for devolution in the future. After Brexit, the role of environmental policy was handed to these powers rather than being regulated nationally. Henceforth each Mayor and council decides their combined authority's involvement in tackling net zero issues. In an anonymous survey sent to professors within the University of Leeds Earth and Environment department, 50% strongly agreed and 33% agreed that councils should be given more devolved power to address climate change. Some concerns highlighted in the survey were related to the lack of funding and unification current local governments have. The economic hardship of towns



and cities is causing a growing bankruptcy problem across the UK. Larger councils like Birmingham and Nottingham have recently declared bankruptcy and an estimated one in five council leaders in England will do the same in the next year (LGA, 2023). However, with increased funding for net zero objectives to devolved powers, councillors can implement climate change policies from a local scale that will eventually expand to a national extent.

5.2 Clean Air Zones

As of September 2022, BCC invested £20.4 million to introduce a Class C+ Clean Air Zone (CAZ) to improve air quality in the area (Council, 2023). According to BCC, the CAZ was delivered and funded entirely by the government from the additional burdens doctrine which also included resources for health and wellbeing, cost of living and energy resilience. The CAZ charges do not apply to passenger cars and motorbikes (excluding taxis and private hire vehicles). Instead, it aims to discourage the most polluting vehicles (HGVs, buses etc) and encourage businesses and people to buy a minimum of Euro 6 diesel and Euro 4 petrol vehicles (Council, 2023) with Fully licensed taxi drivers receiving up to £10,000 in grants for EVs. The CAZ has already generated over £10 million in funds for BCC. BCC expressed that their CAZ has been effective at reducing emissions as the lowest levels of air pollution were recorded in September 2023, a year after its implementation (BCC, 2023). The Market Street in Bradford city centre shows NO₂ reductions from 45 (unit) in 2021 to 39 (unit) in 2022 which is below the legal limit of 40 (unit) (Council, 2023). Environmentally, CAZs are effective at reducing CO₂, NO₂ and PM concentrations (Council, 2023). When asked if the CAZ will help reach carbon neutrality in Bradford, the BCC was positive it would in combination with vehicles to electric, hybrid, and cleaner engines. Approximately 150,000 tonnes of CO₂ will be reduced across the lifetime of the Bradford Council Clean Air Plan (BBC, 2024). Overall, the BCC believes the CAZ has had a positive impact on Bradford's climate policy and has 'raised the profile of clean growth by being the first charging zone in the North of England'. In contrast, LCC cancelled plans for a potential CAZ. Over 90% of buses and 80%



of heavy goods vehicles use cleaner Euro 6 engines and air pollution on the key routes is below the legal limit (Council, 2023).

As seen in Bradford, CAZs are effective at reducing air pollution as the policy is targeted towards the most polluting vehicles. However, CAZs are generally perceived negatively as financially disadvantaged households are most affected. The expansion of the Ultra Low Emission Zone (ULEZ) to outer London was 39% evenly opposed and supported by residents (R&WS, 2023). Methods of environmental taxation should be combined with other policies that offer alternatives such as an attractive public transport system (OECD, 2011) so individuals are not at an economic disadvantage and have choices regarding their transportation. Investing in the current effectiveness of the Leeds Bus infrastructure will make the reimplementation of a CAZ in Leeds a more feasible option. From the survey conducted with UoL professors, 1/3 equally strongly agree, agree, or have a neutral opinion that CAZs are effective at improving air quality in urban areas. There was a wide range of comments made, representing the split of opinion. CAZs are prone to target the financially disadvantaged as aforementioned. Some supported the expansion of CAZs but alongside the development of public transportation or with a shift in vehicle fleet.

5.3 Climate-friendly Housing

In West Yorkshire, building emissions account for 41% of the area's carbon emissions (WYCA, 2022). According to the West Yorkshire Carbon Emission Pathways study, to achieve the 2038 net zero target almost 700,000 homes need to be retrofitted and an additional 665,000 low-carbon heating systems need to be installed (WYCA, 2022). Two programmes implemented by the combined authority aim to achieve this goal. The West Yorkshire Combined Authority which covers Bradford, Calderdale, Kirklees, Leeds, and Wakefield has received £89 million from the Department for levelling up, Housing & Communities for the Brownfield Housing Fund. This project involves the construction of 5,400 homes (commencing March 2025) on brownfield sites (WYCA, 2022) which are areas of derelict land (ARL,



2018). The land will be regenerated into climate-friendly homes with low-carbon technology and placed near transport hubs to further the authority's net zero goal.

In addition to the Brownfield Housing Fund, the West Yorkshire Combined Authority is participating in the Social Housing Decarbonisation Fund (SHDF). This programme uses the PAS 2035 framework (the British retrofitting standard) to make social housing energy efficient, reduce energy consumption and carbon emissions, and create jobs in the green energy sector (West Yorkshire Combined Authority, 2023). The Fund will be achieving this through the implementation of loft insulation, new heating systems, windows, doors, ventilation, several solar panels, and several variations of wall insulation (cavity, external, and internal). During the first wave of this project, the Combined Authority will deliver these improvements to 1,000 socially rented homes, using around £10 million of private and government funding (West Yorkshire Combined Authority, 2022). This programme helps the WYCA achieve their 2038 net zero targets by improving the carbon emissions of 1,316 socially rented homes (West Yorkshire Combined Authority, 2022). The WYCA estimates that this scheme will prevent 451.5 tonnes of CO₂ emissions annually, as well as saving a total of around £316,000 for tenants' energy bills (West Yorkshire Combined Authority, 2022). In the survey, UoL professors were asked what technology should be implemented in UK homes to make them climate-friendly. Two-thirds endorsed the implementation of heat pumps and pushed for better insulation.

5.4 Electric Vehicles

LCC has made vast investments to introduce EVs to the city. The most recent endeavour is the implementation of the first fully electric bike service in the UK, introduced in June 2023 (LCC, 2023). The £2.86 million investment partnered with Beryl to fit 21 docking stations and 200 bikes across Richmond Hill to Headingley (LCC, 2023). In Leeds, people are 21 times more likely to die from air pollution than getting hit by a car in Leeds (Centre for Cities, 2020). In 2020, £7.3 million, with a further £4.8m from the DfT, was invested into 9 buses in Leeds, with Yutong E10 BUS which saves 45 tonnes



of CO2 emissions yearly (Johnson, 2020). In 2022, £8.1 million was invested into Bradford's electric bus infrastructure (BAM, 2022). From March 2022, f39 buses in West Yorkshire were electric (Route One, 2023). There have been significant efforts to introduce battery-electric buses in Leeds as 57 more are being deployed by March 2024 (Route One, 2023). This has been implemented as the production cost of EVs has reduced whilst still being affordable for the majority of people (LCC, 2024). VOI put in a bid for an electric scooter scheme in Leeds in 2020, however, E-scooters have remained illegal to use on public roads in Leeds and West Yorkshire (West Yorkshire Police, 2023).

In addition to improving public transportation the West Yorkshire Combined Authority has implemented policies which encourage the use of private EVs. As of January 2023, the West Yorkshire Combined Authority had installed 832 EV charging points, although it has been estimated that by 2030 there will be a demand for around 10,000 (WYCA, 2022). This is due to the government's 2035 target to have all new cars be zero-emission, and therefore requiring electric charging points (Department for Transport, 2023) (West Yorkshire Combined Authority, 2023). BCC informed us they are working with the West Yorkshire Combined Authority on more sustainable transport like a mass transit system to progress decarbonising the current system. Their current taxi fleet is 99% electric hybrid and has over 500 applications for a new grant for drivers to change to fully electric taxis (BBC, 2024). In the CAZ there are 200,000+ electric vehicle movements monthly (BCC, 2024). They have several current proposals the BCC is working on implementing such as a hydrogen fuel production facility. The opinion of UoL professors showed that 33% strongly agreed and 50% agreed that increasing the availability of electric vehicles will help us reach net zero targets. The remaining remained neutral. The majority of those surveyed commented that EVs will help us reach net zero targets but should not be implemented in isolation and cannot be the only action taken.



6 Policy Recommendations

6.1 National Efforts

This report has concluded the comprehensive state of energy and environment policy in the UK, and the highlighted risks for the UK government, centred on the global stage, but starting from our initiatives. Given the survey information and literature review that we have performed, we make the following policy recommendations:

1. **Domestic job creation in the wind industry:** The UK can harness opportunities in domestic job creation. This is borne from the potential for the creation of 98,000 vacancies, should we maximise domestic production into wind energy and create an independent market (Emden et al., 2023, p.7). Therefore, to enable domestic production through offshore wind networks, significantly contributing to the scale of clean energy production in the UK, we propose a training and education initiative to strengthen the transitions of occupational labour mobilities.
2. **Lacking EV infrastructure:** The infrastructure required for the transition to ‘all-electric’ transportation networks is notably insufficient. The lagging implementation of appropriate infrastructure and an ill-equipped network of charging stations (Zapmap, 2023) is stunting the growth of electric car ownership in the UK (Institute of the Motor Industry, 2021). Once more, the UK government must seriously address the deep-rooted issues with our transportation and electrical infrastructure. The government must ensure firms and local councils are provided with clear information and targets and are given frameworks to implement the proposed strategies to ease our transition to electric transport. Failure to do so could seriously jeopardise the already postponed 2035 target for carbon neutrality and undermine our emissions forecasts.



6.2 Local Efforts

Recommendations at the Local Level:

Final proposals come on the local scale, and these include local air quality as witnessed in the Leeds area once more. Most of LCC's initiatives to tackle air pollution in Leeds are focused on increasing electric vehicles. While this has thus far been successful in keeping Leeds within the legal limits of NO₂ emissions, in the long term, more can be done to improve the local air quality.

- 3. Investment in Public transport:** Investing in the current bus infrastructure would reduce emissions and individuals' reliance on cars. Leeds is the largest city in Western Europe without a tube/tram system (Horn, 2023), making the bus system vital for the city's functionality. Introducing more frequent, interconnected, and reliable services would make bus routes a more attractive option as currently 80% of Leeds buses are late (Hanson, 2022). The possibility of reintroducing a CAZ in Leeds is a more feasible option once the current public transport system has evolved.
- 4. Addressing Housing and Energy Efficiency:** The Brownfield Housing Fund has had several approved projects in central Leeds, a disproportionate amount in comparison to the rest of WYCM. This is due to the fact the housing schemes must generate a specific level of income that surpasses what was spent on the site. Other areas in WYCM such as Bradford have been rejected for the grants despite their vacant brownfield sites (Young, 2023). Since acquiring the funding for these housing schemes is challenging, more policies that focus on improving the existing housing and tackling fuel poverty in Leeds should be addressed. The SHDF program has been a success in Leeds as the Holtdale estate (190 homes) achieved the UK's top energy efficiency rating which was funded by the LCC's SHDF grant. The homes were refurbished with double-glazed windows, insulated roofs, and heat pumps controlled by smart thermostats (Jessel, 2023). If the WYCM can push for more SHDF during wave 2, more social housing will



benefit from energy-efficient measures in their homes. LCC could increase energy efficiency education with homeowners and landlords, like the Toller Ward plan from BCC.

Finally, the rate of rapid EV charging points is not proportional to demand at a local scale. For the WYCA to keep up with demand, an additional 9,000 rapid charging points must be installed by 2030. On the other hand, the authority could also implement a policy encouraging at-home charging for EVs, as this is deemed to be the most cost and energy-efficient method for charging private EVs.



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