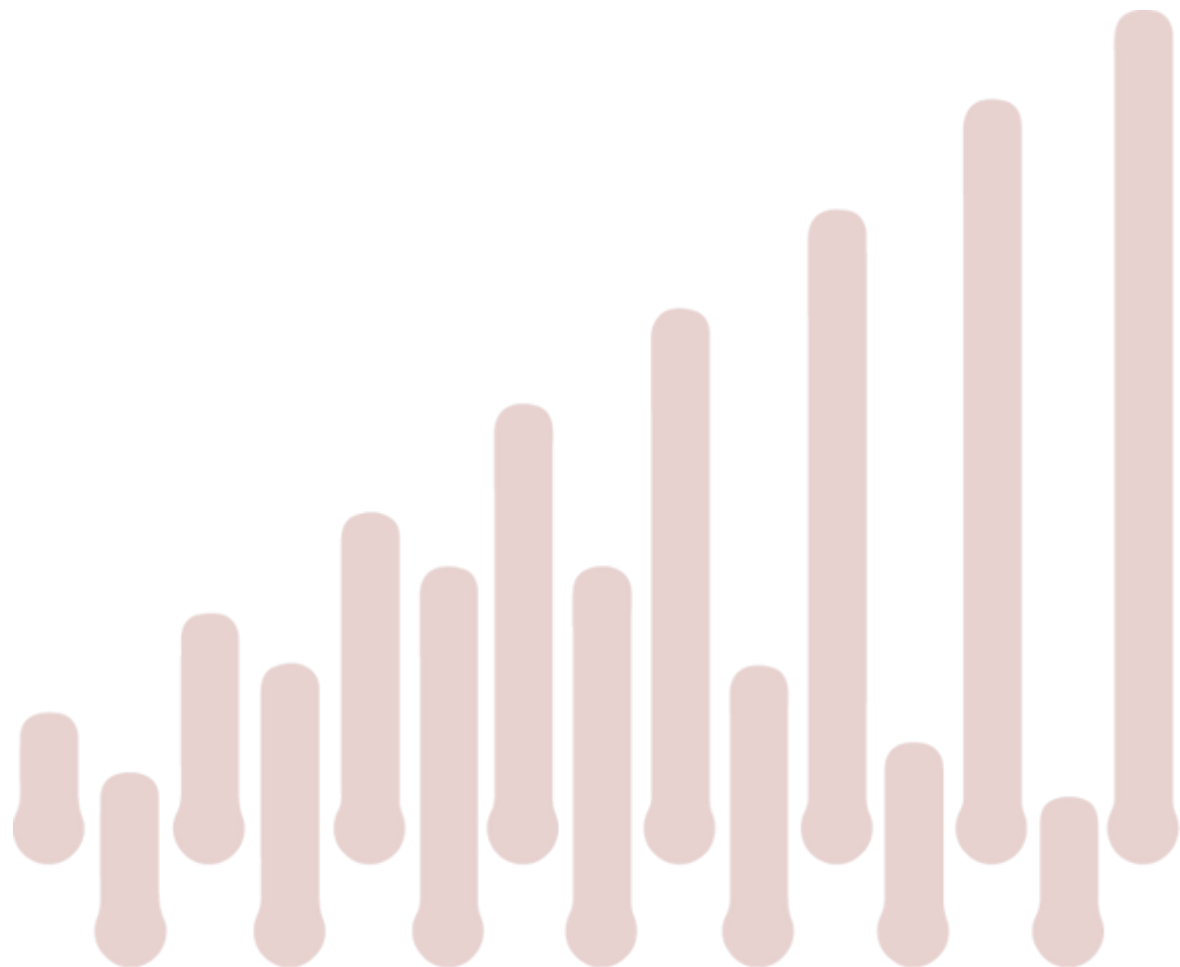


Climate and Green Transition Policies

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NIESR General Election Briefing

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OVERVIEW

This briefing:

- provides an analysis of the current environmental policy landscape in the United Kingdom.
- offers insights into the array of options that the prospective governing party should consider for handling the green transition effectively, with a specific focus on carbon pricing revenue options.

KEY POINTS

- The United Kingdom aims to achieve 'net zero' greenhouse gas (GHG) emissions by 2050. While it has successfully met its first three carbon budgets, the challenge of the next ones looms large, demanding even more aggressive action in reducing emissions.
- The United Kingdom must speed up efforts to reduce carbon emissions in all sectors, particularly energy, transport and buildings. Coordination between local and central government will play a critical role in making steady progress towards this goal.
- The United Kingdom's energy mix remains heavily reliant on fossil fuels, emphasising the need to accelerate the deployment of renewable energy sources while enhancing energy security.
- Carbon pricing is essential for the United Kingdom's climate policy framework, providing revenue that can be used to support further climate actions and mitigate the economic impact of environmental policies.
- Mobilising substantial public and private investments, estimates suggests that £50-60 billion will be necessary from 2030 onwards to support the country's transition, and developing the necessary green skills in the workforce is needed for achieving the green transition.

Current Environmental Landscape in the United Kingdom

Over recent years, UK political leaders have gradually acknowledged the importance of addressing climate change and its repercussions, particularly following the publication of The Stern Review¹ in 2006, which laid out the evidence on climate change impacts, and the adoption of the Paris Agreement in 2015, where most countries pledged to keep global temperature rise below 1.5C°.

Existing UK Policies

The Climate Change Act 2008 is the basis of the UK approach to climate change impacts. It established a comprehensive framework for climate mitigation and adaptation, receiving approval from the majority of political parties when it was passed.

The Act had three elements: (i) it set out long-term emission targets for 2050; (ii) it implemented a system of five-year carbon budgets serving as interim milestones toward the 2050 goal; and (iii) it initiated the Committee on Climate Change (CCC), an independent expert body that reports on climate mitigation progress to Parliament and provides advice on the appropriate limit for greenhouse gas emissions for each carbon budget.

Through the Act, the United Kingdom is legally bound to reduce greenhouse gas (GHG) emissions with the aim of limiting global warming, making it the first major economy to legally commit to a 'net zero' emissions target. The government must formulate policies to achieve carbon budget targets and reduce by 100 per cent the net levels of GHG emissions by 2050 (Net Zero). This means that the total of the emissions produced by human activity in 2050 should be equal to the GHG removed from the atmosphere. This commitment evolved from the Act's initial goal of an 80 per cent reduction, which was revised in 2019 following the recommendation of the CCC.

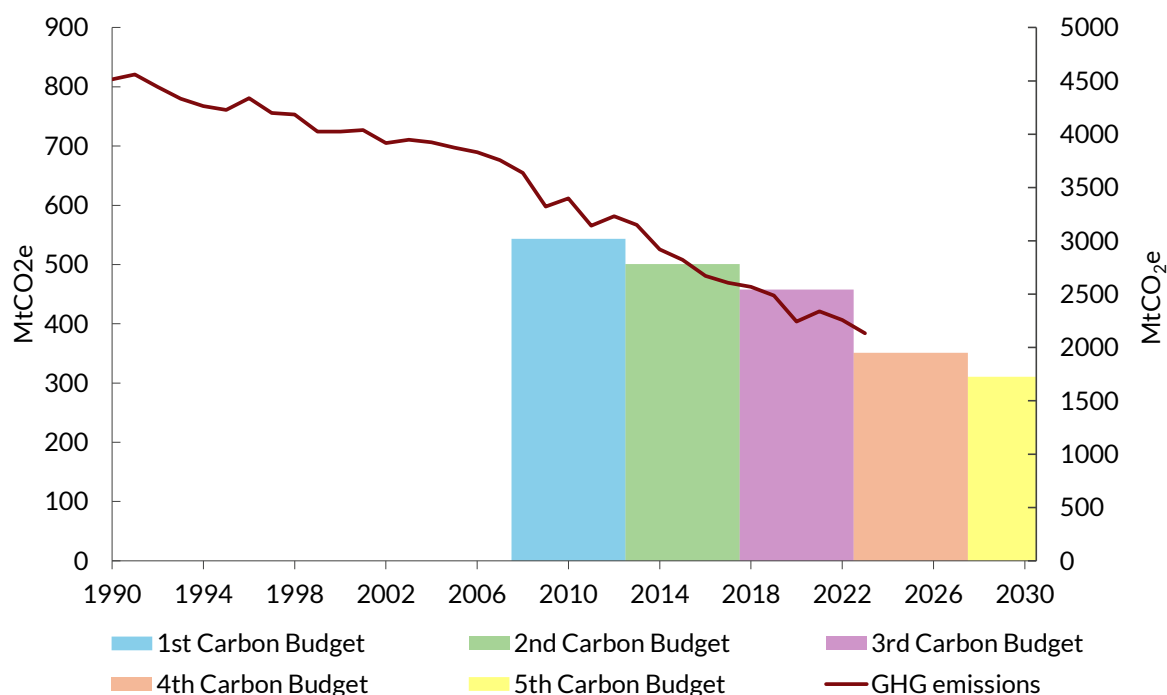
Additionally, under the Paris Agreement, the United Kingdom has committed to reducing GHG emissions to at least 68 percent of 1990 levels by 2030, as outlined in its National Determined Contribution (NDC) action plan.²

Carbon budgets are a legally enforced cap on the total volume of GHG emissions the United Kingdom is allowed to emit over a span of five years. They are established 12 years in advance. The United Kingdom successfully achieved its first, second and third carbon budgets, with the third budget even yielding a surplus due to effects of Covid-19 lockdown, as showed in Figure 1. This has helped the United Kingdom to become the G7 country which has cut emissions fastest since 1990.

¹ https://webarchive.nationalarchives.gov.uk/ukgwa/20100407172811/https://www.hm-treasury.gov.uk/stern_review_report.htm

² <https://assets.publishing.service.gov.uk/media/633d937d8fa8f52a5803e63f/uk-nationally-determined-contribution.pdf>

Figure 1: UK GHG territorial emissions and Carbon budgets



Notes: GHG emissions included for 2023 are provisional estimates. “Territorial” refers to emissions that occur within the United Kingdom’s borders

Source: CCC, and Department of Energy security & Net Zero

Achieving future carbon budgets depends on intensifying the trajectory for emission reduction depicted in Figure 1. The CCC’s 2023 Progress Report to Parliament sees improvements in the United Kingdom’s progress toward the Fourth Carbon Budget (2023-2027), mainly due to better transport emission forecasts. However, the advisers have less confidence in the country meeting its 2030 NDC target and the Sixth Carbon Budget (2033-2037), due to delays in policy action. For the United Kingdom to meet its climate goals, it needs to cut emissions outside the electricity sector much faster, increasing from a 1.2 per cent yearly reduction to 4.7 per cent (Climate Change Committee, 2023).

The government has the option to carry forward the surplus emissions from the third carbon budget to the next one. However, the CCC has cautioned against this practice, highlighting the potential risks it poses to future budgets. On 21 May 2024, the government announced that the surplus from the United Kingdom’s third carbon budget will not be carried forward. This decision aims to strengthen the commitment to reducing emissions and maintain international credibility.³

In recent years, the UK government has implemented various policies to achieve net zero emissions, as detailed in the Net Zero Strategy and in ‘Powering Up Britain: The

³ <https://www.gov.uk/government/news/uk-overachieves-another-carbon-emissions-target-and-rejects-rollover>

Net Zero Growth Plan'. Although the level of detail on transition programmes has improved, driven by court mandates, the pace of policy development remains slow.

The Net Zero Growth Plan, published in 2023, is an updated iteration of the government's climate commitments. This version arose in response to a call from the High Court, which asked for a detailed clarification of how the policies delineated in the Net Zero Strategy were intended to contribute towards achieving the 2050 targets. The main policies outlined in this document are focused on enhancing energy security and progress towards net zero through measures such as improving energy efficiency, reducing energy dependence, increasing the proportion of renewable energy sources in the energy mix, mobilising private investment and progressing the decarbonisation of the different sectors.

Due to the United Kingdom's legal mandate for reducing greenhouse gas emissions, it is crucial to implement policies that ensure adherence to environmental regulations. However, last September, Prime Minister Rishi Sunak shifted the government's position, easing some net zero initiatives in favour of easing the burden on people. This included delaying the ban on the sale of new petrol and diesel cars to 2035, modifying the rules on phasing out gas and oil-fired boilers and not forbidding new developments of oil and natural gas in the North Sea. It is difficult to assess the economic impact of these policy decisions, but they signal that the government is less ambitious and committed to its climate pledges and therefore they add more uncertainty to the United Kingdom's net zero path, which could affect both domestic and international future investment in low-carbon businesses and consumer confidence.

The Current UK GHG Emissions Position

Addressing GHG emissions across sectors remains the central focus of policy efforts. In 2022, GHG emissions stood at 46 per cent below 1990 levels, representing an increase from 2021 but remaining lower than pre-pandemic levels.

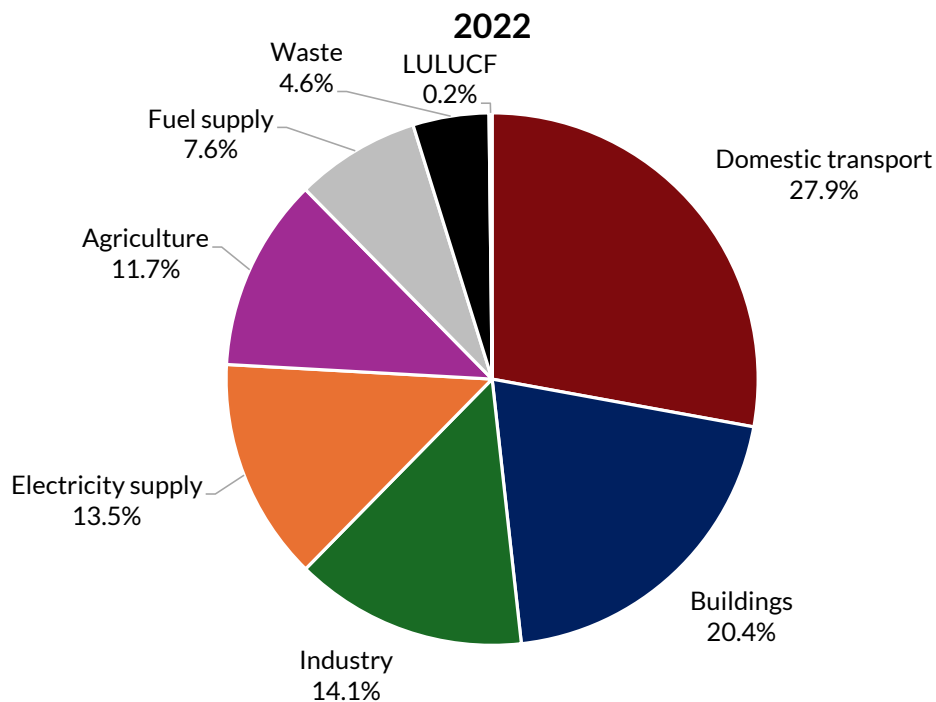
GHG emissions are primarily associated with energy use, with the sectors emitting the most being those that heavily rely on fossil fuels. According to ONS data, in 2021, fossil fuels accounted for 80 per cent of the energy used in the United Kingdom, while renewable sources comprised only 13 per cent. Accelerating the deployment of renewables will undoubtedly help in UK efforts to reduce emissions and will also enhance UK energy security by reducing the country's dependence on imported fossil fuels.

The decline in GHG emissions in recent years has been largely driven by progress in the decarbonisation of the power sector, particularly through the phase-out of fossil fuels in electricity generation. However, this positive trend contrasts with the slow progress in other sectors, including buildings, transport, and agriculture, which are off track to achieve net-zero targets. The next government needs to commit to accelerating progress in these sectors to align with the main climate goals. The change in emissions during 2022 happened due to increased aviation emissions, as the sector

recovered from the pandemic, alongside reduced heating demand attributable to higher energy costs (Climate Change Committee, 2023).

By sector, transportation maintains its role as a key contributor to emissions, as highlighted in Figure 2, representing 28 per cent of total emissions in 2022. The buildings sector, which includes fuel combustion for heating, emerges as the second major emitter, accounting for 20 per cent of emissions. Industrial processes and agricultural processes contribute 14 per cent and 12 per cent of the total, respectively.

Figure 2: Territorial GHG emissions by sector in 2022 (%)



Notes: LULUCF stands for Land use, land use change and forestry
Source: Department of Energy security & Net Zero

Additionally, achieving Net Zero depends significantly on reducing energy intensity (the amount of energy needed per unit of output across sectors) paired with the implementation of robust efficiency measures. More efficient energy use, particularly in buildings, which are the second largest emitting sector, can reduce emissions without compromising system capacity. This approach also helps to cut household energy bills.

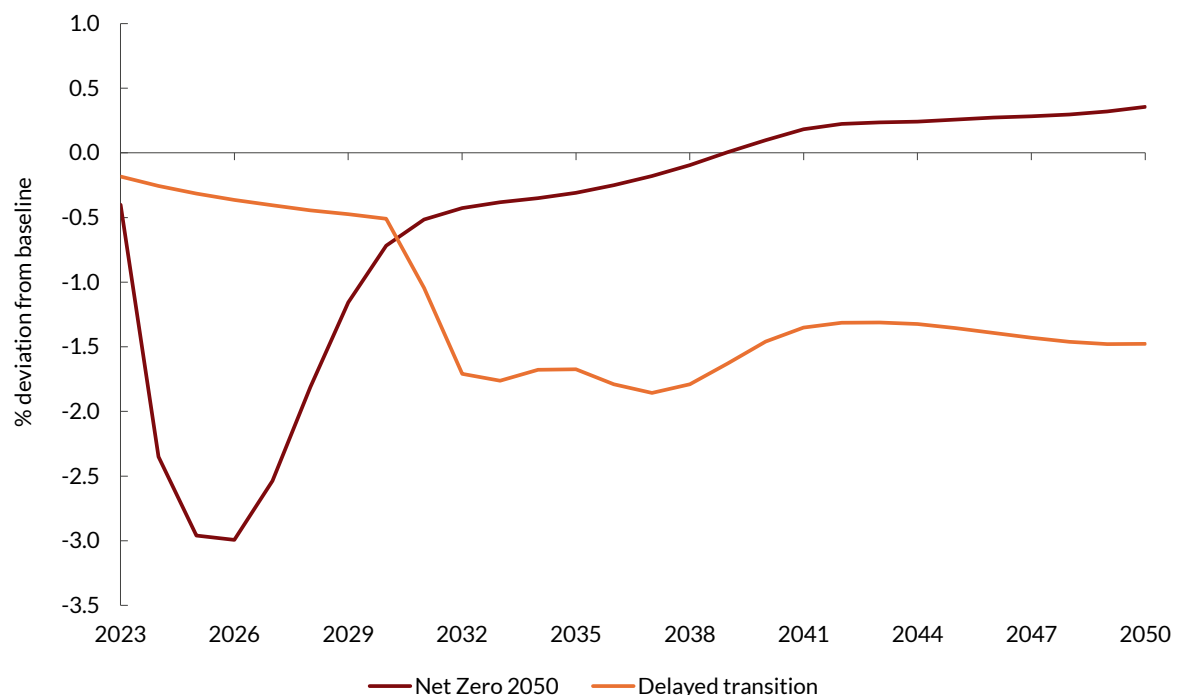
UK Climate Scenarios

Understanding the economic consequences of climate change and the proposed policies for transitioning to a Net Zero economy is crucial, not only for policymakers but also for voters. It is for this reason that the Network for Greening the Financial

System (NGFS), a consortium of supervisors and central banks established in 2018, has been developing climate scenarios using NIESR’s model NiGEM⁴. These scenarios aim to depict potential economic landscapes under various assumptions regarding transition policies and physical risks, which can be useful to identify potential sources of risk and inform policy decisions.

Figure 3 illustrates the impact on UK GDP under two distinct scenarios: “Net Zero 2050” and “Delayed Transition”.⁵⁶ These scenarios are derived from the latest edition (Phase IV) of the NGFS’ long-term climate scenarios. The graph highlights the trade-off inherent in transitioning to a net-zero economy from now on versus delaying this transition. On the one hand, the implementation of stringent climate policies may incur immediate economic costs, such as job losses or reduced competitiveness, which could provoke political controversy and dissuade action. However, neglecting to address climate change could result in severe consequences, as shown by the higher and sustained impact depicted in Figure 3 for the “Delayed transition” scenario. This underscores the imperative for policymakers to carefully balance short-term economic concerns with long-term climate change impacts.

Figure 3. UK GDP impact from NGFS scenarios



Note: Remind model output
Source: NiGEM, NGFS

⁴ NiGEM is the National Institute Global Econometric Model, check out “<https://www.niesr.ac.uk/nigem-macroeconomic-model>” for further information

⁵ Net Zero 2050 scenario limits global warming to 1.5 °C through stringent climate policies and innovation, reaching global net zero CO2 emissions around 2050. Delayed Transition scenario assumes annual emissions do not decrease until 2030. Strong policies are needed to limit warming to below 2°C. Negative emissions are limited. (NGFS, 2023)

⁶ Further information on NGFS scenarios can be found in <https://www.ngfs.net/ngfs-scenarios-portal/>

The UK Green Transition Under Different Fiscal Policy Settings

As described before, the United Kingdom has been progressively adopting environmental mitigation policies to incentivise the transition towards low-carbon alternatives, drive investment into green technologies and reduce emissions. These instruments can be broadly divided into two categories: first, explicit climate policies that are designed to directly reduce GHG emissions, such as fuel taxes; and second, non-climate policy instruments, like energy efficiency regulations, which have different primary goals but still impact climate issues (OECD, 2022).

Within the explicit climate policies, carbon pricing is becoming a prevalent instrument, gaining traction globally since the Kyoto Protocol was adopted in 1997. This method involves setting a price on GHG emissions and letting the market react. By increasing the costs of high-polluting products and services, governments aim to foster emissions reduction and sustainable practices. Additionally, they seek to directly link the external costs of carbon emissions to their sources, ensuring that those responsible for the emissions bear the associated costs.

Carbon Pricing in the United Kingdom

In the United Kingdom, regulators rely on two carbon pricing mechanisms: the UK carbon price support mechanism (UK CPS) and the UK Emissions Trading Scheme (UK ETS). The UK CPS was introduced in 2013 and is a direct fee imposed on carbon. In other words, the government sets a price that emitters pay per ton of CO₂. This only applies to the power sector.

In contrast, the UK ETS operates as a cap-and-trade system, where the total amount of GHG emissions in an industry is limited by the government. Companies under the scheme have a certain volume of emissions allowances and they have the flexibility to trade them in case they finish their allocated quota or have a surplus of allowances. Each year the cap gets stricter, so the pool of permits gets more expensive. The UK ETS was implemented in 2021⁷ and applies to energy intensive industries, the power generation sector and aviation.

According to data from the World Bank's Carbon Pricing Dashboard, in 2023, the UK CPS accounted for 24 per cent of the nation's total emissions, while the UK ETS accounted for 28 per cent, with an overlap of approximately 24 per cent between the two mechanisms. This suggests that carbon pricing, in practice, has been insufficient to drive the necessary changes for decarbonising the UK economy.

⁷ It was introduced to replace the UK participation in the EU Emissions Trading System, after UK exit from the European Union

Consequently, the next government should implement credible strategies, widen sectoral inclusion and establish robust penalties for surpassing permissible emission levels, all while addressing potential carbon leakage in vulnerable sectors⁸.

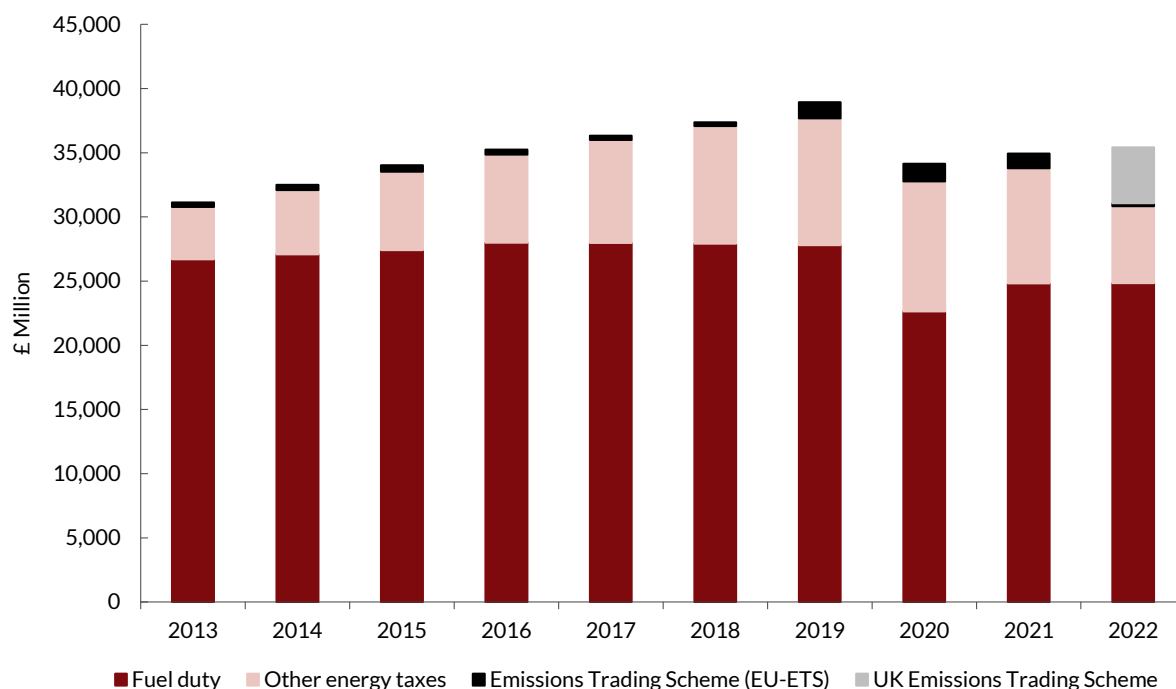
Carbon pricing plays a central role in the UK climate policy framework, serving as the primary signal of the nation's commitment to achieving the green transition. Therefore, it remains imperative for policymakers to prioritise its continuation and ensure that investment heads in the appropriate direction. However, implementing and maintaining effective carbon pricing schemes can be politically challenging. The reason is that political parties are more inclined to raise taxes on fossil fuels when they face less competition from other parties (Finnegan, 2023), as they perceive a reduced risk of voter dissatisfaction. This could lead to a scenario where taxes remain low, especially if there is more political competition in the future composition of the Parliament.

In a high-inflation environment like the one seen recently, political resistance may be attributed to the potential increase in the tax burden on taxpayers, lobbying efforts from affected industries, and particularly the short-term impacts on inflation and GDP. Holland and Whyte (2021) found that a sudden increase in the carbon tax by \$100 per tonne of CO₂ would cause UK GDP to fall by approximately 1 per cent and could raise inflation by 1.5 percentage points in the short term. Their analysis assumes a permanent rise in all countries, thereby accounting for trade effects. Other assumptions such as strains on the financial system may intensify the impacts. The NGFS "Net Zero 2050" scenario, presented in the previous section, estimates carbon prices to reach approximately \$200 per ton of CO₂ by 2030, with a significant increase expected through 2050 to encourage the transition towards net zero emissions.

Despite this, carbon pricing is also a source of revenue for governments, which can be used to cushion the negative impacts of environmental policies, avoid political backlash, and support further climate action. The level of revenue is considerable, and it is expected to grow as coverage increases in the coming years. Figure 4 illustrates the UK government's energy tax revenues over the last decade. In 2022, these taxes made up 75 per cent of the total environmental tax revenue. We can see a drop in revenue in 2020, mainly due to lower fuel duty earnings, the largest component of energy taxes, during the Covid-19 outbreak. But by 2022, the revenue bounced back to 2017 levels.

⁸ The government announced that it would introduce a Carbon Border Adjustment Mechanism (UK CBAM) by 2027 to reduce carbon leakage risk from jurisdictions that have lower environmental standards. We must assess whether the forthcoming government will uphold this commitment and scrutinise the mechanisms employed for its implementation

Figure 4. Government revenues from energy taxes



Note: All data are presented in current prices, i.e. not adjusted for inflation
 Source: Office for National Statistics (Environmental accounts)

The overall revenue from environmental taxes, which includes not only energy taxes, saw a 6.9 per cent increase in 2022, reaching £47.4 billion. While this represents growth compared to the previous year, it remains below the pre-pandemic peak of £52.5 billion recorded in 2019 and is low compared with EU countries. Moreover, environmental tax revenue plays a substantial role in the United Kingdom's fiscal position, accounting for 5.3 per cent of total taxes and social contributions in 2022, according to ONS data. Specifically, energy taxes constituted 3.9 per cent of total taxes and social contributions.

Consequently, it is essential to ask our potential government leaders how they plan to use these funds. Understanding their priorities for environmental revenues, and how those might affect the economy or social welfare, can provide valuable insights for voters, guiding their decisions at the ballot box and holding political leaders accountable for their actions and policies.

Fiscal Revenue Recycling Options

When assessing approaches for using carbon pricing revenue, UK policymakers should consider long-term economic gains, efficiency, equity and the interaction of spending with the carbon price itself. They need to carefully weigh the trade-offs between options and strategically allocate revenues to enhance feasibility and public acceptance. Lack of acceptance can undermine the effectiveness of any policy (World Bank, 2019; Carbon Pricing Leadership Coalition, 2016).

Another factor to consider is the potential rebound effects from revenue recycling, where households may use financial transfers to buy more goods and services that are emissions-intensive, like holiday flights, as these could restrict the mitigation impact of carbon taxes (Burke et al., 2020).

These revenues can be allocated towards a range of purposes, including as key options: increasing public investment, which directly boosts economic output; reducing taxes, thereby lightening the tax load on households, and stimulating private consumption; augmenting transfers to households; or repaying public debt. Each allocation option carries its own advantages and disadvantages, as depicted in Figure 5.

In addition, a wealthier nation like the United Kingdom could employ carbon pricing revenues to increase financial support for developing countries as they adapt to the impacts of climate change, fulfilling commitments made under the UNFCCC (Bowen, 2015).

Figure 5. Carbon pricing revenue options

Revenue use	Pros	Cons
Increasing public investment	<ul style="list-style-type: none"> - Increase spending on further environmental policies and clean technologies. - Reinvest on other social objectives not related to climate change. - Economic growth. 	<ul style="list-style-type: none"> - Could create negative perceptions of intensified public spending. - Absence of tangible returns.
Tax reforms	<ul style="list-style-type: none"> - Improve efficiency of tax system. - Promote economic growth. 	<ul style="list-style-type: none"> - May reduce efficacy of carbon tax by reducing other taxes. - Can create unfair tax cuts.
Household transfers	<ul style="list-style-type: none"> - Cushion any financial burden of carbon pricing. - Improve public acceptance. 	<ul style="list-style-type: none"> - Can be less viable administratively. - Re-bound effects. - Might create unfair benefits.
Debt reduction	<ul style="list-style-type: none"> - Reduce budget deficits. - Expands capital available. - Long-term economic benefits. - Reduce intergenerational costs of climate change. 	<ul style="list-style-type: none"> - Limited acceptability, as it is less tangible. - Not address short-term objectives.

Source: Author, based on World Bank. (2019) and Burke et al. (2020)

Fiscal Revenue Recycling Scenarios

In practice, governments implement a broad range of carbon tax recycling approaches, some of which may not result in revenue generation. Political parties should carefully and clearly communicate how they intend to address national concerns with that budget allocation.

To assist this decision and discern the potential impacts on the UK economy, we conducted a series of sensitivity analyses on the carbon tax recycling options mentioned previously for the United Kingdom, using a similar approach to that outlined in Darracq-Pariès et al. (2023) for the Euro Area and Darracq-Pariès et al. (2022) for the United States.

Using the data from the net zero Phase IV NGFS scenario⁹, five scenarios were run within NiGEM¹⁰, where 100 per cent of carbon tax revenues are used to finance, respectively: an increase in government investment, a cut in household income taxes, an increase in transfers to households, a reduction of indirect taxes (VAT) and the reimbursement of public debt.

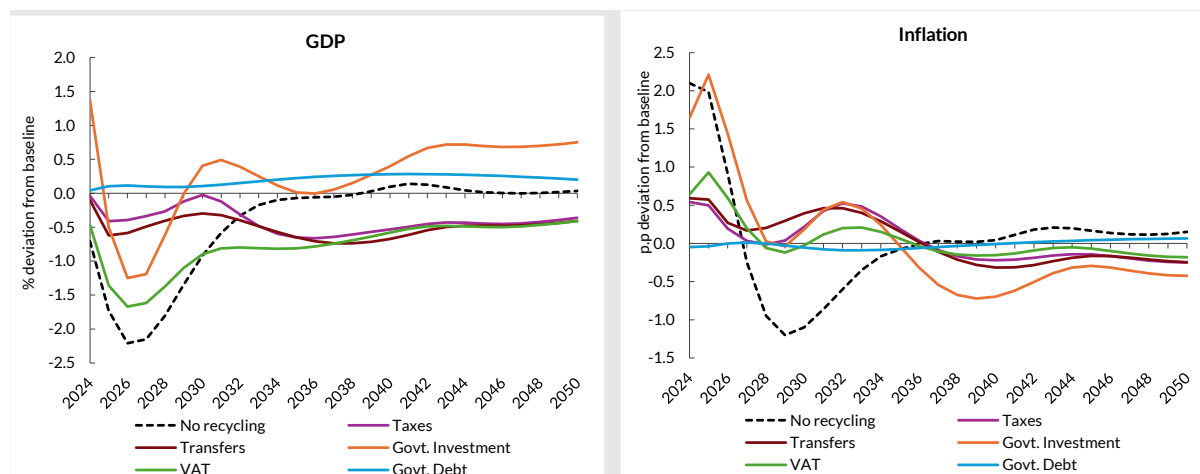
Figure 6 illustrates the impact on UK GDP and UK inflation under the Net Zero 2050 scenario of the set of fiscal revenue options. The figure shows only the recycling shocks, not its combination with the transition shocks. Overall, the shocks lead to negative or no effects on economic output in the short term, as neither type of fiscal stimulus can fully compensate for the negative impact of the carbon tax. However, the impact is considerably lower than in the scenario without fiscal recycling; that is, recycling the carbon tax revenue will partially alleviate the costs of transitioning to a Net Zero economy.

Among the different options, if the government decides to use the carbon revenue to pay off public debt, this will have a modest but positive impact. If the cabinet decides to increase public investment, it will also yield positive effects on GDP around 2030. Under the other options, GDP permanently falls.

⁹ The analysis is undertaken using the inputs from the REMIND-MAgPIE model and no Physical shocks are included

¹⁰ Rational expectations, endogenous monetary policy and exogenous energy sector are assumed

Figure 6: GDP and inflation impact of fiscal revenue recycling options, for the United Kingdom¹¹



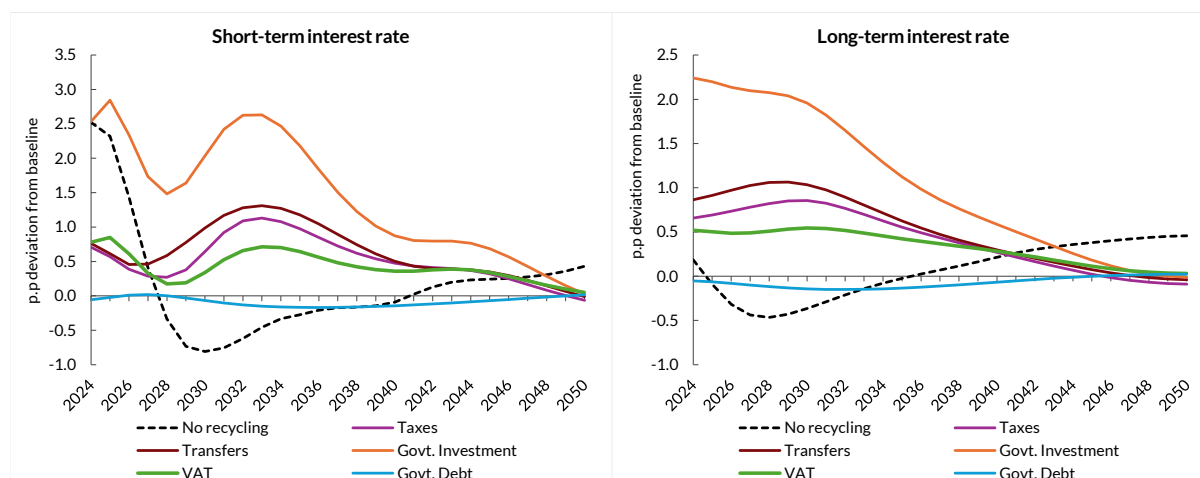
Source: NIGEM simulations.

Recycling revenues through government investment has the least adverse impact on activity but has the strongest inflationary impact in the short-term (Figure 6). Initially, UK inflation rises by between 0.5 and 1 percentage points in cases involving transfers or taxes. However, when recycling is exclusively directed towards increased public investment, the option with the most substantial stimulus, the increase in inflation is approximately 2 percentage points. In the medium term, inflation converges gradually to its target.

The inflation response drives how monetary policy reacts, as shown in Figure 7. In the short term, there is a notable increase in short- and long-term interest rates, with the most significant increases observed in the case of public investment, compared to transfer and tax recycling options. These heightened rates persist until the end of the forecast horizon. In contrast, the impact is minimal for the option of recycling through government debt, as there is less need for policy intervention.

¹¹ No recycling: carbon tax only; Taxes: recycling through income taxes; Transfers: recycling through transfers; Govt. Investment: recycling through public investment; VAT: recycling through indirect tax; Govt. Debt: paying off debt

Figure 7: Monetary policy impact of fiscal revenue recycling options, for the United Kingdom



Source: NiGEM simulations

Getting to net zero could also entail notable fiscal risks for the United Kingdom, particularly if the revenue generated by the carbon tax fails to offset the costs of necessary public spending. In the NGFS Net Zero 2050 scenario,¹² the impact of the transition, without any recycling revenue option or additional physical risk, could lead to a decrease of the government balance of around 1.2 percentage points in the first years.

Reaching the Green Transition

The United Kingdom has introduced ambitious carbon reduction targets, committing to net-zero greenhouse gas emissions by 2050. As demonstrated, how the potential new government decides to use the revenue generated from carbon pricing mechanisms will be crucial for achieving this goal and determining the economic impact of the UK's green transition in the coming years. The government should focus on implementing a comprehensive and clear set of policies addressing all sectors of the economy to ensure continued progress. The policy intervention will require coordination across all levels of government, especially in those areas where local and devolved institutions have direct involvement.

It is imperative to speed up the decarbonisation of the nation's energy system across all sectors. The United Kingdom has made significant steps in renewable energy, which now contributes a significant portion of the energy generation to power homes and business. However, the country needs to accelerate efforts in reducing emissions from heating, transport systems and to start to tackle emissions from the agriculture sector.

In 2022, the transport sector was the largest energy consumer and the highest emitter of greenhouse gases, showing substantial room for improvement. Policies that encourage energy efficiency in vehicles, improving public transit systems, transport

¹² REMIND-MAGPIE and NiGEM outputs

electrification or promotion of alternative fuels, such as hydrogen, can greatly contribute to this objective. Mayors play an essential role in achieving transport decarbonisation goals, as they have control over multi-year transport budgets and can implement policies such as improving public transport, building new paths and lanes for walking and cycling, and rolling out charging stations for electric cars (Nice and Sasse, 2023).

Supporting the decarbonisation of the building sector, particularly through the adaptation of existing housing, also presents a significant opportunity for emission reductions. The Climate Change Committee has already pointed to various areas where policies can be targeted: encouraging a change in the way we use our homes; increasing the energy efficiency of buildings; and switching to low-carbon heating systems. The latest ONS data for 2023 shows that the median energy efficiency rating for houses in England and Wales falls into band D.¹³ Owner-occupied dwellings, the most common type of tenure in the United Kingdom, have the lowest energy efficiency ratings compared to other property tenure types, and gas is still identified as the main fuel source for central heating.¹⁴ To address these issues, policies should cover economic support to upgrade insulation and heating systems, subsidies for the installation of renewable energy sources, and stricter building regulations.

Improving how we travel and upgrading our buildings are key steps to cutting emissions, but the shift towards sustainability is needed across the board. This transition requires a substantial investment programme, especially for the United Kingdom that has one of the lowest levels of investment of the G7 countries. The next government needs to establish a clear long-term policy strategy with investable transition plans, use public funding to attract private investment into key areas through blended finance methods, and implement sector-specific policy interventions to remove regulatory obstacles and provide financial incentives (Alvis, 2024).

The UK government recognised in its 2023 Net Zero Strategy report that an annual investment of £50-60 billion will be necessary from 2030 onwards to support the country's transition to net zero emissions.¹⁵ Despite this recognition, the Conservative Party has faced criticism for its perceived lack of concrete pledges to meet these investment needs. Meanwhile, the Labour Party, which initially promised to spend £28 billion a year on its green investment plan, reversed this commitment in February 2024. The question is whether the party manifestos will set out what the new investment pledges are for the next Parliament and beyond.

Zenghelis et al. (2024) estimated that the United Kingdom needs an annual increase of 1 per cent of GDP (£26 billion at current prices) in public investment to tackle the

¹³ There are seven Energy Efficiency Certificate (EPC) bands, from 'A' (the highest energy efficiency) to 'G' (the lowest)

¹⁴ <https://www.ons.gov.uk/peoplepopulationandcommunity/housing/articles/energyefficiencyofhousinginenglandandwales/2023>

¹⁵ <https://www.gov.uk/government/publications/green-finance-strategy/mobilising-green-investment-2023-green-finance-strategy#fn:4>

impacts of climate change, biodiversity loss, and environmental degradation. If private investment is also leveraged, the rise in overall investment could be equivalent to at least 3 per cent of GDP, or £77 billion. Innovations in low carbon technologies can boost medium-term economic growth and drive higher levels of private sector investment towards green assets (Hasna et al., 2023). If green technologies can compete better with fossil fuels, the United Kingdom will be able to accelerate action to tackle climate change and nature loss, and also boost productivity and competitiveness.

Along with the funding, the new government must develop and support the essential green skills needed in the workforce to deliver net zero in time. According to the Office for National Statistics (ONS), a green job is defined as follows: “*Employment in an activity that contributes to protecting or restoring the environment, including those that mitigate or adapt to climate change*”. In its experimental figures, the ONS estimates that UK employment in green jobs in 2022 was 8.4 per cent higher than in 2021 and 19.9 per cent higher than in 2020, signalling a clear rise in green job opportunities. It highlights the importance of implementing net-zero policies that promote the development of skills needed for these jobs. We need to prepare for the new jobs that will be created and the changes happening in existing ones.

Addressing this challenge requires collaboration between different levels of government. Local authorities and especially devolved mayoral authorities, are in a good position to identify and address skill gaps related to the shift towards green industries. They have control over the adult education budget and other funding sources, making them better equipped to respond effectively and to inform the central government of what skills are needed (Nice and Sasse, 2023).

Conclusions

Over recent years, the United Kingdom has achieved its first three carbon budgets towards emissions neutrality. However, challenges remain and there are increasingly concerns about meeting future targets due to delays in policy actions. Climate change has come to the forefront not only in political discussions and governmental agendas throughout the United Kingdom but also in the awareness of voters. Addressing this global crisis has become crucial for shaping the future of the country. Climate change is no longer just an environmental concern on the sidelines; it is a central issue that politicians cannot afford to ignore in the upcoming election. The next government must make clear commitments to protect the climate and the environment.

If political parties are serious about addressing the climate emergency, in the coming weeks, they must make actionable promises that guarantee the legally binding Climate Change Act. How political parties plan to make the economy greener and how they will use carbon taxes and the associated revenues will demonstrate their approach for achieving the United Kingdom's net zero transition.

Accelerating efforts to reduce emissions in buildings, decarbonise the power sector, electrify transportation, protect natural ecosystems, upskill the workforce, and

mobilise both public and private sector investment are among the crucial actions required. For voters, it is essential to scrutinize these pledges closely to ensure elected leaders and representatives prioritise effective and equitable policies.

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