

Paying for UK Net Zero: principles for a cost-effective and fair transition

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Headlines

- The Treasury's consideration of spending should embrace a broad range of measures to enable behaviour change for Net Zero including, but not limited to, fiscal policy. Supporting behaviour change should aim to lower financial, information and social barriers in a fair and consistent manner and could take advantage of better use of data and digital tools.
- Principles for decision-making should recognise the value of fostering positive feedback effects that build momentum in behavioural shifts and in system-wide change, for example by supporting the emergence of new social norms, innovation and early adopters and leveraging co-benefits (see Figure 1).
- The Treasury has a role to play in supporting the development of a healthy and sustainable private sector investment community. There are several tested options for assisting with access to finance that the Treasury could consider in its review, such as revolving funds, devolving funds to the local level, government-backed loans and the recently-announced National Infrastructure Bank.
- The UK government needs to take a joined-up approach to decarbonising the economy. It is inefficient and wasteful of public funds to stimulate decarbonisation with some funds while stimulating the creation of greenhouse gases with others. The UK public also want to see a comprehensive and consistent plan^{1,2}. Therefore, subsidies to fossil fuels should be wound down.
- It is also important for the Treasury to actively consider and promote principles and policies that can support trade that protects against emissions offshoring – shifting sources of emissions to other countries; this may include a transparently and carefully designed border carbon adjustment (BCA).
- There is likely to be a need to invest public money in low-carbon, resilient infrastructure, and to demonstrate a transparent balance between tax and spend, which will decline over time as revenues from fossil fuel taxation decline. This balance sheet approach could improve public acceptance of taxes to tackle climate change, with or without a restrictive hypothecation approach.

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1. Introduction

The review into how to fund the UK's transition to a Net Zero greenhouse gas economy, led by Her Majesty's Treasury, will set out principles to guide decision-making during the transition to Net Zero³. The Treasury's review focuses on how the UK's legal obligation to Net Zero emissions will be funded and how to assess options as to where these costs will fall. The review, due to be published in spring 2021, has four guiding objectives:

1. Analyse the range of choices for how households, businesses and the taxpayer could contribute towards different elements of the transition to Net Zero.
2. Identify mechanisms to create an equitable balance of contributions.
3. Maximise opportunities for economic growth as we transition to a green economy.
4. Evaluate the trade-offs between cost, competitiveness, effects on consumers and impacts on the taxpayer.

The government published an interim report in December 2020⁴ that acknowledged the challenges of ensuring equity in the low-carbon transition as well as protecting competitiveness. The interim report also noted that the expected scale and direction of costs and impacts are very dependent both on policy choices and on a range of other assumptions. This uncertainty makes it difficult to be conclusive about impacts and makes it even more important that policies are designed in a way that is cognisant of these issues and is flexible.

This paper, from experts at Imperial College's Grantham Institute, Centre for Environmental Policy and Energy Futures Lab, aims to highlight some issues, evidence and case studies that could help the Treasury's review.

The paper starts with the importance of enabling behaviour change and positive feedback effects, then discusses distributional impacts of costs and fairness, and finishes with a discussion of elements that will enable whole-systems thinking to deliver on these principles. Other important factors are outside the scope of this paper, such as the key role of technological innovation and change.

2. Achieving Net Zero at low cost: supporting social tipping points and system change

The Committee on Climate Change (CCC) estimates that more than 60% of measures for Net Zero in the Further Ambition scenario will require societal or behavioural changes to some extent⁵. Shifts in behaviours can, to a significant degree, be paid for by redirecting existing consumer spending from high- to low-carbon products and services, rather than new additional costs. There are also opportunities for the transition to Net Zero

to be more cost-effective if the wider socio-economic systems works together to support change.

The current social environment, for example, is not conducive to the behaviour change needed for Net Zero. However, observing the positive behaviour of others can trigger people to make low-carbon choices^{6,7}. There is evidence of 'social contagion' in a range of energy-related behaviours, including SUV sales, excessive calorie intake, solar-PV adoption and electricity conservation behaviours⁸. More supportive social environments are needed to reduce negative 'behavioural externalities' (analogous to physical externalities, such as air pollution) that influence others to act in negative ways (ibid).

The policy environment, including fiscal incentives, should be one that promotes a virtuous cycle of behaviours that can also offer excellent cost-effectiveness. Inter-dependencies exist between policy, impacts and stakeholders within a complex system where components also adapt, or learn, in response to change^{9,10,11}. Citizen-consumers are one such component who adapt and change in response to changes elsewhere in the system. The Treasury's consideration of spending should acknowledge the importance of using measures – including fiscal policy – to change behaviours and the right policy mix could even trigger behaviour change tipping points, causing disruptive system changes⁹. Figure 1 illustrates the potential for positive feedback loops to create self-sustaining system change in behaviour change and beyond.

The Treasury's principles should recognise the value of supporting the social contagion feedback effect by, for example, making behaviour change more visible, leveraging social proof (being influenced by others to interpret a situation) and facilitating the emergence of new norms.

The challenge is also to identify and select the interventions that will contribute most effectively to kick-starting behaviour change and reinforcing multiple feedback loops. Much behaviour change work advocates making a desired behaviour easy, attractive, social and timely¹³. This can be seen as a matter of lowering barriers to desired behaviours ('7' in Figure 1). Economic levers and price reductions can be one way to reduce financial barriers at this part of the system. These price signals will loosen 'lock-in' to current behaviours by making available alternatives more affordable.

Barriers include social barriers, financial barriers and information barriers. Reducing financial barriers to behaviour change can entail expensive government support, delivered through grants or loans. While it will be critical to address the financial barriers of up-front costs, other barriers to engagement and adoption can be tackled by supporting consumers in the often complex decisions about adopting various technologies. Here digital tools could play an important role and be cost-effective (for example, the development of tools to support tariff and electric vehicle adoption via the BEIS-funded Smarter Tariffs-Smarter Comparisons project). It will be

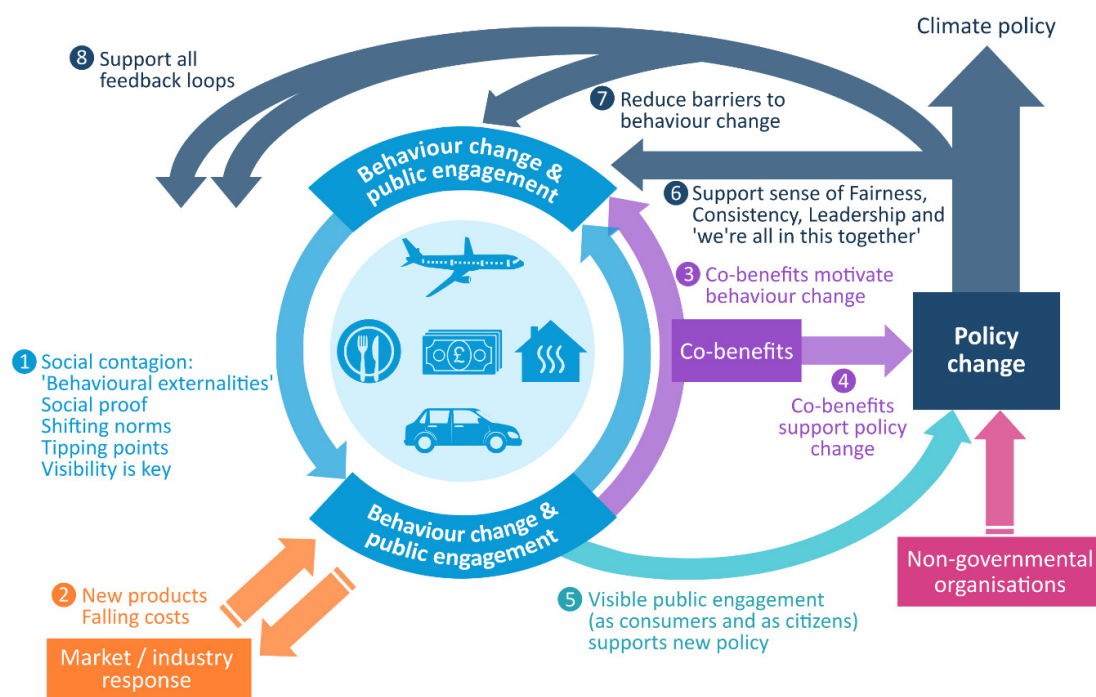


Figure 1: A framework for interventions to build momentum for Net Zero¹².

important to lower as many barriers as possible to behaviour change in the most cost-effective manner.

3. Public acceptability of Net Zero: distributional impacts and the perception of fairness

The GDP costs of Net Zero (compared with an 80% reduction target) are likely to adversely affect low-income and vulnerable households from structural and price changes if no action is taken to counteract this effect¹⁴. There is extensive evidence that the low-carbon transition could disproportionately impact many different groups, such as low-income, elderly, those with chronic illnesses or disability, rural/urban (depending on the sector), renters (especially private), and people who do not tend to switch their energy tariffs¹⁵. Distributional impacts may also be regional¹⁶. The groups most likely to miss out on the benefits of decarbonisation measures may change over time¹⁷, for example, moving from those who do not own homes so cannot install household solar-PV, to those without rooftop PV who might still be paying the costs of PV integration into the network.

The current levies on domestic gas and electricity to pay for low-carbon reforms of the UK energy sector hits low-income households the hardest. The wealthiest households require on average four times more energy than those of the poorest, but only pay 1.8 times more towards the costs of energy policies because these costs are only paid out of household energy bills¹⁸. Individual policies, and overall policy packages need to be checked against these distributional impacts¹⁹ while still incentivising early adoption. There is evidence that using

general taxation, rather than levies on consumer bills, is a more equitable approach. In some cases, redistribution mechanisms or approaches, such as hypothecation of tax revenues, can be useful to restore fairness and equity, as well as the perception of fairness.

3.1 Perception of fairness

Perceived fairness is one of the strongest predictors of policy support and considered by people to be more important in policy than equality²⁰ or policy effectiveness²¹. Perceived fairness includes distributional effects but also equitable enforcement and the availability of viable alternatives^{22,23}.

“Public acceptability can enable or inhibit the implementation of policies and measures to limit global warming to 1.5°C and to adapt to the consequences. Public acceptability depends on the individual’s evaluation of expected policy consequences, the perceived fairness of the distribution of these consequences, and perceived fairness of decision procedures (high confidence).” p.30²⁴

Even if we agree on a principle of fairness, what is considered to be ‘fair’ can still be contested. It is also a challenge to develop policies that target specific demographics to ensure fairness. Perceptions of fairness and the level of concern for one’s own pay-off and the pay-offs of others vary in populations, and the drivers of these differences in values are not necessarily clear or obvious²⁵. Treating people equally may be seen as conflicting with other criteria for fairness, such as protecting more vulnerable/unable to pay households or ‘leave no one behind’²⁶.

In general, people have a tendency to be averse to change²⁷. However, a study of attitudes of Swedish citizens before and after a tax reform shows that people's assessment of what an ideal tax rate would be moves in line with the actual tax rate²⁸, implying that good policy making can move the new normal.

The public care about non-financial and pro-social impacts as well as the direct impact on themselves. For example, people are more likely to accept energy system changes that show signs of commitment to their underlying values – such as energy system components that are clean, efficient, fair and safe²⁹.

Learning and expertise about public engagement with the COVID-19 pandemic and its handling may be applied to public engagement and behaviour change for climate. Recent recommendations from the independent Scientific Pandemic Insights Group on Behaviours (SPI-B) and its members included: be open and honest; respect the public; ensure equity, so everyone is treated the same; be consistent; make clear 'we are all in it together' and share a common social identity rather than a sense of 'us and them'^{30,31,32}.

3.2 Public acceptability

Several quite specific experiments have been carried out to test the public acceptability of taxation policies and other environmental policies, and these highlight a link between the perception of fairness and public acceptability.

In test conditions, people tend to dislike changes in which those who are the least well-off are perceived to be paying more³³. On taxation in general, people often prefer "do no harm" (penalty aversion) and "treat likes alike" (neutrality bias), along with the more familiar "effect no change" (status-quo bias)³⁴. But such norms are numerous and often conflict with one another and individuals can shift between them, depending on which norm has greater salience. As a result, we can observe "preference reversals and shifts in a complex area such as tax, where independently attractive ideals are often in conflict. [...] Models of public policy formation that take into account public opinion must therefore take into account the framing of issues in the popular understanding" p.679-680³⁴.

Other research into environmental policies shows that instruments that "aim at increasing the attractiveness of pro-environmental behaviour, generally obtain more support than [...] instruments that decrease the attractiveness of environmentally harmful activities. Likewise, suggestions for making new, more sustainable, alternatives available to the public tend to be received more positively than policies aimed at minimising established high-carbon practices" p.149³⁵. Although less popular, taxes are more cost-effective. This public preference for subsidies rather than taxes might be explained by a suspicion that environmental taxes are there to raise revenues, not help the environment.

However, ideally, policymakers should not be choosing between making low-carbon goods more attractive or making high-carbon goods less attractive but should be aiming to optimise a combination of *both*. For example, in the health sector, it has been found that price signals (taxes and subsidies) are consistently effective at changing consumption patterns, especially when there are 'close untaxed substitutes'³⁶. Measures to make unhealthy foods more expensive and healthy foods less expensive are among the most effective interventions for changing consumption patterns^{37,38,39}. Offshore wind is another example of combining subsidies with taxation to stimulate changed behaviour – in this case a greater investment in offshore wind, rather than other types of electricity generation.

As detailed below, evidence shows that tax rebates, hypothecation of the money gathered through taxation, good communication, and public engagement in policy making can all improve the acceptance of policies to pay for environmental and climate change action.

3.3 Tax & rebate

The CPLC's Report of the High-Level Commission on Carbon Prices⁴⁰ concludes that carbon prices are an indispensable way to reduce greenhouse gas emissions. The UK has had a range of carbon-pricing initiatives in place for well over a decade, and current levers include the Climate Change Levy (CCL), the EU emissions trading system (EU ETS) and the Carbon Price Floor (CPF). More information on these options can be found here⁴¹. Combining a public dividend with any changes to the current landscape of carbon prices could help to shield poorer households from higher prices for high-carbon goods and could also increase the public acceptability of any changes^{42,43}.

While tax cuts are generally more pro-growth, the benefits of the tax cuts accrue more to higher income households, who pay more in taxes. Recycling revenue from carbon taxes as household rebates is "the most progressive approach; on average, rebates benefit lower income households by more than they incur in carbon tax costs" p.8⁴⁴. The design of the tax and the way in which revenues are recycled can affect the scale of the benefits received by these poorer households⁴⁵. Compensation or rebates might also be appropriate for regions or industries as part of the Just Transitions agenda. For example, the city of Aberdeen is still heavily dependent on the fossil fuel industry and is planning its future on the basis of continued government support⁴⁶. Support for new economic plans and reskilling could assist the region during the transition away from fossil fuels^{26,47}.

The policy space and public interest in direct payments to citizens has changed in the last twelve months. The UK government has provided unprecedented financial support to more than 8 million workers through the furlough scheme and the USA has begun making one-off stimulus payments to all

citizens. These changes have created a changing landscape of public attitudes to this type of support, which is still evolving.

A sense of ‘us and them’, discussed above, is a potential obstacle to public acceptance of new carbon taxes but implementation of carbon taxation combined with public dividend could build a better sense of common cause by showing greater consistency and shielding consumers from cost increases.

By considering the role that rebates at different levels play in improving the fairness of payments for climate change action, the Treasury can positively influence fairness, the perception of fairness, and the acceptance of new policies.

3.4 Hypothecation

Ring-fencing revenues for green purposes is a potential solution to perceptions of unfairness and to address distributional impacts.

For example, directing revenues into energy efficiency improvement programmes for low-income households can lead to a ‘triple dividend’ benefit: environmental benefit of emission reductions, economic benefit for households, and equity all improve through targeting to low-income households⁴⁸.

There is strong evidence, based on studies in the US and Germany, that the way revenue from carbon taxation is used significantly affects the public’s willingness to accept a carbon tax^{42,43,49}. Public support of carbon taxation remains high even for relatively high values of the tax (\$70 per ton in the US, \$50 per ton in Germany) if tax revenue is recycled to fund infrastructure or renewables, support low-income households, offer tax rebates⁴⁹, or for environmental restoration⁵⁰.

Ringfencing (‘hypothecating’) government revenues for a specific purpose is rare in the UK⁵¹. There are also disadvantages to hypothecation, which can tie up money for a series of popular projects, removing the ability of the elected government representatives to spend money flexibly and appropriately to meet a wide range of goals.

However, there is likely to be a need for large investment of public money in low-carbon, resilient infrastructure, and so demonstrating a balance between tax and spend, which will decline over time as revenues from fossil fuel taxation decline, could be an acceptable light-touch approach to revenue use that gives the public confidence in the government’s long-term objectives.

Box 1: What other countries are doing

In British Columbia, Canada, a carbon tax implemented in 2008 was designed to be revenue neutral for the government, as the revenues from the tax were to be used for reductions in personal and business taxes. The measures included tax credits for low-income households and reducing general and small corporate income taxes. For the first two years the tax was revenue-negative, as demand for fossil fuels was reduced more than anticipated⁵². In a survey of British Columbia residents in 2012, 64% of the respondents supported the carbon tax; this fell to 52% in 2014, but by 2016 nearly 70% of residents supported the scheme^{53,54}. The groups that are least likely to oppose the tax are young people, those in high income households (more than \$100,000 per year), those in larger communities, and women^{55,56,35}.

In Alberta, Canada, in 2005 and 2006, the rising price of natural gas increased the provincial revenue surplus and some of the extra money was returned to taxpayers as a cheque of \$400 per taxpayer. Household demand for natural gas fell as the prices increased: in 2005 prices grew by about 22% while household spending on natural gas grew only by about 13%. This evidence implies that returning money to households in this way does not lead to a ‘rebound effect’ of increased spending on fossil fuels. In this case the extra cash was used on other things, such as recreation⁵⁷.

Revenues from the Swiss carbon tax pay for reductions in health insurance premiums and are returned to companies based on their total payroll⁵².

In California, revenues from the state’s cap-and-trade system go into a specific Greenhouse Gas Reduction Fund to finance projects that reduce GHG emissions. Examples of financed projects include solar power systems for low-income households, tree planting in disadvantaged communities, and job creation⁵⁸.

3.5 Communication & inclusive policy making

There is significant evidence that framing of messages around taxation, and also around climate change policies, can have a strong impact on perceptions and therefore public acceptability^{56,59,35}.

Similarly, involving the public in decision-making and policy design increases societal buy-in and the chance that they will ‘own it’, increasing acceptance and engagement⁶⁰. A key finding from case studies of clean energy policy schemes by the EU is that a sense of fairness requires genuine, timely and empowered community involvement from all levels⁶¹.

The Treasury's principles for effective Net Zero policy would benefit from a recommendation on embedding inclusive decision-making, and transparent and good communication into the process of policy development. This communication could include, for example, transparency about the use of revenues.

3.6 Fair access to finance

As public funds are limited, it may become important to prioritise support for actors who have limited access to finance. The transitions to low carbon heat and transport often require significant up-front capital and are an important source of inequality. It might be appropriate to tailor solutions to service different groups – be they individual or industrial.

There are several tested options for assisting with access to finance that the Treasury could consider in its review. Revolving funds can provide long-term, transparent funding. One study estimates that a revolving fund could reduce the cost of retrofit for UK domestic energy by £9bn, or 26%, and be cost neutral in the long term⁶².

Channelling funds to the local level could help to address existing inequalities alongside providing funds for the Net Zero transition⁶³. Government-backed loans are also a well-established tool to enable access to capital see, for example, the Help to Buy deposit scheme and the recent HMT-backed loans for businesses during the COVID-19 outbreak via British Business Bank⁶⁴. Energy efficiency investments also have the potential to tackle inequality while reducing emissions and creating jobs⁶⁵.

Private sector funding will be needed to deliver the volume of up-front investment.

“The best way to increase the flow of climate finance, therefore, is to enhance the risk–return profile of mitigation and adaptation investments or to penalize high-carbon and maladaptive investment. A corollary is that climate finance is not just about new funding, but about adjusting existing investment behaviour” p.203⁶⁶.

Working with the private sector, the Treasury might identify approaches that enhance this risk-return profile, making investments attractive. Beyond state finance, peer-to-peer funding also provides an opportunity for institutional and individual investment, with online marketplaces well-established in the UK (see, e.g. Funding Circle). There may also be opportunities for public policy to support greening of institutional investments, e.g. pension investments.

Box 2: Other countries

Revolving funds have already been used to deliver sustainability around the world e.g. the US Clean Water State Revolving Fund (USEPA, 2015), the Thai Energy Efficiency Revolving Fund⁶⁷, the UK SALIX revolving fund (SALIX, 2015) and the US Sustainable Endowments Initiative (SEI, 2015).⁶²

4. Taking a systems-wide view

We strongly believe that the UK government needs to take a joined-up approach to decarbonising the economy. It is inefficient to stimulate decarbonisation with some funds while stimulating the creation of greenhouse gases with others, and it also undermines public engagement because it is inconsistent. A joined-up approach should include:

- using market incentives to stimulate behaviour change across the whole economy,
- supporting positive feedback effects between different parts of the system
- stopping fossil fuel subsidies (according to a broader definition)
- working to avoid offshoring of emissions
- accounting for co-benefits of climate action when making the case for expenditure

Behaviour change and feedback effects were discussed at the beginning of this paper, the final three issues are treated below.

4.1 Fossil fuel subsidies

The UK government's current aim of maximising “the potential economic value of the UK's remaining oil and gas reserves”⁶⁸ is contrary to the aims of global decarbonisation targets.

In line with the International Energy Agency (IEA), the UK government defines fossil fuel subsidies as “government action that lowers the pre-tax price to consumers to below international market levels”^{69,70} and does not have fossil fuel subsidies under this definition⁷¹.

However, the European Commission shows that the financial support for fossil fuels in the UK, at 12 billion euros in 2016, were the highest in Europe. This broader support could include lower tax rates on oil production. The British government cut the highest tax rate on North Sea oil production from 80% to 68% in 2015, and again to 40% in 2016”⁷². This has led to a drop in domestic tax revenue from £11 billion in 2011/12 to £35 million in 2015/16 (ibid). The UK also offers financial support to the fossil fuel industry in the form of tax relief for the decommissioning of old production and transport facilities⁶⁸ and lowered taxes to support the development of new oil and gas projects⁷³.

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The money spent on financial support for the oil and gas industry is clearly at odds with the higher-level goal of mitigating climate change through global decarbonisation efforts. There is also an opportunity cost to these investments which tie up capital that could be supporting low-carbon industry, technology and jobs⁷⁴.

We suggest that the UK should phase out the support of new fossil fuel projects, both in the UK as well as abroad, through taxation and policy instruments. The announcement in December 2020 to end export finance for most new fossil fuel projects as soon as possible, was a good step in the right direction. However, policies should focus on reskilling and pivoting the sector, ensuring a just transition that sustains the economies of regions currently dependent on fossil fuels.

Box 3: Action by other national governments

- Norway has divested its sovereign wealth fund from oil and gas interests.
- Phase-out of coal-fired power in Alberta including government-funded transition programmes⁷⁵. This has a participatory design and community support⁷⁶.
- A Just transition approach to removing coal subsidies in Northern Spain⁷⁷. The government will support fossil fuel employees to transition to alternative careers: “The draft law, once approved, would immediately ban all new coal, oil, and gas extraction projects, end fossil fuel subsidies, and lay out a pathway to generate 100% renewable energy and reach carbon neutrality by 2050.”⁷⁸
- Border carbon adjustment has been announced as part of the EU Green New Deal as a means to avoid offshoring⁷⁹.

4.2 Avoiding offshoring of emissions

The UK’s Net Zero greenhouse gas emissions target is for domestic emissions, including aviation and shipping. Much of the UK’s activity, however, is supported by the production of greenhouse gas emissions abroad, resulting in emissions effectively being ‘offshored’ and embedded in imported goods. It would be futile to impose costs to reduce greenhouse gas emissions in the UK that merely served to transfer the greenhouse gas emissions to another part of the world.

Although intuitively appealing, there is limited evidence in the literature as to whether more ambitious climate policy (e.g., higher carbon prices) necessarily leads to increased offshoring, and few signs that it has occurred^{80,81}. Industrial players have constantly warned of the risk of offshoring but little evidence has been found. The counterclaim is that this so-called carbon leakage will only occur as climate targets tighten, but this statement is impossible to disprove, and would depend on the status of global climate action, amongst other factors.

Nevertheless, emissions offshoring is a genuine concern for the UK as it strives for Net Zero. Policies which result in emissions offshoring are counterproductive, both for global emissions targets and the UK economy. It is vital that the UK mitigates this effect as far as possible⁸².

From a carbon perspective, domestic industry that is Emissions-Intensive and Trade-Exposed poses the highest leakage risk if offshored. However, from an economic perspective, it may be that lower-emission industries are more at risk of offshoring in response to Net Zero policy, because of their relative mobility compared to high pollution industry⁸³.

Many of the tools for preventing offshoring need to be devised at the level of detailed policy making. However, some measures are fiscal, and would seem to fall within the scope of the Treasury review. These measures include border carbon adjustments (BCAs). A BCA provides an even playing field between domestic products subject to a carbon price and foreign products that have not been subject to an equivalent carbon price. It can also be applied to uneven environmental standards between regions. Under a BCA, foreign products are subjected to a carbon price when entering the domestic market, and domestic products have their carbon price waived in international markets⁸⁴. The EU is the first trading bloc to announce plans to establish a BCA, beginning with simpler goods, such as cement, before addressing composite products such as cars⁷⁹.

A test for the likelihood of offshoring could be an important part of a set of principles to emerging climate policy. Although it is vital that such a provision should not be used too broadly, because offshoring has been used repeatedly as an argument against controlling emissions. The UK is at the beginning of intense negotiations of new trade agreements with partners around the world. This is a key moment for the Treasury to actively consider and promote principles that can support trade that protects against emissions offshoring, which may include a transparently and carefully designed BCA⁸⁵. The UK could use a BCA to co-operate with the EU and implement something together, assuming carbon pricing ambitions in the UK and EU remain similar. A regular review of departmental policies with offshoring concerns could be designed as part of a feedback loop that relates to any fiscal or border trade measures that the Treasury might promote.

4.3 Co-benefits

There is extensive literature on the co-benefits of climate change action, particularly for health and the economy, including job creation^{86,87}. Taken across the UK as a whole, the CCC estimate that if co-benefits of carbon emissions reductions were monetised they “would partially or possibly even fully offset the resource costs we have estimated (i.e. up to 1-2% of GDP in 2050)”, p.30.⁵

MPs find it easier to justify policy on social and economic grounds⁸⁸ and it is easier to gather political support for policies on the basis of co-benefits⁸⁹. Co-benefits accrue and can be enjoyed on much more rapid timescales than the climate change mitigation benefits of reducing emissions. Therefore, co-benefits have excellent potential to drive and support behaviour change and public engagement as well as the process of policymaking. It is vital to maximise these co-benefits, make them visible and communicate them clearly (see feedback loops 3 and 4 in Figure 1).

The impacts of the co-benefits of climate action on GDP are not included in the resource cost estimates by the CCC and co-benefits are specifically excluded from the Terms of Reference for the Treasury review. However, it is important that when assessing individual policies, or policy packages, for their fairness and overall cost to the public purse, the co-benefits dimension of some of the easiest-to-quantify avoided or additional costs are included.

It is also vital to engage with the public on the scale of these savings, where it helps explain who is paying for, and benefiting from, the transition to a zero-carbon economy.

5. Reflections

The Treasury's role is to identify different approaches to sharing the cost of decarbonisation, not to craft the roadmap or the policies within it.

However, it would be helpful if the Treasury's guidelines indicate priorities and wider objectives, such as the inclusion of fairness and perception of fairness into policy design recommendations, because these affect the ultimate cost-effectiveness of activities.

It is most important that the Treasury builds the base of fiscal and economic tools, including investments that influence greenhouse gas emissions in any way, and ensure that these are consistently pushing in the direction of Net Zero. These activities will form the basis of the structure for decarbonisation policies and will be enhanced by specific policies and measures delivered by ministries relevant to their remit.

We would encourage Government and departments to build on the Treasury's principles for effective Net Zero policy by carefully considering how these will be embedded into policy-making processes. This integration could include more participatory approaches in policy-making (building on the work of the Climate Assembly UK), climate impact assessments of all proposed policy, and robust and transparent ex-post assessment of policy impacts, including the monitoring of public engagement and co-benefits accrued.

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