Green money

A plan to reform UK carbon pricing

Josh Buckland

bright blue

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Design: Chris Solomons

First published in Great Britain in 2021

by Bright Blue Campaign
ISBN: 978-1-911128-98-4

www.brightblue.org.uk

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About the author

Josh Buckland was Energy Adviser to the Secretary of State for Business, Energy and Industrial Strategy. In this role he provided expert policy and strategic advice to both Greg Clark MP and subsequently Andrea Leadsom MP on all major energy and climate issues. Josh also worked on other high-profile areas of policy, such as R&D investment and industrial policy. Josh spent two months working as a senior advisor within the COP26 Unit.

Previously Josh held a number of other senior roles at the centre of government, including spending three years in the Prime Minister's Policy Unit in 10 Downing Street working on energy and environment issues. He was also Head of the Energy Policy team in HM Treasury.

Currently, Josh is a Director at Flint Global, and specialises in providing advice to clients with an interest in energy and climate issues, covering both the UK and international energy markets. Josh also covers broader infrastructure policy.

Acknowledgements

This report is part of Bright Blue's project on tax reform, which is kindly supported by the Joffe Trust and Social Enterprise UK. The ideas expressed in this publication do not necessarily reflect the views of any sponsors.

I would like to thank all those who have contributed views, ideas and challenge throughout, including those that reviewed the recommendations in detail. In particular, I would like to thank Hannah Dillon and the wider team at The Zero Carbon Campaign who have led a great deal of work on mainstreaming carbon pricing recently. I would also like to thank the teams at the Energy Systems Catapult and the Grantham Institute for the invaluable research both organisations have done andwhich this report has drawn extensively from.

I am especially grateful to Ryan Shorthouse and Sam Robinson at Bright Blue for their edits and constructive comments during the progress of this report.

All remaining errors and all judgements are the author's responsibility. The views in this report are those of the author and do not necessarily reflect the views of Bright Blue.

Tax reform in the 2020s

This report has been commissioned by a high-profile cross-party, cross-sector commission established by Bright Blue to advise on reforms to the tax system in the years ahead to support the post-COVID economic recovery, the restoration of the public finances, and the achievement of better economic, social and environmental outcomes.

Bright Blue's project on tax reform aims to build and articulate a coherent vision, with clear principles and policies, for a tax reforming agenda in the 2020s, focussing in particular on four areas of tax policy: carbon taxation, property taxation, business taxation, and work and wealth taxation.

Bright Blue has commissioned independent experts to provide original analysis and policy recommendations in each of these four areas of tax policy, which the commission will consider before publishing a strategic vision for a tax-reforming, rather than just tax-cutting, agenda over the next decade.

The members of the commission include:

- The Rt Hon David Gauke, Former Secretary of State for Justice
- The Rt Hon Sir Vince Cable, Former Secretary of State for Business
- The Rt Hon Lord Willetts, President of the Advisory Council and Intergenerational Centre at the Resolution Foundation
- The Rt Hon Dame Margaret Hodge MP, Former Chair of the Public Accounts Committee

- The Rt Hon Andrew Mitchell MP, Former Secretary of State for International Development
- James Timpson OBE DL, Chief Executive of the Timpson Group
- Luke Johnson, Entrepreneur and Chairman, Risk Capital Partners
- Emma Jones MBE, Entrepreneur and Founder, Enterprise Nation
- Mike Cherry OBE, National Chairman, Federation of Small Businesses
- Mike Clancy, General Secretary, Prospect trade union
- Victoria Todd, Head of the Low Incomes Tax Reform Group
- Sam Fankhauser, Professor, University of Oxford
- Christina Marriott, Chief Executive, Royal Society for Public Health
- Helen Miller, Deputy Director and Head of the Tax Sector, Institute for Fiscal Studies
- Giles Wilkes, Former Special Adviser, Number 10 Downing Street
- Caron Bradshaw, CEO, Charity Finance Group
- Pesh Framjee, Global Head of Non Profits, Crowe UK
- Robert Palmer, Director, Tax Justice UK
- The Rt Hon Lord Adebowale CBE, Chair, Social Enterprise UK.

The views in this report on carbon pricing are those of the authors and do not necessarily reflect those of Bright Blue or members of our tax commission detailed above.

Executive summary

Developing a coherent carbon pricing system is no easy task. It will take more than a single Budget, or even a single Parliament. Given the direct impact on consumers and businesses, a blanket approach is not practical, with a set of detailed reforms needed across each sector to place a consistent price on every unit of carbon emitted across the economy. Carbon pricing must not be seen as a silver bullet, with any changes introduced gradually in tandem with other regulatory interventions to mobilise private investment and protect consumer choice. Most importantly, the approach will need to be demonstrably fair to businesses and households.

This report is guided by three key principles when designing a comprehensive system of carbon pricing:

- **Carbon pricing is not just about raising revenue:** While any credible measures should raise money, the key focus of carbon pricing should be about shifting investment behaviours by pricing the carbon externality consistently across the economy to fully reflect the cost of inaction on climate change. As emissions fall revenue will reduce, meaning carbon pricing should only ever be seen as a temporary source of funds for the Exchequer.
- **Carbon pricing must be demonstrably fair:** Carbon pricing must be designed in such a way as to be fair, including through considering how tax revenues will be utilised to recycle revenue back to alleviate

any overtly negative distributional or economic impacts.

- **Carbon pricing is not a silver bullet:** Putting a price on carbon is only effective if done in tandem with other regulatory and policy interventions that will enable businesses and individuals to respond adequately to the price signal. A blanket carbon tax across all areas of the economy is unlikely to be practical given the political and economic challenges that exist in each sector.

Given the pace of change required to hit net zero by 2050, this report recommends a three-part plan to reforming the UK's carbon pricing framework:

1. **Place a consistent carbon price on all emissions:** Set a clear goal to establish a consistent implicit carbon price across every unit of carbon emitted across the economy that is consistent with the net zero target, as well create the necessary institutional framework to drive political accountability to deliver against that goal.
2. **Take effective action by 2030:** To reflect the urgency needed to reach the net zero target, establish a set of concrete actions across the economy, focusing on transport, energy and pollution tax reforms, which while accounting for different economic and political issues in each sector, ensure carbon pricing is more consistent by 2030.
3. **Build a lasting public and political consensus:** Implement a set of measures that will help build public and political support through sharing the value of carbon pricing and strengthening democratic oversight.

Taken together, this plan would transform how we tax carbon emissions. At its heart, the plan will ensure that there is no hiding place for carbon anywhere in the economy, with every unit emitted across the economy subject to a similar charge to reflect its environmental harm. While focusing on enabling the delivery of the net zero target, the plan will also ensure changes are implemented in a demonstrably

fair way in order to retain public support, helping the country capture the economic and social upsides that will flow from shifting to a net zero economy while avoiding the numerous political pitfalls along the way. They will also create greater certainty, allowing carbon pricing to become a key mobiliser of private investment in green technologies.

The specific policy recommendations under this three-part plan are as follows:

Place a consistent carbon price on all emissions

Recommendation one: To place a consistent carbon price on all emissions, the Government should set a 'target price range' for carbon taxes across the whole economy by 2030, reviewed and reset every five years thereafter. The target range should include a 2030 'floor price' that each economic sector would have to achieve at a minimum, in addition to targeted measures to manage political risk.

Recommendation two: The Government should publish an annual assessment in the Budget for how each economic sector and sub-sector performs against the carbon tax target.

Recommendation three: At each annual Budget, the Climate Change Committee should be required to assess whether carbon prices are in line with the UK's Carbon Budgets and the 2050 net zero target.

Recommendation four: The Government should introduce in the HM Treasury Net Zero Review core 'Carbon Tests' to assess – as part of the formal impact assessment process – changes to any policy that impacts either directly or indirectly the price of carbon paid by businesses or households.

Recommendation five: The Chancellor should launch a 'Net Zero Tax Review' in the Autumn Budget, reporting in 2022. This review would consider the full tax framework and risks associated with climate change, and not simply be limited to carbon taxes.

Recommendation six: Establish a cross-government Carbon Price Unit housed in HM Treasury bringing in other key departments, with

a responsibility for leading carbon tax and policy development.

Take effective action by 2030

Recommendation seven: The Government should use the upcoming Net Zero Strategy being developed by BEIS to outline a set of sectoral 'Action Plans' that outline what steps will be taken to establish a consistent carbon price within each area of economic activity by 2030.

Transport taxes

Recommendation eight: The Government should immediately pilot a voluntary road pricing scheme for all road users ahead of a national rollout from 2030, including 'Green Miles' that offer a discount for a period to those driving Electric Vehicles and on low incomes, as well as surge pricing in congested areas.

Recommendation nine: Alongside international action, the Government should reform Air Passenger Duty so it delivers a more consistent carbon price and offer discounts for 'Green Miles' based on the proportion of sustainable aviation used. A frequent flyer surcharge should also be introduced.

Recommendation ten: Work to bring shipping under the remit of the UK ETS, ideally coordinated with action at an international level on global shipping emissions.

Energy taxes

Recommendation eleven: Gradually phase out the Carbon Price Support element of the Carbon Price Floor once coal is phased out of the UK power sector, using the UK ETS to continue to incentivise low-carbon generation.

Recommendation twelve: The Climate Change Levy and Climate Change Agreements should be reviewed again in light of the 2050 net zero target to ensure they fully reflects the carbon content of the fuel being used by businesses. The Government should consult on extending carbon pricing further across energy usage in non-residential and

public buildings.

Recommendation thirteen: A consistent 'Climate Change Charge' should be introduced for domestic energy use linked to underlying UK ETS prices that applies across both electricity and gas use, offset by removing low-carbon levies from bills and providing dedicated support for low-income households.

Pollution taxes

Recommendation fourteen: Link the new farm payments scheme more directly to the delivery of projects that reduce or store carbon. In addition, before 2030, trial the introduction of tradeable credit markets based on carbon sequestration allowing a long-term route to land-use being included in a dedicated cap-and-trade model. The Government should also establish a 'Farmland Carbon Code' to ensure adequate verification of the carbon saved across the agricultural sector.

Recommendation fifteen: Reform the Landfill Tax so it is based on a carbon metric. Over the medium-term, include the waste and recycling sector in the UK ETS.

Build a lasting public and political consensus

Recommendation sixteen: Create a Green Dividend Framework, made up of the various carbon pricing schemes that contribute to the Exchequer, which provides payments directly to low-income households to offset bill costs and provides public funding for green projects.

Recommendation seventeen: Identify a specific portion of the funds from the Green Dividend Framework to be utilised to reduce the impact of any price rises for those on low-incomes and vulnerable customers.

Recommendation eighteen: The UK should establish a 'Green Import Tax' for industries at high-risk of carbon leakage, ideally linked to a series of 'Carbon Clubs' to continue to promote free trade.

Chapter 1: **Introduction**

The central objective of any national tax system is to raise the necessary revenue to fund the public services and social support systems individuals rely on. In the UK, the complex network of direct and indirect tax measures across the economy raises upwards of £600 billion a year.[1]

Beyond simply raising revenue, the tax system has long been used by Governments of all colours to deliver on a host of other political and policy aims. It has been used as a lever to create a more socially progressive society, as well as to stoke economic growth. More recently, it has been used as a means of shifting public attitudes to deliver other public policy goals, such as the introduction of the Soft Drinks Industry Levy last decade to improve public health.[2] The tax system has always had to serve many masters.

One such broader aim is using the tax system to deliver environmental good. Despite the recent surge in public and political interest in environmental issues,[3] this is nothing new. At his last Budget in 1993, Norman Lamont introduced VAT on domestic energy bills.[4] The introduction of the measure was linked directly to the need to honour

1. Statista.com, "Tax receipts in the United Kingdom from 2000/01 to 2020/21", https://www.statista.com/statistics/284298/total-united-kingdom-hmrc-tax-receipts/ (2021).
2. GOV.UK, "Soft Drinks Industry Levy comes into effect", https://www.gov.uk/government/news/soft-drinks-industry-levy-comes-into-effect (2018).
3. Department for Business, Energy and Industrial Strategy (BEIS), "BEIS public attitudes tracker", https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/800429/BEIS_Public_Attitudes_Tracker_-_Wave_29_-_key_findings.pdf (2019).
4. HM Treasury, "Financial statement and Budget report 1993-94", https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/235673/0547.pdf (1993).

our commitment made at the 1992 Rio Summit to stabilise emissions by 2000.[5] Ever since, Chancellors have long seen the potential of putting a price on carbon. A combination of implicit and explicit carbon taxes now deliver around £50 billion annually to the Exchequer, around 7% of total tax receipts and equivalent to 2.3% of GDP.[6]

While by no means a silver bullet, there is a strong case for placing a price on environmental harm. The externality of environmental degradation is still not fully considered in public or private decision making and just a small change in relative pricing can potentially have a significant impact, as we have seen through measures such as the Landfill Tax and the 10p charge on plastic bag use.[7]

However, just as is the case elsewhere, new charges are fraught with political risk. While there is general public support for government taking action to cut emissions, the majority of the public favour direct incentives to do so, over actions that restrict choice or increase prices.[8] Ministers are all too aware of a basic political rule – people do not vote for tax rises.

Notwithstanding the political challenges, since the passage of the Climate Change Act 2008,[9] some steps have been taken to align the tax system with the country's greenhouse gas emissions targets. Direct carbon taxation in the power sector has been a success, helping to drive down the use of coal power to the point that it now meets less than 2% of annual power demand.[10] A broad cap-and-trade mechanism – the UK Emissions Trading Scheme – is now in place, putting a price on pollution from industry. Businesses and households also pay a range of implicit and explicit carbon charges across what they buy and sell, such

5. Stephanie Meakin, "The Rio earth summit: summary of the United Nations conference on environment and development", https://publications.gc.ca/Collection-R/LoPBdP/BP/bp317-e.htm (1992).
6. Office for National Statistics (ONS), "UK environmental accounts: 2020", https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/ukenvironmentalaccounts/2020#environmental-taxes (2020).
7. GOV.UK, "10p plastic bag charge to come into force on 21 May", https://www.gov.uk/government/news/10p-plastic-bag-charge-to-come-into-force-on-21-may (2021).
8. Anvar Sarygulov, "Going greener? Public attitudes to net zero", http://brightblue.org.uk/wp-content/uploads/2020/10/Going-Greener-FINAL.pdf (2020).
9. GOV.UK, "Climate change Act 2008", https://www.legislation.gov.uk/ukpga/2008/27/contents (2008).
10. GOV.UK, "End to coal power brought forward to October 2024", https://www.gov.uk/government/news/end-to-coal-power-brought-forward-to-october-2024 (2021).

as charges on energy use linked to its carbon impact.[11]

But despite some of this progress, the UK approach to putting a price on carbon has been broadly piecemeal. There are significant inconsistencies in carbon prices across the economy, with some economic sectors, such as aviation, enjoying an implicit carbon subsidy. Much of the broader taxation system is effectively 'carbon blind', hurting the environment and removing potential revenue streams for the Exchequer at a moment when the fiscal position is increasingly challenging. While the Government has signalled it believes carbon pricing will be important to hit the net zero target agreed in 2019,[12] little has yet been done.

With the UK hosting COP26 later this year, there is an opportunity to show global leadership by turning the UK tax system green. In order to do so, this report offers a set of recommendations for how the UK Government can transform the current carbon pricing system. At its heart, this report recommends that the Government should leave no hiding place for carbon anywhere in the economy by placing a consistent charge on every unit of carbon emitted across the economy. There will be societal and economic challenges in doing so that will have to be overcome, but political courage was always going to be required if the UK is to actually reach the net zero goal and avoid the significant costs of not acting with sufficient urgency to tackle climate change.[13]

11. GOVUK, "Environmental taxes, reliefs and schemes for businesses", https://www.gov.uk/green-taxes-and-reliefs/climate-change-levy (2021).
12. GOVUK, "UK becomes first major economy to pass net zero emissions law", https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law (2019).
13. Office for Budget Responsibility, "Fiscal Risks Report, July 2021", https://obr.uk/docs/dlm_uploads/Fiscal_risks_report_July_2021.pdf (2021).

Chapter 2:
The options for carbon pricing

The economic and political case for putting a price on greenhouse gas emissions is straightforward. Climate change is the ultimate collective action problem. The social and economic cost of the damage we are doing to our environment now is not felt by the current generation, meaning the market is unlikely to solve the challenge of climate change without intervention to crystalise that cost before it actually occurs.

That is where carbon pricing comes in. If done well, it can internalise the true cost of carbon emissions in such a way that companies and individuals have to account for that future environmental harm in their current decision making. In theory, one should be able to set carbon prices in such a way that it directly reflects the true marginal cost of emitting one additional tonne of greenhouse gases into the atmosphere – its 'social cost'.[14] In practice this is challenging given the various uncertainties that exist in climate science, but the economic theory is sound.

The idea of placing a price on greenhouse gas emissions is nothing new. Economists as far back as the 1970s[15] started researching the case for putting a price on carbon, even exploring radical options like cross-sector cap and trade schemes. It took until the early 1990s

14. Kevin Rennert and Cora Kingdon, "Social cost of carbon 101", https://www.rff.org/publications/explainers/social-cost-carbon-101/ (2019).
15. William Baumol, "On taxation and the control of externalities", *The American Economic Review* (1972), 307-322.

for policymakers to take the idea seriously, with Finland and Sweden leading the way.[16] The debate around carbon pricing then gathered pace when the EU established a cap-and-trade scheme – the Emissions Trading Scheme (EU ETS) – in 2005,[17] the first of its kind in the world. Since then, numerous countries following suit, including the world's now largest scheme in China.[18] This is shown in Table 2.1 below.

Table 2.1. Carbon pricing schemes globally

Measure	Area		
Carbon Tax	Country		
	Finland Poland Norway Sweden Denmark Slovenia Estonia Latvia Liechtenstein	Iceland Ukraine Canada (Federal mechanism) United Kingdom France Mexico Portugal Chile	Colombia Argentina Singapore Switzerland Ireland Japan
	Province or City		
	British Columbia, Canada Newfoundland and Labrador, Canada	Northwest Territories, Canada Prince Edwards Island, Canada	New-Brunswick, Canada Alberta, Canada
Emissions Trading Scheme	Country		
	European Union Switzerland New Zealand	Kazakhstan China United Kingdom	South Korea Canada (Federal mechanism) Mexico

16. Samuel Jonsson, Anders Ydstedt and Elke Asen, "Looking back on 30 years of carbon taxes in Sweden", https://taxfoundation.org/sweden-carbon-tax-revenue-greenhouse-gas-emissions/ (2020).
17. European Commission, "EU emissions trading system (EU ETS)", https://ec.europa.eu/clima/policies/ets_en.
18. Sébastien Postic and Marion Fetet, "Global carbon accounts 2020", https://www.i4ce.org/wp-core/wp-content/uploads/2020/05/TarificationCarbone2020-VA.pdf (2020).

	Province or City		
	Alberta, Canada Newfoundland and Labrador, Canada Nova Scotia, Canada Saskatchewan, Canada Quebec, Canada Saitama, Japan	Tokyo, Japan California, USA Connecticut, USA Delaware, USA Maine, USA Maryland, USA Massachusetts, USA New Hampshire, USA	New Jersey, USA New York, USA Rhode Island, USA Vermont, USA Virginia, USA

Tax versus trade

As Table 2.1 indicates, there are broadly two main options for putting a price on carbon, although some countries and provinces do in fact do both.

- **Carbon tax:** Imposing a set price for each unit of emission produced from a carbon-intensive activity, either as a direct carbon tax or indirectly (such as part of a wider commodity levy).
- **Emission trading scheme (ETS):** Place an obligation on an emitter to purchase emission 'credits' to cover the environmental damage they are responsible for, often with the ability to trade those credits with other market participants.

Both methods have been thoroughly tried and tested: across both national and subnational jurisdictions, there are now 53 ETSs and 42 carbon taxes in place globally.[19]

These schemes vary widely – with prices ranging from $1 to $123 per tonne of carbon dioxide equivalent (tCO2e). New Zealand[20] has the most comprehensive ETS that covers the majority of national emissions, with most others being far narrower. This makes direct comparison between the efficacy of each scheme difficult.

19. World Bank, "Carbon Pricing Dashboard", https://carbonpricingdashboard.worldbank.org/map_data (2021).
20. New Zealand Ministry for the Environment, "New Zealand emissions trading scheme", https://environment.govt.nz/what-government-is-doing/key-initiatives/ets/.

However, these different carbon pricing schemes now cover approximately 22% of global carbon emissions[21] and generated nearly $50 billion of tax revenue in 2019.[22] Carbon pricing is clearly here to stay.

The choice between a carbon tax and an ETS depends on the economic and political context in each sector, with a strong case for keeping both options on the table. Table 2.2 below summarises the main benefits and disadvantages of each carbon pricing system against different criteria. Green denotes a relative strength, red a relative weakness, and amber a mixture of the two.

Table 2.2. Assessing the value of a carbon tax or emission trading scheme

	Carbon tax	Emissions trading scheme
Effectiveness	Can link directly to a price that reflects environmental damage. No guarantee that tax rates kept on right trajectory and companies can continue to buy their way out of the problem given no emission cap.	If linked to specific carbon emission cap can guarantee emission reductions. If not designed correctly, excess credits will lead to worse environmental outcomes.
Price certainty	Can be set in advance and linked to objective measure of carbon impact. Subject to political uncertainty given risk of tinkering.	Little price certainty given credit scheme leads to increased volatility. Companies do have some ability to hedge exposure in advance.
Scope of application	Could be implemented across the majority of sectors where emissions can be accurately measured and audited.	Could be implemented across the majority of sectors where emissions can be accurately measured and audited.
Political acceptability	Given fixed price, easy to stoke political opposition around impact on consumers. Can be done indirectly to avoid political backlash, but still challenging.	Can argue a broader market mechanism and uncertainty around price makes it less politically controversial given impact is hard to predict.

21. World Bank, "State and trends of carbon pricing".
22. Postic and Fetet, "Global carbon accounts 2020".

Short-term impact on competitiveness	Can implement targeted exemptions to protect businesses at risk of carbon leakage.	Can offer free credits to businesses at risk of carbon leakage in short-term.

Choosing between the two mechanisms does depend to some extent on the target for the specific carbon price. Large businesses operating in competitive markets may be able to unlock greater efficiency through an ETS scheme, cutting the cost of reducing emissions. However, actively trading a carbon obligation is less possible for an individual small businessowner or household who are more likely to respond to a clear and stable carbon price signal delivered through a straight tax.

On the political side, an ETS is theoretically less exposed to constant political interference, boosting investor certainty and lowering the cost of low-carbon investment. Once set, the market is able to define the price paid that a carbon unit should cost, as opposed to a tax that is set at behest of national politicians. That said, the price uncertainty that an ETS creates has meant governments have been forced to intervene, as has happened numerous times in the EU ETS where steps have been taken to restrict the number of allowances on the market to increase the carbon price the scheme produces.

Recent polling does hint at general support for carbon taxes. Around 60%[23] of individuals in the UK support the general principle, with only 10% directly opposing. There is particular support for carbon taxes on producers,[24] even if the cost of such taxes will often be passed through to consumers. The public are also well aware that the 2050 net zero target will have a cost, with the majority[25] believing that prices for key products and services (such as airplane tickets) will rise.

Despite this general support, there are plenty of examples showing specific carbon pricing interventions once implemented are unpopular.

23. Libby Peake, "People want the government to green the tax system, survey shows", https://green-alliance.org.uk/(press_release)_people_want_the_government_to_green_tax_system.php.
24. Ibid.
25. Sarygulov, "Going greener".

The 2018 gilets jaunes[26] protests in France was a particularly potent example of how demonstrably unfair fiscal reform can stoke public opposition to carbon taxes. Closer to home, there were a series of fuel price protests in the 2000s,[27] as well as furore around green levies on energy bills in 2013[28] which materially knocked political ambition on climate change. More recently, the reaction to potential carbon charges on gas and meat has led the UK Government to reportedly think again.[29] As ever, the reality is more difficult than the theory.

There are, however, examples of where carbon pricing has proved politically acceptable. The carbon tax in the power sector,[30] despite adding costs to energy bills, has been in place for around a decade. More broadly, Governments have managed to impose targeted environmental taxes directly on consumers, such as the plastic bag charge.

Key to these measures has been a sense that they target a clear, unarguable environmental harm and that there are green alternatives that are accessible. Any sense that the government is looking simply to raise additional tax revenue – as is the case with fuel duty – have largely failed.

Limits to carbon pricing

Despite the compelling case for carbon pricing, experience proves it is not a silver bullet. While increasing the unit cost of a carbon-intensive activity or technology clearly improves the commercial case for going green, there are numerous other barriers that must also be addressed in tandem.[31]

This is the case in capital-intensive sectors like power, where businesses

26. The Economist, "France's gilets jaunes protesters are hurting President Macron", *The Economist*, 1 December, 2018.
27. Antony Seely, "Taxation of road fuels: policy following the 'fuel crisis' (2000-2008)", https://researchbriefings.files.parliament.uk/documents/SN03016/SN03016.pdf (2011).
28. Edward White, "Green levies and energy bills", https://commonslibrary.parliament.uk/green-levies-and-energy-bills/ (2013).
29. Miriam Webber, "Boris Johnson says he won't introduce new meat or carbon taxes", *Politico*, 2 March, 2021.
30. David Hirst and Matthew Keep, "Carbon Price Floor (CPF) and the price support mechanism", https://commonslibrary.parliament.uk/research-briefings/sn05927/ (2018).
31. Samuel Frankhauser & Nicholas Stern, "Climate Change, Development, Poverty and Economics" https://thedocs.worldbank.org/en/doc/728181464700790149-0050022016/original/NickSternPAPER.pdf (2016).

have only been able to respond to the price signal because of the provision of supporting financial frameworks to mobilise investment.[32] It is also particularly relevant at a domestic level. Homeowners face a range of financial and non-financial barriers to switching to a cleaner source of heating or buying an electric vehicle.

Whichever mechanism is chosen to implement a specific carbon price regime, political risk is material. This impacts the ability for companies to invest against the carbon price alone. This inherent political risk means that carbon pricing will only promote climate action if it is implemented in tandem with other regulatory measures that create market-based signals to cut emissions. In the absence of a joined-up policy approach, carbon pricing risks simply increasing bills and leading to a justified public and political backlash.

32. GOVUK, "Contracts for difference", https://www.gov.uk/government/publications/contracts-for-difference/contract-for-difference (2020).

Chapter 3:
The UK's current carbon pricing framework

The UK was an early mover on carbon pricing. The UK launched its own voluntary ETS scheme in 2001,[33] aimed at establishing the City of London as a leader in carbon trading. Nearly two decades on, with the UK having now left the EU, the UK ETS[34] has been re-established, this time as a mandatory scheme covering the power sector and heavy industry.

Beyond the ETS, the UK has established carbon pricing across a range of economic activity. The ONS identifies 17 separate environmental taxes currently generating revenue to the Exchequer.[35] Not all of the revenue is generated through a defined carbon tax, but each measure places some sort of price signal on greenhouse gas emissions and is therefore classified, for the purposes of this paper from this point onwards, as a carbon tax.[36] These carbon taxes broadly fall into four following groups:

- **Transport taxes:** Charged linked to carbon-based activities in the transport sector, including road transport, shipping and aviation (for example, Fuel Duty, Air Passenger Duty, Vehicle Registration Tax).

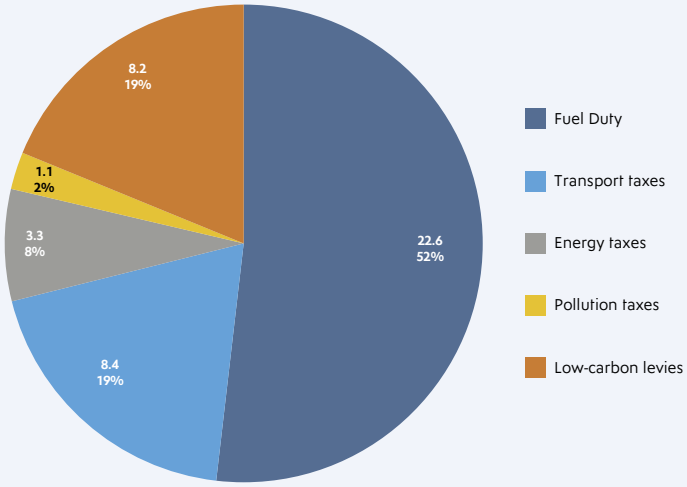
33. Croner-i, "Emissions trading: in depth", https://app.croneri.co.uk/topics/emissions-trading/indepth.
34. GOVUK, "Participating in the UK ETS", https://www.gov.uk/government/publications/participating-in-the-uk-ets/participating-in-the-uk-ets (2021).
35. ONS, "UK environmental accounts 2021", https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/ukenvironmentalaccounts/2021#environmental-taxes (2021).
36. ONS, "Environmental taxes: 2014", https://www.ons.gov.uk/economy/environmentalaccounts/articles/environmentaltaxes/2015-06-01 (2015).

- **Energy taxes:** Linked either to usage or emissions from carbon-based fuels across industry, business and households (for example, Climate Change Levy, UK ETS).
- **Pollution taxes:** Linked to emissions from commercial activities that generate pollution directly, such as in the waste sector (for example, Landfill Tax)
- **Low-carbon subsidies:** Subsidies that are levied on consumer energy bills and fund low-carbon energy projects, effectively creating an indirect tax (for example, the Renewable Obligation, Contracts for Difference).

Collectively, carbon taxation delivered roughly £45 billion[37] to the Exchequer in 2020, slightly down on the previous year as a result of the COVID-19 pandemic. The main carbon taxes are illustrated in Chart 3.1 and Table 3.1 below, based on original analysis of ONS data. Over 70%[38] of this revenue from carbon taxation comes from the transport sector, with fuel duty responsible for over two thirds of that.

37. ONS, "Environmental taxes dataset", https://www.ons.gov.uk/economy/environmentalaccounts/datasets/ukenvironmentalaccountsenvironmentaltaxes (2021).
38. ONS, "UK environmental accounts 2020".

Chart 3.1. UK carbon taxes categories in £billions, 2020



Source: Original analysis using ONS, "Environmental taxes dataset" (2021).

Table 3.1. Key UK carbon taxes in £billions, 2020

Type	Key measures	Scope	Revenue raised (2020)
Fuel duty	• Tax on hydrocarbon oils	Road transport users	£22.6 billion
Transport taxes	• Air Passenger Duty • Rail Franchise Premia • Vehicle Registration Tax • Motor Vehicle Duties • Air Travel Operators Tax	Road, rail, ship and air passengers	£8.4 billion
Energy taxes	• Climate Change Levy • UK ETS (prev. EU ETS) • Carbon Price Floor • Carbon Reduction Commitment	Power sector and large businesses	£3.3 billion
Pollution taxes	• Landfill Tax • Aggregates Levy	Businesses in waste and aggregates sector	£1.1 billion
Low-carbon levies	• Renewable Obligation • Contracts for Difference	Business and household electricity users	£8.2 billion

Source: ONS, "UK environmental accounts: 2021" (2021). This list is not exhaustive, with other minor measures within ONS definition of Environmental Taxes not included.

With the average household paying £760[39] a year in various carbon taxes, the principle of taxing environmental harm is nothing new and is generally accepted by political parties of all stripes.

However, the current system of carbon taxation in the UK is inadequate for the 2050 net zero challenge, inconsistent across different economic sectors, exacerbating inequality in their application, and the revenues from them are not clearly apportioned.

Inadequate

Reaching net zero greenhouse gas emissions by 2050 is a monumental

39. ONS, "UK environmental accounts 2021".

task. It will require changes to the way we all live, do business and get around. We will need every possible measure to get us there, with no government able to fully fund the transition. Carbon taxation will play an important goal, but only if the level of pricing within the various schemes incentivises businesses and households to cut emissions on a timetable that fits with the 2050 goal.

Various studies have looked at what level of carbon pricing could be required to support the 2050 net zero target,[40] both within the UK and globally. The High-Level Commission on Carbon Prices[41] estimated that carbon prices of at least $40-80/tCO2e by 2020 and $50-100/tCO2e in 2030 are required to cost-effectively reduce emissions in line with the temperature goals in the 2015 Paris Agreement.

For policy analysis purposes, the Government assumes the cost-effective price is likely to be £40-120/tCO2e[42] by 2030. To 2050, the carbon price may need to increase as high as £125-300/tCO2e[43] to incentivise businesses to invest in negative emissions technologies to offset residual emissions. Average carbon taxes in the UK are a long way off this level – the UK ETS is currently trading at around £50/tCO2e.[44] Without decisive action, inadequate carbon pricing will drive up the costs of reaching net zero.

Inconsistent

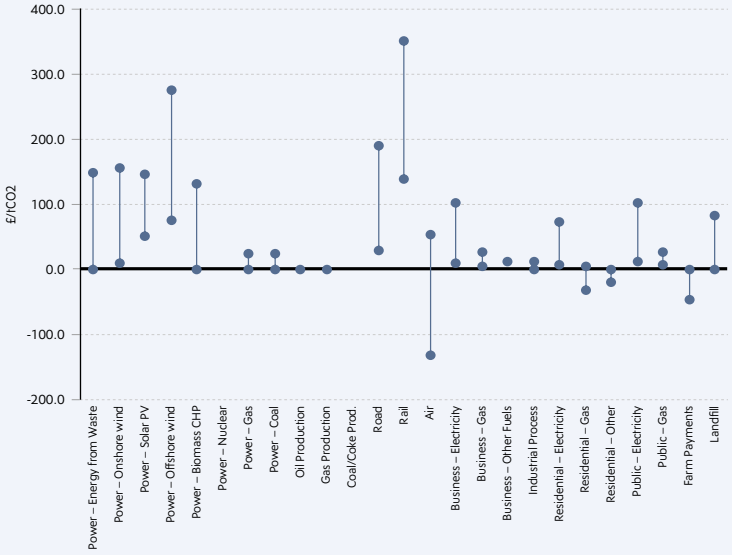
As is already the case, the method and level of carbon pricing will inevitably vary across economic sectors. A one size fits all approach – such as a single carbon tax across all CO2 output – risks impacting sectors very differently given that the cost and availability of low-carbon technologies varies across the economy. Indeed, the vast

40. Joshua Burke, Rebecca Byrnes and Sam Fankhauser, "How to price carbon to reach net-zero emissions in the UK", https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2019/05/GRI_POLICY-REPORT_How-to-price-carbon-to-reach-net-zero-emissions-in-the-UK.pdf (2019).
41. Carbon Pricing Leadership Coalition, "Report of the high-level commission on carbon prices", https://www.carbonpricingleadership.org/report-of-the-highlevel-commission-on-carbon-prices.
42. William Blyth, "Near-term options to address low-priced emissions", https://es.catapult.org.uk/reports/rethinking-decarbonisation-incentives-near-term-options-to-address-low-priced-emissions/ (2019).
43. Burke, Byrnes and Fankhauser, "How to price carbon".
44. Susanna Twidale, "Britain's carbon market begins trading at higher prices than EU", *Reuters*, 19 May, 2021.

differences in carbon intensities across different businesses mean a uniform carbon price would have a disproportionate impact on a small number of sectors. For example, a carbon price set at the same price per tonne would increase costs for the coke and petroleum production sectors by nearly 500% more than it would for the concrete sector, raising very different economic challenges.[45]

Despite the need for a tailored approach, the current level of carbon taxation across the economy is grossly inconsistent, as our original analysis in Chart 3.2 below shows.

Chart 3.2. Minimum and maximum carbon price by sector in £/tCO2e



Source: Original analysis from Energy Systems Catapult, "Rethinking decarbonisation incentives: current economic signals for decarbonisation in the UK" (2019). Rail values capped at 350(£/tCO2) for graphical purposes.

45. Matt Rooney, Josh Burke, Michael Taylor and Warwick Lightfoot, "The future of carbon pricing", https://policyexchange.org.uk/wp-content/uploads/2018/07/The-Future-of-Carbon-Pricing.pdf (2018).

According to analysis by the Energy Systems Catapult,[46] the implicit price that taxpayers and consumers are paying for emitting a tonne of CO2 can vary by as much as £700. For example, the price a household pays for emitting a tonne of carbon through using electricity is around £41, whereas the cost of them doing so through using gas for heating is just £14 a tonne. The cost of emitting a tonne of carbon from driving a car is around £109, whereas if you fly, you are effectively being paid a subsidy of around £26 for every tonne of carbon you emit.

While some of these discrepancies are historic – the reason that domestic gas use is charged a reduced rate of VAT is because John Major's Conservative Government was defeated in a parliamentary vote in 1994[47] – they are clearly perverse. While in some cases the Exchequer is simply missing out on some additional revenue, in those sectors that enjoy an implicit carbon subsidy, the approach is actively disincentivising businesses and households to cut their carbon emissions.

Notwithstanding the differing impact that a uniform carbon price would have in each sector, for carbon pricing to be a key driver of reducing emissions there must be a more consistent regime that avoids deep discrepancies and places each sector on a level playing field. Targeting those sectors, such as aviation and domestic gas use, which enjoy an implicit carbon subsidy would make sense, as well as sectors such as waste that are currently largely exempt from carbon pricing. Caution will also have to be taken in areas where there are particularly social and economic challenges, such as agriculture.

In addition to the inconsistencies of the UK's carbon pricing framework, the wider network of taxes on business and consumption are largely 'carbon blind', a point raised recently by the House of Commons Public Accounts Select Committee.[48] For example,

46. Energy Systems Catapult, "Price paid to cut carbon emissions varies by up to £700/tCO2 in UK", https://es.catapult.org.uk/news/price-paid-to-cut-carbon-emissions-varies-by-up-to-700-tco2-in-uk/ (2018).
47. GOVUK, "Value Added Tax Act 1994", https://www.legislation.gov.uk/ukpga/1994/23/contents (1994).
48. Public Accounts Committee, "Government has "no plan" for achieving net zero, two years after setting target in law", https://committees.parliament.uk/committee/127/public-accounts-committee/news/149560/government-has-no-plan-for-achieving-net-zero-two-years-after-setting-target-in-law/ (2021).

the current Stamp Duty Land Tax (SDLT) framework ignores the carbon-performance of a home, despite the fact it will become a more important factor in assessing property value as regulatory interventions are introduced to improve energy efficiency and install low-carbon heating, a point made in a recent Bright Blue report.[49] Similarly, many low-carbon products are charged full VAT, slowing the adoption of green technologies.

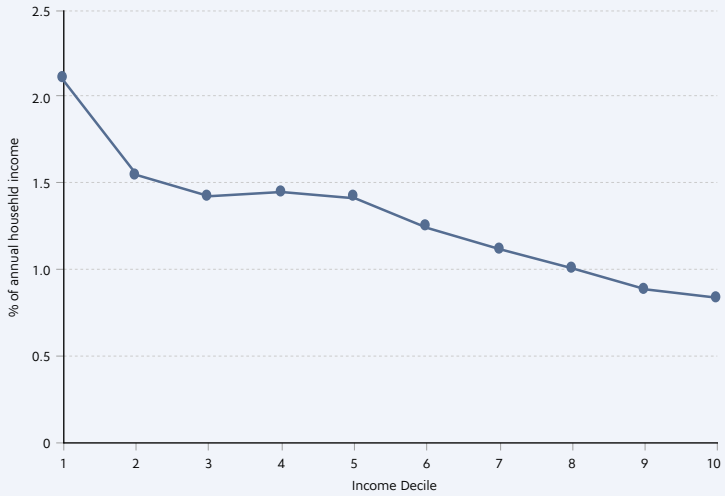
Unequal

If carbon pricing is to become a more important tool for cutting emissions cost-effectively, it will be vital to address their potential distributional consequences. To date, there is little evidence that Governments in the UK have done so.

Our original analysis of existing data shows that given a number of the key carbon taxes currently in place – including fuel duty – are charged at the same rate for all households, they impact those on the lowest incomes the hardest as Chart 3.3 below illustrates. For example, despite using three times less fuel, those on the lowest incomes spend on average 3.1% of their income on fuel duty, as opposed to 1.9% for the richest households.[50]

49. Paul Cheshire and Christian Hilber, "Home truths: options for reforming property taxes in England", http://www.brightblue.org.uk/wp-content/uploads/2021/05/BB_Property-Taxes-Report-May-2021_prf06b.pdf (2021).
50. Josh Burke, Sam Fankhauser, Alex Kazaglis, Louise Kessler, Naina Khandelwal, Julia Bolk, Peter O'Boyle and Anne Owen, "Distributional impacts of a carbon tax in the UK: analysis by income decile", https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2020/03/Distributional-impacts-of-a-UK-carbon-tax_Report-2_analysis-by-income-decile.pdf (2020).

Chart 3.3. Percentage of annual household spent on carbon taxes by income decile



Source: Original analysis from Burke et al., "Distributional impacts of a carbon tax in the UK" (2020). Carbon taxes covers effective charges on energy, transport, food and 'other', including consumables. Flat £25/tCO2e assumed for all household emissions.

The distributional impact of the current carbon pricing system is especially stark for households. Nearly half of the total emission footprint for those in the lowest income deciles comes from domestic energy use,[51] whereas it is around a third for those in the highest income decile, meaning the current flat carbon tax rate for this particular sector impacts those on the lowest incomes the most. In addition, the current implicit carbon subsidy in some sectors gives a disproportionate benefit to the richest households who tend to emit more in those sectors, such as air travel, which is dominated by those in the highest income deciles.[52]

The current system also has a geographic impact which risks

51. Ibid.
52. Ibid.

undermining the Government's 'levelling up' agenda. Given there are more households in the lowest three income deciles in more northern parts of the UK, the current carbon tax system has a disproportionate impact on Scotland, the Northeast of England and Yorkshire & Humber.[53] London and the South East carries the least of the burden based on the proportion of total household income.[54]

Unclear

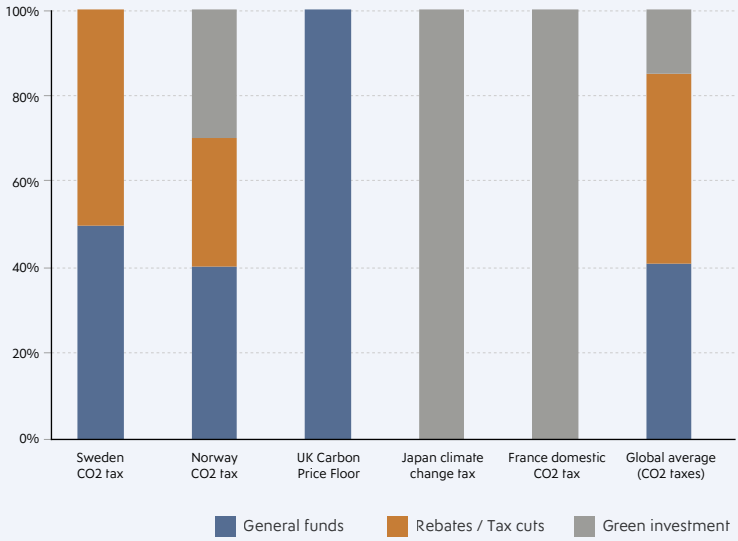
Despite carbon taxes raising nearly £45 billion annually, according to 2020 figures, there is no systematic approach for how these revenues are allocated. While when the UK was a member of the EU ETS there were rules around the utilisation of auction revenues, the Exchequer broadly has free rein over how it utilises current and future revenues from carbon taxes.

This is significant missed opportunity. The long-held reluctance of HM Treasury to hypothecate tax revenues means it is harder to ascribe direct economic and social benefit to the revenues generated through a specific tax measure. This can exacerbate political and public opposition, as we saw in 2014 when the Coalition Government was forced to introduce a taxpayer funded electricity rebate to offset the rising costs of low-carbon levies on household bills.[55]

The UK is an outlier internationally on hypothecation, as Chart 3.4 below shows. Other comparable countries who have implemented carbon tax measures have taken steps to directly reallocate revenues in order to justify their introduction.

53. Ibid.
54. Ibid.
55. GOV.UK, "Government electricity rebate", https://www.gov.uk/guidance/government-electricity-rebate (2015).

Chart 3.4. Use of revenue from carbon taxation by country



Source: Original analysis from Carl and Fedor, "Tracking global carbon revenues" (2016).

Methods vary, with some countries investing in energy efficiency or renewable energy schemes and some returning funds to businesses or households through rebates or tax cuts.[56] In some cases, such as the province of British Columbia in Canada, administrations have even committed to re-invest more than has actually been raised through carbon pricing, such as through larger cuts in income tax.[57]

If carbon pricing measures are to become more widespread, careful thought will have to be given to how the revenues generated will be utilised in a way that addresses the fact that by definition they are

56. Jeremy Carl and David Fedor, "Tracking global carbon revenues: A survey of carbon taxes versus cap-and-trade in the real world", *Energy Policy* (2016), 50-77.
57. Josh Burke, Rebecca Byrnes and Sam Fankhauser, "Global lessons for the UK in carbon taxes", https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2019/08/GRI_Global-lessons-in-carbon-taxes-for-the-UK_policy-brief.pdf (2019).

likely to be regressive. Without action, carbon pricing risks becoming increasingly regressive, making any chance of building a political consensus increasingly remote.

Chapter 4:
A new carbon pricing system for the UK

The current carbon pricing system in the UK is not fit for purpose, as the last chapter argued. The trajectory for current carbon prices does not align with a credible net zero pathway. It is not consistently applied across economic sectors. It impacts poorer households and regions disproportionately. Little thought has been given to how to utilise the revenues of carbon taxes to help build a political consensus around climate action. The case for reforming carbon pricing in the UK is clear.

However, developing a coherent carbon pricing system is far from straightforward. It will take more than a single Budget, or even a single Parliament. Reforms will need to be implemented gradually as technology costs come down to avoid a price shock that undermines business competitiveness or drives up consumer bills unfairly. A set of considered, detailed changes across different economic sectors will need to be implemented over time, with constant thought given to the political and societal impacts.

Based on the problems identified with the current carbon pricing system highlighted in Chapter Three, there are some key principles that can guide the approach to reforming carbon pricing:

- **Carbon pricing is not just about raising revenue:** While any credible pricing measure should raise money, the key focus of carbon taxation should be about shifting investment behaviours by

placing a consistent price on every unit of carbon emitted across the economy. Unlike with other taxes, over time revenue will fall as the economy reacts to the price signal, necessitating other taxation measures to be brought forward. Any measure that looks like a straight tax grab is likely to fail at the first serious political hurdle.

- **Carbon pricing must be demonstrably fair:** There is justified political anguish with new charges that disadvantage British businesses in the global market or put the greatest relative burden on low-income households. Carbon pricing must therefore be designed in such a way as to be fair, including through considering how revenues will be utilised to recycle revenue back to alleviate any negative impacts.
- **Carbon pricing is not a silver bullet:** Putting a price on carbon is only effective if done in tandem with other regulatory interventions that support businesses and individuals to respond. A blanket carbon price across all areas of the economy, even if charged upstream, is unlikely to be practical given each economic sector will face a very different cost of adoption for low-carbon technologies.

Given the pace of change required to hit net zero emissions by 2050 combined with the sizeable political hurdles to carbon taxes, a comprehensive strategy for reform is required. Such a strategy needs to set a broad political, policy and regulatory framework for action, supported by a set of detailed changes that will drive progress over the coming years.

This report proposes a three-part strategy to reform:

1. **Place a consistent carbon price on all emissions:** Set a clear goal to establish a consistent implicit carbon price across every unit of carbon emitted across the economy that is consistent with the net zero target, as well create the necessary institutional framework to drive political accountability to deliver against that goal.
2. **Take effective action by 2030:** To reflect the urgency needed to

reach the net zero target, establish a set of concrete actions across the economy, focusing on transport, energy and pollution tax reforms, which while accounting for different economic and political issues in each sector, ensure carbon pricing is more consistent by 2030.

3. **Build a lasting public and political consensus:** Implement a set of measures that will help build public and political support through sharing the value of carbon pricing and strengthening democratic oversight.

Taken together, this package of reform will deliver a comprehensive tax framework that supports the transition to net zero in a fair and economically productive way. Though not exhaustive, the policy recommendations proposed are extensive. The remainder of this chapter outlines in detail a set of policy recommendations for the UK Government under each part of the proposed reform package.

Place a consistent carbon price on all emissions

Recommendation one: To place a consistent carbon price on all emissions, the Government should set a 'target price range' for carbon taxes across the whole economy by 2030, reviewed and reset every five years thereafter. The target range should include a 2030 'floor price' that each economic sector would have to achieve at a minimum, in addition to targeted measures to manage political risk.

The ultimate target of a coherent carbon taxation framework should be to put a price on carbon that reflects the societal cost consistently across the economy, increasing over time. This is both economically sound but also fair to current and future generations.

Given the technological uncertainties that remain on the path to 2050, it would make sense to establish an interim 2030 goal for what the price on carbon should reach to align with a viable pathway to net zero, in line with the UK's current target consistent approach to carbon

pricing. A 2030 goal would align with the UK's Nationally Determined Contribution target under the 2015 Paris Agreement and provide sufficient foresight for businesses to fold it into their investment plans.

Based on the current values used to appraise climate policy by the UK Government,[58] a price range of between £40-£120/tCO2e would be appropriate for 2030, accounting for the inevitable variation within economic sectors which makes a specific target impossible. A mid-point estimate would require average carbon prices to be around £80/tCO2e. These values were set before the 2050 net zero target, meaning an upward revision is likely to be required. The Government should formally commit to setting such a target price range as part of the upcoming Net Zero Review by HM Treasury, made up of the various explicit and implicit carbon charges that can contribute to the overall carbon price in a specific sector.

Despite the need for consistency, implicit carbon prices do currently vary significantly across sectors and areas of economic activity will face different challenges in reaching the target price range. To account for this, the Government should also set a 'price floor' that each sector must meet to establish a minimum requirement that avoids any remaining implicit carbon subsidies but also allows certain sectors to go further than others. The floor could initially be set at a relatively low level, with the option of increasing it as we near 2030 and certainty around low-carbon technological readiness improves.

As we near 2030, there would be a case for giving further certainty as to how carbon pricing will evolve beyond that date. Further target ranges could be set on a five yearly basis to give maximal certainty to business and spur investment in new areas, such as negative emission technologies.

To strengthen the carbon price against political risk, the Government could consider offering backstop protection for policy or regulatory changes that mean prices fall beneath the floor price. A blanket provision such as this is unlikely to be practicable across the market given the scale

58. BEIS, "Updated short-term traded carbon values", https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/794186/2018-short-term-traded-carbon-values-for-appraisal-purposes.pdf (2019).

of risk the Government would be exposing itself to, but could be suitable in those areas where the Government is entering into a regulated financial framework with a business or sector, such as the financing models being developed for carbon capture, utilisation and storage.

Recommendation two: Government should publish an annual assessment in the Budget for how each economic sector and sub-sector performs against the carbon tax target.

Simply setting a target means little unless there is an assessment of whether progress is being made towards it. Even with a 2030 interim target for all economic sectors, Government may not feel sufficiently on the hook to ensure it is implementing adequate tax and policy measures given it currently publishes very little data on overall carbon prices by sector, made up of explicit and implicit carbon charges.

Therefore, alongside setting a 2030 target range for each economic sector, the Government should be required to publish a set of metrics for forecasting how each sector and sub-sector of the economy performs against the carbon pricing target. This assessment should be updated on an annual basis to ensure there is clarity around the impact of latest tax and policy changes, published as part of the annual Budget.

Recommendation three: At each annual Budget, the Climate Change Committee (CCC) should be required to assess whether carbon prices are in line with the UK's Carbon Budgets and the 2050 net zero target at each Budget.

As we have seen through the Office for Budget Responsibility (OBR)'s Economic and Fiscal outlook, regular independent and authoritative assessments of government policy are invaluable. Given climate change is a long-term objective, independent scrutiny is all the more important.

Alongside greater transparency from government, an annual independent assessment of whether carbon pricing policy is adequate to support the UK's climate targets should be established. The most appropriate body for doing so is likely to be the CCC, who already

have a role in scrutinising the government's wider policy framework for tackling climate change. While this should be done in tandem with considering wider government action on climate change, a specific assessment on carbon pricing is required given it is a cross-cutting issue that cannot only be assessed on a sectoral basis.

Recommendation four: The Government should introduce in the HM Treasury Net Zero Review core 'Carbon Tests' to assess – as part of the formal impact assessment process – changes to any policy that impacts either directly or indirectly the price of carbon paid by businesses or households.

The current patchwork of carbon prices across the economy is driven in part by the lack of a clear process for assessing the impact of any single intervention. If the Government is to produce a more coherent framework greater consistency in policy, regulatory and tax development is needed.

The Government should introduce a set of 'Carbon Tests' against which must be applied to any policy or tax decision that has an impact on carbon prices across the economy. There is precedent for such an approach, with successive Chancellor's creating a series of 'fiscal rules'[59] to keep borrowing in check.

While the Government should consult on the detail of the Carbon Tests that are established to ensure it captures the full impact on households and businesses, at a minimum they should satisfy the following tests:

- **Price:** Does the measure lead to a positive impact on the carbon price facing producers and consumers?
- **Trajectory:** Does the measure align carbon prices with a credible trajectory to the 2030 target price range for carbon prices?
- **Technology readiness:** Based on current technology costs and

59. Rowena Crawford, Carl Emmerson, Thomas Pope and Gemma Tetlow, "Fiscal targets: committing to a path of budget responsibility?", https://ifs.org.uk/publications/8154 (2016).

readiness, as well as other associated barriers (such as informational), are those subject to the charge able to respond effectively?

- **Distributional impact:** Does the measure maintain or improve the current distributional consequences of the carbon price within that specific economic sector?
- **Competitiveness:** Does the measure effectively minimise or mitigate any risk of carbon leakage?

The function of these Carbon Tests would be to offer a practical guide to policymakers to assess and rank individual options. The Net Zero Review being run by HM Treasury offers an opportunity to establish these tests as part of the policymaking progress moving forward, updated on a regular basis as the broader policy landscape changes.

Critical to using the Carbon Tests effectively will be transparency. The ideal would be that the process is done on a quantitative basis as part of the formal Impact Assessment process for policy and tax decisions, ensuring that it is clear when government is departing from meeting any of the individual tests.

Recommendation five: The Chancellor should launch a 'Net Zero Tax Review' in the Autumn Budget, reporting in 2022. This review would consider the full tax framework and risks associated with climate change, and not simply be limited to carbon taxes.

Beyond the challenges to the current network of carbon taxes, the wider framework of general business and consumption taxes needs to be better aligned with the 2050 net zero target. The central priority of the tax system should continue to be to raise the necessary revenue to fund government spending, but the importance of tackling climate change means that each decision the Chancellor makes should also be seen through that lens also.

Rather than yet another bureaucratic tick-box process for all new tax measures, a more appropriate approach is likely to be a formal review. While clearly this would include considering the effectiveness of current carbon taxes, it must go wider, considering how other tax

measures impact the ability for households and businesses to invest in green technologies, considering existing taxes such as SDLT and VAT, as well as more radical changes to how we tax assets in a green way.[60] This will help justify any new carbon taxes as part of a wider fiscal reform programme, as well as contribute to a fairer tax system overall as changes are considered in the round.

Given the pace at which action is required, any review must conclude within the next 12 months and lead to tax changes that drive investment over the 2020s. There is political advantage for the Government in acting swiftly – any movement on carbon prices could be immediately offset by wider tax changes that help homes and businesses see the economic incentive to invest in green technologies.

The review should consider the fiscal risks created by the net zero transition and set out how the Government will actively look to address them, such as in the road transport sector. The Government could also use the review to signal the level of forecast tax revenue it is aiming to collect through carbon taxes across the economy out to 2030 to give businesses as much certainty as possible.

Recommendation six: Establish a cross-government Carbon Price Unit housed in HM Treasury bringing in other key departments, with a responsibility for leading carbon tax and policy development.

One of the key challenges in establishing a consistent approach to carbon pricing across the economy is the fact that responsibility for each sector splits across a range of government departments. In addition, HM Treasury is solely responsible for taxation and therefore resists efforts from other government departments to influence tax measures. This lack of coordination complicates effective stakeholder engagement, making measures less effective.

Given the cross-cutting nature of carbon pricing, an internal, cross-

60. Cheshire and Hilber, "Home truths", 49.

government Carbon Price Unit should be established. This would be housed formally in HM Treasury and report to the Chancellor, but also bring in officials from all key relevant departments, including Department for Transport (DfT), Department for the Environment, Food and Rural Affairs (DEFRA) and the Department for Business, Energy and Industrial Strategy (BEIS). The Unit could be modelled on similar cross-government teams that already exist, such as the new Levelling Up Unit in the Cabinet Office. Given it would not be a new formal body there would be no need for legislation and it could be created immediately.

The Unit would have responsibility for the operation of carbon pricing framework and would lead the regular review and publication of the target price range. It would also be responsible for the Green Dividend Framework, detailed later in this chapter, working in partnership with other tax and spend teams in HM Treasury. This would ensure there is effective collaboration and consistency across carbon pricing in all sectors, with the benefit of being housed in HM Treasury that it can directly shape individual tax decisions.

As well as improving internal coordination on carbon pricing, the Unit would be tasked with leading external stakeholder engagement. This would go beyond issuing formal consultations, with a responsibility for engaging directly with sector representatives and collaborating with expert groups, such as the CCC and academic institutions.

Take effective action by 2030

Recommendation seven: The Government should use the upcoming Net Zero Strategy being developed by BEIS to outline a set of sectoral 'Action Plans' that outline what steps will be taken to establish a consistent carbon price within each area of economic activity by 2030.

BEIS is currently leading the development of a series of sectoral strategies that are aimed at driving down emissions, building towards an overarching Net Zero Strategy ahead of COP26. These strategies are

critical for providing clarity on how political ambition on climate change will be translated into detailed policy. They also offer an opportunity to set out the role of carbon taxation in each sector's journey to net zero.

The Net Zero Strategy offers a chance to move away from a more siloed approach. The Net Zero Strategy should therefore include an articulation of how the Government will approach carbon pricing across each sector, and offers a chance to set out a detailed set of interventions that will be made across each economic sector to build towards the 2030 target price range.

These interventions will inevitably vary given the cost of adopting green technologies varies widely across sectors. For example, a new charge on agricultural production has a very different economic and societal impact to that on air travel. Given inevitable divergence, the Government should publish sector specific 'Action Plans' that outline the process for establishing a net zero consistent carbon pricing regime in each area of economic activity through a range of explicit and implicit interventions. While detail will vary, these Action Plans should, at a minimum, identify the timeframe for introducing new measures, as well as the issues that still need to be resolved (such as reducing technology costs) and the process for open and transparent consultation with businesses and consumer groups.

A specific area that these Actions Plans must cover is the likely long-term mechanism for carbon pricing in each sector, including whether a direct tax or a trading scheme is more appropriate, given all sectors are unlikely to be suited to the same mechanism. As detailed in Chapter Two, while emissions trading schemes will potentially drive more cost-effective solutions, they are unlikely to be suitable in sectors where the specific point emissions are relatively small and hard to track, such as within agriculture and home heating.

The Government should make clear that it will continue to develop a range of carbon pricing mechanisms across the economy, using the relevant sectoral Action Plans to identify the most likely path in each area. While this does not necessitate immediate introduction, it will provide

much needed certainty for sectors over the likely framework under which they will eventually be required to respond to a price signal. It will also provide a clear driver for policymakers to resolve the remaining barriers to the introduction of new mechanisms in each sector.

Transport taxes

Recommendation eight: The Government should immediately pilot a voluntary road pricing scheme for all road users ahead of a national rollout from 2030, including 'Green Miles' that offer a discount for a period to those driving Electric Vehicles (EVs) and on low incomes, as well as surge pricing in congested areas.

The carbon price faced by road transport users is complex. Fuel Duty puts a price on emissions produced that, when combined with other transport tax measures, means the carbon price on road users is already £28-190t/CO2.[61] While the immediate future of fuel duty levels remains a political bunfight, the real challenge is how you replace the £30 billion of tax receipts it generates as drivers switch to EVs.

The shift to EVs will reduce the role of fuel duty in creating a carbon price signal in the road transport sector, but there will still be other externalities that necessitate a charge, such as congestion and air quality. To date, the Government has provided very little detail on the potential alternatives to fuel duty, something that looks increasingly risky given the recent commitment to phase out all sales of combustion engine vehicles by 2030.[62]

The most viable replacement for fuel duty is a road pricing scheme that applies to all vehicles, charging road users on a per-mile basis. The

61. William Blyth, "Current economic signals for decarbonisation in the UK", https://esc-non-prod.s3.eu-west-2.amazonaws.com/2018/10/2018-07-20-RDI-WP1-Current-Economic-Signals-for-Decarbonisation-in-the-UK.pdf (2018). Range depends on the proportion of fuel duty revenue that is ascribed to pricing the externality of greenhouse gas emissions, opposed to other factors such as congestion.
62. GOVUK, "Government takes historic step towards net-zero with end of sale of new petrol and diesel cars by 2030", https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030 (2020).

introduction of such a mechanism remains challenging. Politically it risks looking like a more direct tax grab on motorists, as opposed to a unit charge that most do not fully appreciate at the pump. It also runs into challenges around the use of private data to assess an individual's overall tax liability. These challenges will, however, have to be overcome soon given the 2030 phase out date.

To address the significant challenges to such a scheme, the Government should immediately pilot a road pricing scheme for all road users. Such a trial scheme could be done voluntarily in exchange for an exemption from fuel duty, potentially in partnership with intermediaries such as car insurance companies to trial new customer propositions. An immediate set of pilots would lay the groundwork for a national rollout of road pricing schemes from around 2030.

Given the danger that the introduction of a road pricing scheme slows consumer adoption of EVs, the Government could also introduce a temporary 'Green Miles' scheme that offers a certain proportion of discounted or free miles to those EVs. Such a scheme would be phased out over time, with the potential to continue with a targeted scheme that supports those on low incomes on an ongoing basis.

Any road pricing scheme should also include a surcharge for non-residents in urban areas to reduce car use and promote public and active transport. The Government could also consider whether there is a case for an additional charge on larger vehicles that have a more significant environmental impact, such as higher particulate emissions.

Recommendation nine: Alongside international action, the Government should reform Air Passenger Duty (APD) so it delivers a more consistent carbon price and offer discounts for 'Green Miles' based on the proportion of sustainable aviation used. A frequent flyer surcharge should also be introduced.

The barriers to decarbonisation on heavier transport – especially aviation– are significant. Technology is not yet in a position to compete

on a level-playing field and the scale of innovation required to move to zero-emission options is still some way off. In the near-term, the only viable option is to reduce emissions opposed to eliminate them completely.

Despite this, there is still an important role for carbon pricing as it will drive down demand and improve the case for investing in clean Research & Development (R&D). The challenge is that aviation is inherently cross-border and therefore the risk of the UK acting too swiftly is that emissions are simply exported to other global destinations. There should therefore be a significant push from the UK to use the various international processes underway to try and establish an international system that addresses the risk of carbon leakage.

In addition to domestic aviation being included in the UK ETS and international travel within a global carbon trading scheme, existing domestic levers could be used more effectively. Air Passenger Duty (APD) should be reformed so it is directly linked to the net zero target, such as through removing the lower rate on short-haul flights or linking charges more directly to distance travelled.[63] International rules around airline taxation make this challenging so the detail may mean the impact is indirect. To target the scheme at those with the biggest impact, there should also be a surcharge introduced for frequent flyers, effectively placing an additional 'rate' of carbon tax predominately on business travellers.

In addition, as the Government considers the introduction of an obligation to use a certain proportion of sustainable aviation fuels, a 'Green Miles' scheme could be introduced in the short-term. Such a scheme would mean passengers receive a tax discount for the proportion of the fuel requirement that is sourced sustainability, helping to create a positive demand signal for the sector to invest in additional production.

63. GOVUK, "Rates for air passenger duty", https://www.gov.uk/guidance/rates-and-allowances-for-air-passenger-duty (2021).

Recommendation ten: Work to bring shipping under the remit of the UK ETS, ideally coordinated with action at an international level on global shipping emissions.

Given there is no equivalent to APD in the shipping sector, the focus should clearly remain on including shipping within the scope of the UK ETS in a similar way to aviation at a domestic and global level. The EU have stated that shipping will be brought in scope of the EU ETS by 2023 so there is a strong argument for the UK to follow suit.

Given zero-carbon options in the transport sector remain novel – such as the use of ammonia as a fuel – there would be a strong argument for hypothecating the revenues collected through a carbon price on shipping to support innovation and pilot projects.

Energy taxes

Recommendation eleven: Gradually phase out the Carbon Price Support element of the Carbon Price Floor once coal is phased out of the UK power sector, using the UK ETS to continue to incentivise low-carbon generation.

The power sector has been a decarbonisation success story, with emissions falling by nearly 70% since 1990[64] and investment in renewables increasing dramatically as costs have come down. The ETS scheme and the Carbon Price Floor (CPF), which is a fixed carbon price charged on electricity generators against their total emissions footprint, have both played an important role in making this possible, placing a meaningful carbon price on carbon-intensive electricity generation technologies. It has improved the commercial case for investing in renewables and driven coal off the system, in tandem with other measures to support investment, such as the Contracts for Difference scheme, which is a subsidy framework allocated by government to

64. Climate Change Committee, "The sixth carbon budget: electricity generation", https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Electricity-generation.pdf (2020).

low-carbon electricity generators to support investment. It effectively provides a guaranteed payment to the generator over a set period, typically 15 years.

The UK has now committed to fully phasing out coal power generation by 2024, as Bright Blue has previously called for.[65] This will reduce the role of carbon pricing in supporting coal to gas switching, but it will remain important given it helps to reduce the running time of gas plant and will reduce the effective cost of new technologies such as carbon capture, utilisation and storage (CCUS). The power sector should continue to be included within the UK ETS scheme on an ongoing basis.

Once coal is off the UK's energy system in the coming years, there is less of a case for a specific top-up to the carbon price for power generators above and beyond the UK ETS price given it pushes up the price of low-carbon options that rely on cheap electricity, such as heat pumps. Once coal has been phased out, the Carbon Price Support element of the CPF, which is aimed at topping up the price set by the UK ETS scheme and is currently fixed at £18/tCO2e, should be phased out on a timeline that removes it completely by 2030 at the latest. The rates should be maintained for any power generators that are not subject to the UK ETS but the Climate Change Levy, described below.

Recommendation twelve: The Climate Change Levy and Climate Change Agreements should be reviewed again in light of the 2050 net zero target to ensure they fully reflects the carbon content of the fuel being used by businesses. The Government should consult on extending carbon pricing further across energy usage in non-residential and public buildings.

In addition to upstream taxation on electricity, many businesses are subject to the Climate Change Levy that puts a carbon price on

65. Ben Caldecott, "Keeping the lights on: security of supply after coal", http://green.brightblue.org.uk/publications/2016/6/7/zgtnkg45pj97qs3y318jpajmpjsqlv (2016).

energy usage across a range of fuels. This acts as an incentive to invest in energy efficiency improvements and consider switching to lower-carbon forms of heating. While changes have been made recently[66] to the Climate Change Levy,[67] electricity still attracts a lower rate than gas use, something that will become untenable once coal is completely removed from the power system in 2024.

The Government should therefore review the Climate Change Levy yet again in light of the likely trajectory to the 2050 net zero target, making further changes to ensure the carbon prices the scheme delivers are sufficient. The Government should also ensure that the reduced rates that are available under the Climate Change Agreements, which are effectively a contract agreed between government and a specific business that ensures in exchange for a reduction in Climate Change Levy payments the business will invest in measures to reduce their energy usage, are reviewed regularly.

In addition to the Climate Change Levy, there is a case for exploring whether a greater proportion of commercial energy usage should be captured by a carbon taxation framework, potentially through an extension of the UK ETS. Given the administrative challenges in doing so, the Government should consult on the most viable option for extending carbon pricing across a greater proportion of energy usage within the non-residential and public sector.

Recommendation thirteen: A consistent 'Climate Change Charge' should be introduced for domestic energy use linked to underlying UK ETS prices that applies across both electricity and gas use, offset by removing low-carbon levies from bills and providing dedicated support for low-income households.

While households already pay the pass-through costs of various carbon

66. GOV.UK, "Changes to rates for the Climate Change Levy from 6 April 2020" https://www.gov.uk/government/publications/changes-to-rates-for-the-climate-change-levy-from-6-april-2020/changes-to-rates-for-the-climate-change-levy-from-6-april-2020 (2020).
67. The Climate Change Levy is a tax charge that is paid by large businesses based on their energy use, covering electricity, gas and other fuels.

pricing schemes – such as the Carbon Price Floor – there is no direct carbon taxation placed on domestic electricity or gas use beyond VAT. This is for justifiable political reasons – increasing energy prices is rarely a vote winner and is inherently regressive as those on the lowest incomes pay the greatest portion on their incomes on energy.

Notwithstanding the political dynamic, this situation is already creating challenges for hitting the 2050 net zero target. As already indicated in Chapter Three, there is a carbon subsidy currently in place for domestic gas use given it qualifies for a discounted 5% rate of VAT, with the carbon price being as low as £-33/tCO2. This weakens the incentive to switch to lower carbon forms of heating by driving up the relative cost of electrification.

The situation is further exasperated by the fact that low-carbon levies are mainly placed on electricity usage. This is rational given they relate largely to the cost of delivering low-carbon electricity, but they further increase the unit price of electricity.

Government is already exploring changing the balance of policy and social costs on energy bills. To reduce the carbon price on electricity and incentivise electrification, low-carbon levies should be removed from electricity bills and placed into general taxation, cutting the average household energy bill by 12% in 2030.[68]

This would, however, leave HM Treasury with a significant fiscal black hole – it would increase net government spending by an estimated £5.7 billion[69] per year – and not address the implicit carbon subsidy effectively in place for domestic gas use. Therefore, in tandem, the Government should introduce a consistent 'Climate Change Charge' across both electricity and gas that reflects the carbon content of both fuels, linked to underlying UK ETS prices. Assuming a £75/tCO2 in 2030, net average annual household bills would increase by around 3% (£38).[70]

68. Rachel Wolf, Jonathan Dupont and Ruth Newton, "Options for energy bill reform", http://www.publicfirst.co.uk/wp-content/uploads/2021/04/OptionsEnergyBillMaster.pdf.
69. Ibid.
70. Ibid.

While under this scenario households are not meaningfully worse off, the rebalancing in the carbon price towards gas will hit those in fuel poverty and have negative distributional consequences. Therefore, alongside the changes to policy costs, the Government should consider what support can be provided to those on low-incomes and at risk of fuel poverty. This could include the provision of a mandatory social tariff with costs socialised across the rest of the consumer base. Alternatively, bill repayments could be offered, or straight exemptions from the Climate Change Charge for a defined group. Whatever the model, it will be vital that support is provided upfront to avoid additional cash-flow challenges for low-income households.

Pollution taxes

Recommendation fourteen: Link the new farm payments scheme more directly to the delivery of projects that reduce or store carbon. In addition, before 2030, trial the introduction of tradeable credit markets based on carbon sequestration allowing a long-term route to land-use being included in a dedicated cap-and-trade model. The Government should also establish a 'Farmland Carbon Code' to ensure adequate verification of the carbon saved across the agricultural sector.

The agriculture sector is still responsible for around 10% of UK emissions,[71] of which over half is methane emissions, largely from livestock. The challenge of introducing robust carbon pricing is both political and practical. The idea of placing a tax on livestock or meat producers that is passed through to consumers is currently a political non-starter. There are also significant administrative challenges given the need to accurately audit emissions from

71. NFU, "Achieving net zero: farming's 2040 goal", https://www.nfuonline.com/nfu-online/business/regulation/achieving-net-zero-farmings-2040-goal/#:~:text=British%20agricultural%20GHG%20emissions%20in,%25)%20and%20CO2%20(1.2%25) (2019).

thousands of individual farms. The introduction of a straight carbon price at this stage is untenable and is only likely to be possible in the long-term.

There is, however, scope to act given the reliance of large parts of the agricultural sector on public funds, giving a clear political justification for requiring the sector to take action on climate change. The new Environmental Land Management (ELM)[72] system, influenced in large part by previous Bright Blue policy work,[73] has more deeply enshrined the notion of 'public money for public good', offering ways for farmers to secure support in relation to taking actions that will support the environment.

After the initial pilots, the Government should set a specific target for what the ELM scheme should deliver in terms of carbon savings. This would, in effect, require a specific portion of farm payments to then be spent on carbon-based reduction projects, with requirements rising steadily over time as the target carbon savings required under the scheme grows. The Government could set specific percentage and monetary targets to support this progression. As well as measures like afforestation, the Government should include more innovative measures, such as habitat protection, peatland restoration and soil management practices.

In the longer-term, there is clearly scope for land to be a driver of carbon sequestration, especially through afforestation. Therefore, the Government should accelerate its pilots to create robust and transparent carbon credits[74] based on nature-based climate solutions. The aim should be to create a 'Farmland Carbon Code' which would independently accredit carbon stored across agricultural activity. This will enable the creation of a new revenue stream for landowners, land

72. GOVUK, "New details of the flagship Environmental Land Management scheme unveiled by Environment Secretary", https://deframedia.blog.gov.uk/2020/02/25/new-details-of-the-flagship-environmental-land-management-scheme-unveiled-by-environment-secretary/ (2020).
73. Ben Caldecott, Sam Hall and Eamonn Ives, "A greener, more pleasant land: a new market-based commissioning scheme for rural payments", http://green.brightblue.org.uk/publications/2017/11/17/a-greener-more-pleasant-land-a-new-market-based-commissioning-scheme-for-rural-payments (2017).
74. GOVUK "Woodland carbon guarantee", https://www.gov.uk/guidance/woodland-carbon-guarantee (2021).

managers and farmers that could eventually allow for the introduction of a cap-and-trade model within the agricultural sector beyond 2030.

Recommendation fifteen: Reform the Landfill Tax so it is based on a carbon metric. Over the medium-term, include the waste and recycling sector in the UK ETS.

The approach to reducing emissions in the waste sector should first and foremost focus on producing less waste, as well as maximising recycling and reuse. However, there is likely to be a proportion of non-recyclable waste that persists in the medium-term until innovation in recyclable material improves markedly.

There is therefore a strong case to introduce a direct carbon price within the waste and recycling sector to ensure that businesses are prioritising the provision of the lowest carbon option available. The Landfill Tax is already in place but is not linked directly to greenhouse gas emissions. Therefore, a first step would be to link the landfill tax directly to the carbon content of waste.

Given the waste and recycling sector is, in effect, an industrial process, the most obvious next step would be to eventually include the sector within the UK ETS. This will have administrative challenges and pass costs onto local authorities as the customers of waste management businesses, so any introduction is likely to happen over the medium-term. It will also need to be done in tandem with support for the waste and recycling sector to invest in carbon capture technology to ensure it can respond effectively, including through the creation of negative emissions.

It will be vital that any introduction of carbon pricing is applied across the whole waste and recycling sector to avoid perverse consequences, such as more waste being exported abroad.

Build a lasting public and political consensus

Recommendation sixteen: Create a Green Dividend

Framework, made up of the various carbon pricing schemes that contribute to the Exchequer.

The 'tell Sid'[75] campaign launched to generate public interest in the privatisation of British Gas 25 years ago was a huge success. It created a sense of public buy-in and created a new wave of shareholders. While the idea of more comprehensive carbon taxation is never likely to deliver similar public support, it will be vital to explore ways to generate support for any changes.

Beyond the environmental gain, the key societal value of carbon taxation is the revenue it will generate to fund public services and to reinvest in driving the adoption of green technologies. While the total revenue from a more consistent carbon taxation framework is uncertain, it will be significant. Based on a £75/tC02e price applied across the economy, uniform carbon taxation could raise as much as £27 billion[76] a year by 2030. While clearly this is a maximal figure and will not be realised given the various political and economic constraints in each sector, it does signal the scale of the potential prize.

To ensure individuals feel the value of revenue generated more directly, the Government should establish a Green Dividend Framework in the upcoming HM Treasury Net Zero Review. This framework would be made up of the revenues from carbon pricing measures on an ongoing basis. It would allow for a total figure to be set for what has been delivered to the public purse and could be accompanied by a quantitative forecast for revenues over the coming five-year period.

The Government should also consider setting out in personal tax summaries the total value of the Green Dividend Framework and how it is being utilised. This could be supported by a more granular breakdown of how the revenue generated is being divided across categories such as green investment, revenue recycling and general Exchequer funds. To

75. BBC News, "British Gas shares: thousands 'told Sid' 25 years ago", *BBC News*, 21 November, 2011.
76. The Zero Carbon Commission, "How carbon pricing can help Britain achieve net zero by 2050", https://static1.squarespace.com/static/5e1ee218fbeca217fe06a421/t/5f75c51ffcfe7968a6bc9fdf/1601553703192/White+Paper+-+How+carbon+pricing+can+help+Britain+reach+net+zero+by+2050.pdf (2020).

support the framework, HM Treasury could identify specific percentage targets for how revenues will be utilised under the Green Dividend Framework on an ongoing basis.

Recommendation seventeen: Identify a specific portion of the funds from the Green Dividend Framework to be utilised to reduce the impact of rising prices on those on low-incomes and vulnerable customers.

While direct hypothecation of tax revenues limits fiscal flexibility, the political and distributional challenges posed by carbon taxation necessitate it. The inevitable distributional consequences of more comprehensive carbon taxation can't be ignored and need to be dealt with upfront.

While those on the lowest incomes emit the least compared to all other income deciles,[77] a flat carbon tax would disproportionately impact those households. This is demonstrably unfair and can only be avoided if a portion of the revenue generated by a more consistent regime are directly redistributed to support those most impacted.

To ensure this is done systematically across all sectors in a way that reflects the level of impact, the Government should identify a specific portion of the Green Dividend Framework to be redistributed, either on a proportional or absolute basis. The exact method for redistribution is likely to vary by sector – some will suit direct exemptions, other may require discounts – but key will be ensuring the support is channelled as close to the point of consumption as possible.

Through a more directive approach, the Government could alleviate the impact of rising carbon prices either partially, or in full, for those on low incomes, allowing the intervention to be progressive in nature. For example, based on a uniform carbon tax of £75/tCO2 in 2030, government could offset the cost of any additional burden on the bottom

77. Burke, Fankhauser, Kazaglis, Kessler, Khandelwal, Bolk, O'Boyle and Owen, "Distributional impacts of a carbon tax in the UK".

income decile by recycling around £1.1 billion in carbon tax revenue on an annual basis, saving each household £404 a year, less than 5% of the total tax raised[78]. If the Government wanted to go further, offsetting the impact for the lowest five income deciles would cost around £7.4 billion a year, around 30% of the total raised[79].

It is clear that even with significant recycling, there is still scope for government to raise revenue to be spent on other priorities, including for general Exchequer funds. This ensures that even with a comprehensive Green Dividend Framework that aids a strong political consensus on carbon taxation, HM Treasury can still retain significant fiscal flexibility.

Recommendation eighteen: The UK should establish a 'Green Import Tax' for industries at high-risk of carbon leakage, ideally linked to a series of 'Carbon Clubs' to continue to promote free trade.

More comprehensive carbon taxation will have an impact on business competitiveness, particularly for those sectors that are already subject to intense international competition, such as steel production. Concerns around carbon leakage have already led to the introduction of free allowances in the EU and UK ETS framework, as well as the introduction of compensation for energy-intensive industries.

While these measures are critical for maintaining competitiveness, for industry to decarbonise there will be a point where they need to be more directly exposed to the underlying carbon price. This will, however, have an impact that must be addressed – a more meaningful carbon price could increase electricity costs in tradable sectors like steel by as much as 13%,[80] rendering them internationally uncompetitive.

To guard against this, the Government should introduce a targeted 'Green Import Tax', akin to the Carbon Border Adjustment Mechanism being

78. Original analysis from Burke, Fankhauser, Kazaglis, Kessler, Khandelwal, Bolk, O'Boyle and Owen, "Distributional impacts of a carbon tax in the UK".
79. Ibid.
80. David Grover, Ganga Shreedhar and Dimitri Zenghelis, "The competitiveness impact of a UK carbon price: what do the data say?", http://eprints.lse.ac.uk/65622/1/Grover-et-al-policy-paper-January-2016.pdf (2016).

developed by the EU. This should not be a blanket charge on consumer or agricultural goods, but a targeted levy on certain tradeable commodities (for example, steel, aluminium, cement) that are subject to a meaningful domestic carbon price and at high risk of carbon leakage. Prices for the tax could be linked to underlying UK ETS prices, net of the proportion of free allowances that the sector is currently provided with. The revenue from the tax would be folded into the Green Dividend Framework, identifying targeted support for industries to invest in green technologies.

In exchange for the introduction of such a tax, free allowances within trade exposed industries would be gradually phased out, on the same trajectory for the tax rising over time. Notwithstanding the complex international trade rules, the tax should be introduced as a matter of urgency given the EU border tax is progressing and could generate a net financial transfer from the UK to the EU of around $1 billion a year.[81]

Despite the need for such a tax, creating barriers to trade is by no means an ideal outcome and jars with the idea of Britain being a beacon of free trade. Therefore, in tandem to developing the tax, the UK should use the run up to COP26 to establish a series of 'Carbon Clubs'. These clubs would be made up of countries that are committed to a domestic carbon pricing mechanism that is broadly consistent with the UK's and would allow for full or partial exemptions from the Green Import Tax. In addition, these clubs could agree collectively not to levy import taxes on the world's least developed countries to avoid the measures having a disproportionate impact.

While a single grouping would be ideal, the patchwork of domestic carbon prices is likely to necessitate a series of clubs in the first instance, such as a set of countries committed to a consistent approach to carbon pricing in the steel sector. Over time, as more countries adopt domestic carbon pricing schemes, there would be scope to remove any import taxes that have been created globally.

81. Josh Burke, Misato Sato, Charlotte Taylor and Fangmin Li, "What does an EU carbon border adjustment mechanism mean for the UK?" https://www.lse.ac.uk/granthaminstitute/publication/what-does-an-eu-carbon-border-adjustment-mechanism-mean-for-the-uk/ (2021).

Chapter 5: **Conclusion**

Reaching the 2050 net zero target is anything but easy. It will require a coordinated programme of policy, regulatory and financial intervention over the next three decades, with politicians emboldened to take the difficult decisions necessary to drive economic and societal change. There will be considerable turbulence along the way, especially as decarbonisation touches more directly on individual lives and freedoms.

There will be no silver bullet and placing a consistent price on carbon across the economy is clearly going to be just one of the vital tools in shifting investment and behaviour. Complementary measures to unlock investment and innovation will be just as important.

If carbon pricing is to play a part in the net zero transition it will need to be fundamentally reformed. The current myriad of carbon price signals is hard to navigate and full of loopholes. In addition, implicit carbon subsidies currently make decarbonisation harder, not easier. Change is urgently needed.

This report sets out a series of detailed recommendations for how the Government can develop a better regime for carbon pricing. This includes setting a clear target to consistently price carbon across all areas of the economy, alongside a set of measures that will both make carbon pricing more impactful and help build a stronger public political consensus on its role in cutting emissions.

Taken together, these recommendations should:

- **Accelerate progress towards net zero:** By creating a more consistent carbon price signal across the economy by 2030 and removing implicit carbon subsidies that dilute the economic case for decarbonisation.
- **Create a less regressive tax regime:** By raising revenue that can be recycled to protect those on low incomes, as well as provide support to households and businesses to adopt green technologies.
- **Promote economic growth:** By sparking investment in green technologies, protecting those sectors most at risk of carbon leakage and avoiding placing punitive taxes on activities for which there is currently no viable green alternative.

With the UK hosting COP26 later this year, there is no better moment for the Government to reform the UK's system of carbon pricing.

It will be far from straightforward, with political compromise and agility required, but given the cost of inaction on climate change will be so significant, it is certainly worth the effort.

The UK's current system for pricing carbon is inadequate, inconsistent and unequal. Not only must carbon pricing go much further if the UK is to reach net zero by 2050, but taxes on pollution must also be made fairer in order to equalise the impacts of carbon pricing on different sectors of the economy and build political support for reform.

This report proposes a three-part plan for reforming the UK's carbon pricing framework. The UK must place a consistent price on all carbon emissions; take effective action by 2030; and, build a lasting public and political consensus around carbon pricing.

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ISBN: 978-1-911128-98-4

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