



Policy Brief

Two keys to unlocking a resilient, sustainable, more equitable and prosperous net zero transition

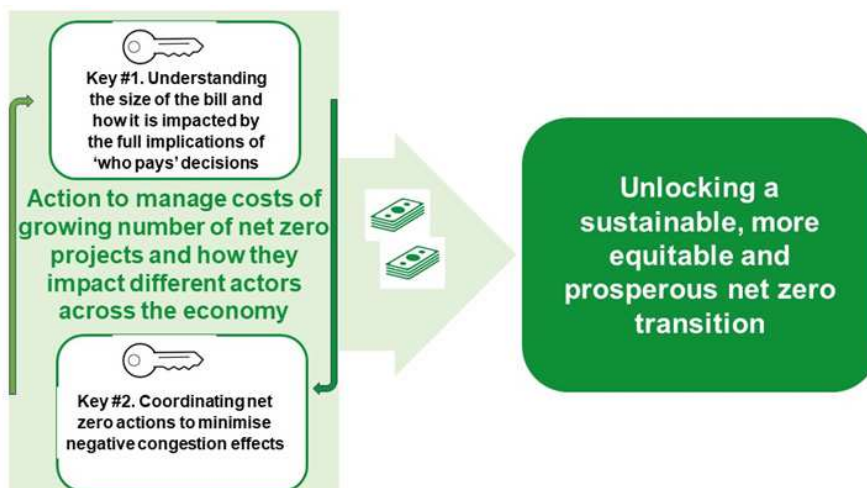
By Karen Turner, Hannah Corbett, Colin Pritchard and Jamie Speirs

Net zero is fundamentally a public policy challenge that will require Government leadership in developing economically, socially and politically feasible policy pathways underpinned by broad societal consensus. To achieve this, and to avoid driving up the costs of net zero projects and the transition more generally, Governments must focus on strengthening and applying understanding in two key area areas. First, around decisions on who pays, and what this may mean in terms of who ultimately pays, and in what ways. Second, the potential congestion effects associated with multiple net zero actions taking place simultaneously or in condensed timeframes through exacerbated resource competition. Crucially, congestion effects will impact the level and distribution of economic costs and gains, pointing to the necessity for informed setting of, commitment to and monitoring against targets.

The debate and evidence base development around the net zero transition generally focusses on different technical solutions (e.g., electrification vs. hydrogen) and some key challenges (e.g., decarbonising residential heat in affordable ways). However, our research demonstrates that, because of the complexity of the constrained and dynamic economic system in which the transition is taking place, combined with ongoing political change and shifting of key milestones, renewed and sustained attention by policy makers is required in two key areas. These will be key to unlocking a sustainable, more equitable and prosperous net zero transition and, crucially, one that is resilient to economic and political change and uncertainty.

1. The importance of understanding ‘the size of the bill’, who ultimately pays how and when, and how gains emerging could help deliver better outcomes. Crucially, the responses of different producers and consumers to additional costs and how they may be passed on will have implications for both the balance of net costs and benefits across the economy and how they are distributed. Policymakers need to understand how the full potential implications of any approach to funding may evolve and effect the wider economy and, thus, the cost/benefits balance. This understanding can be applied to addressing any undesirable consequences of the adopted approach.

2. The nature and impact of congestion effects on project and system costs, their implications for the size and nature of the total bill, and the mitigating role of coordination. Crucially, multiple net zero activities need to roll out alongside a range of other investments and activities, all in the face of labour and other supply-side constraints, bringing additional competitive resource cost pressures. Policymakers have a key role to play in coordinating and incentivising the timing of net zero actions to avoid or minimise undesirable impacts of congestion on the total bill to be paid, including around how targets are set, reviewed and updated.



Crucially, these two key challenges need to be considered alongside one another as the impact of congestion and bottle necks will affect the nature and magnitude of costs and benefits emerging in different timeframes. Put another way, congestion effects will act to inflate the ‘bill’ that needs to be paid, as well as the trajectory of how the economy – and incomes and prices therein - adjusts to net zero actions and other changes in activity. Moreover, this is set in the context of the bill not being otherwise fixed i.e., as we continue to emit there is more of a climate change problem to mitigate. Thus, how congestion effects manifest and impact (including on the ‘who pays’ challenge) could become much more extreme as multiple net zero actions roll-out and scale up down the line. That is, as more actors try to act on an increasing number of net zero projects, requiring more resources, further down the line. We explore each key in more detail below.

Key #1. Understanding the full implications of ‘who pays’ decisions

Who pays’ (and how and when) is often taken to be a distributional and fiscal question. For example, in terms of how socialising the costs of electricity network infrastructure development to support electrification of heat and transport through consumer prices is likely to be regressive relative to a taxpayer funded approach. However, all ‘who pays’ approaches will also impact the ‘size of the bill’ and the extent of any wider economy gains (and their distribution). This is because whoever is chosen to pay directly will react through their production and consumption decisions, triggering further impacts that manifest through a wide range of markets and behaviours. Take, for example, industrial decarbonisation:

- A ‘government pays’ approach may unlock a range of direct and multiplier benefits, for example through the emergence of nascent activities like CO₂ Transport and Storage.
- However, government pays means the taxpayer pays, now or in the future, which generally means households pay, through reduced take home wages, and, in turn, more consumer-facing sectors (and employees therein) as households adjust spending.
- If ‘polluters pay’, firms will try to pass the additional costs to consumers in domestic and external markets, with consequent impacts on the cost of living and doing business, which affects all private and public spending power.
- But if consumers can shift their demand to avoid those costs, firms will lose competitiveness, triggering GDP and employment losses, which takes us back to a ‘households pay’ outcome, but potentially a worse one than taxpayer or consumer pays.

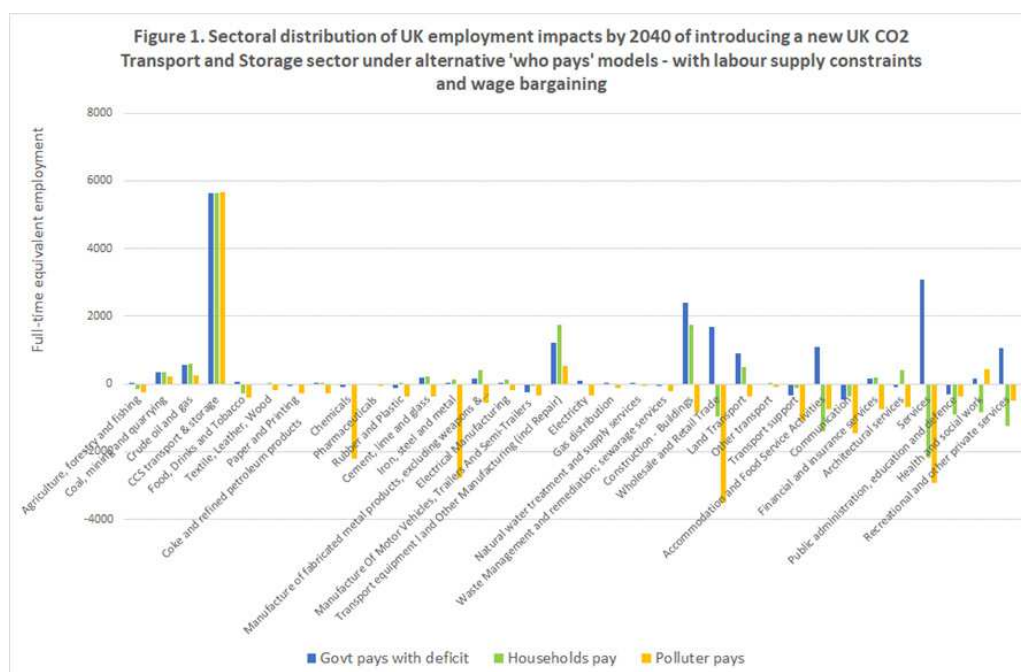


Figure 1 (adapted from peer reviewed CEP research) illustrates how (here for the case of emerging Scottish CO₂ Transport and Storage activity to support industrial decarbonisation) the net positive vs net negative employment outcomes at UK-wide and sectoral levels can vary substantially depending on the ‘who pays’ approach adopted. Thus, one key to unlocking prosperous transition pathways lies in policymakers understanding the full potential implications of decisions and reflecting these in their decision making, which includes intervening to maximise and manage the distribution of the benefits that can help mitigate costs, overall and on different groups in society.



Key #2. Coordinating net zero actions to minimise negative congestion effects

Another recurring finding in CEP research has been how persisting worker and skills shortages trigger wage bargaining processes in the supply constrained UK labour market, with the consequence that any potential net GDP and employment gains will be constrained and possibly even negated by cost and price pressures spreading throughout the economy.

However, the dynamic impacts of resource competition on the wider economy outcomes of any one (e.g., the four regional CO₂ Transport and Storage projects) or combination of different net zero (and other, e.g., road or hospital building) activities is not straightforward. This is because the constraining impacts of bottlenecks at any one point in time will influence the trajectory of activity and prices, possibly exacerbating congestion further down the line. Moreover, this points to a risk in attempting to assess the economy-wide impacts of different net zero actions by summing across estimates produced for each one, even where individual estimates do take account of the impacts of things like labour supply constraints. This is because congestion effects will be exacerbated by the pressures of multiple activities taking place at the same time. This is a point reinforced by recent CEP research on the impacts of CO₂ Transport and Storage activity emerging around the Track 1 and 2 CCUS clusters in Figure 2 (taken from [CEP's final report on the UKRI-funded Scotland's Net Zero Infrastructure Project SNZI](#) project).

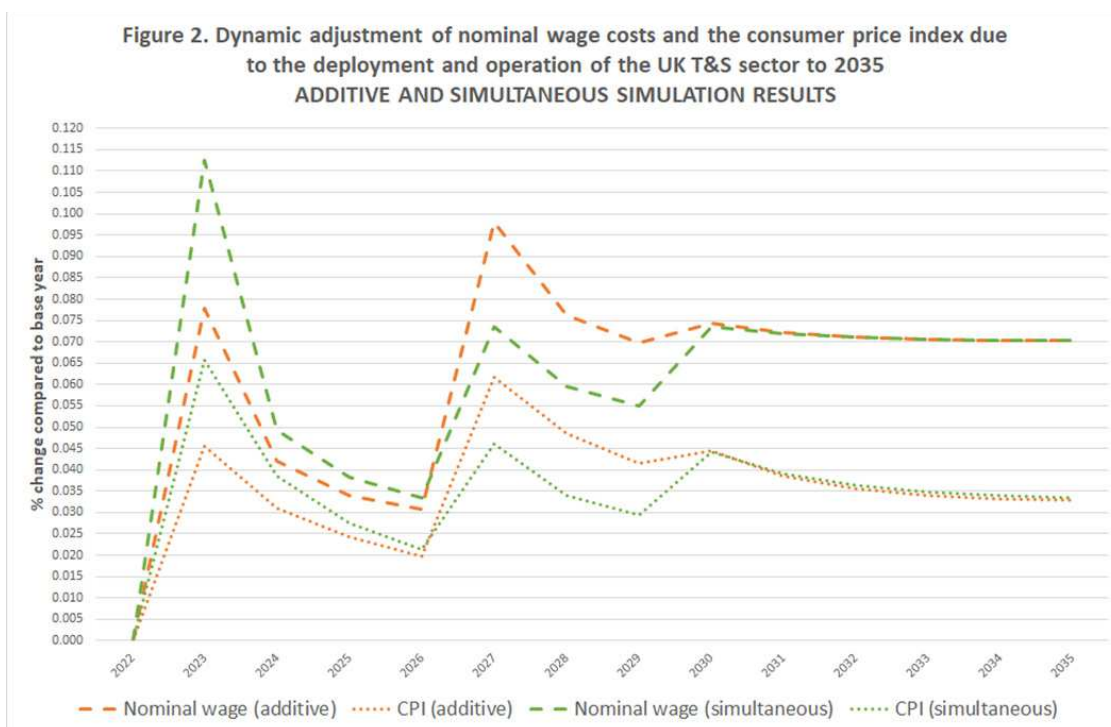


Figure 2 demonstrates that - even for a combination of relatively small-scale net zero activities (on a single action with some level of coordination) - adding across estimates of the impacts on consumer prices, and nominal labour costs to producers (as a key underlying driver of consumer price index, CPI, impacts) will not give a sufficiently full picture. Here, comparison of our additive and simultaneous simulation results (across the four cluster cases) shows that the former initially underestimates the initial combined (simultaneous) pressures on labour/wage costs and, thus, also the wider CPI impacts. In turn this will impact headline measures of employment and GDP, both of which will be depressed by greater cost and price impacts so that underestimating price pressures will lead to overestimating activity impacts at both sectoral and macro levels. Moreover, as shown in Figure 2, over time an initial overestimation of activity levels under an additive approach to assessing impacts risks also overestimating subsequent price and cost pressures in the economic system (i.e., our additive cost-price impact estimates overtake the trajectory of our simultaneous simulation).

Crucially, our CO₂ T&S is just one, relatively small, element of planned transition activity. Thus, the differences between additive and simultaneous scenario simulation impacts in Figure 2 are likely to be exacerbated as more and larger actions come into play. This implies a need for policy leadership in both assessing the likely impacts of the simultaneous rollout of different net zero actions and, using intelligence and evidence emerging, to coordinate net zero action in ways that minimise congestion impacts and smooth bottlenecks. This may involve incentivising timing of actions to minimise system costs and maximise benefits.



Conclusions

As Governments seek to implement their agendas to tackle the pressing public policy challenge of net zero, a focus on the two key areas identified and discussed here could aid effective decision-making and accelerate progress. It should not require any further slowing of action. Rather, it should stimulate collation of and attention to existing evidence and prioritise attention on identifying and bridging gaps in the evidence base and the policy and stakeholder understanding enabled. This is necessary to ensure we pursue policy pathways to a transition in ways that ensures we do not risk further 'inflating the bill' of net zero and/or lose out on benefits through a lack of attention to minimising congestion effects. Both of these risks will be worsened by delayed action in the fixed now-to-mid-century timeframe, including postponing targets and milestones.

Crucially, the central finding of the [2006 Stern Review](#) that "... the benefits of strong and early action far outweigh the economic costs of not acting" still stands. In delaying action to prevent climate change, we are increasing the cost of having to act later to mitigate the consequences, but the decision of "who pays?" will still need to be resolved, before the total bill becomes much bigger as the climate change problem becomes worse. Moreover, it is crucial to ensure that unanticipated consequences of decisions around who pays do not damage prosperity and make inequalities worse as the economy moves through the net zero transition process.

As a result, there are a number of key implications that need to be considered within the context of the current policy environment and inform the agenda setting of whoever forms the next UK Government. These include:

- The Climate Change Committee (CCC) is due to advise the UK Government on its Seventh Carbon Budget in early 2025. Modelling of potential scenarios around how the costs of the transition are to be met must form part of this analysis and in turn inform subsequent decision-making as part of this process (and future carbon budget processes) which will require interaction between UK Government and the CCC.
- Government decision-making around both individual actions, such as the deployment of new technologies such as linked renewable electricity and green hydrogen production, carbon capture, utilisation and storage (CCUS), and simultaneous action across the decarbonisation space, needs to be shaped by an understanding of the wider economic costs and benefits (and their distribution) of different approaches to funding. This can help mitigate any negative unintended consequences, which could potentially undermine public support and the consensus around net zero.
- Mechanisms to effectively coordinate planning (at national, devolved and local levels) around net zero deployment including ensuring necessary skills and supply chain capacity are in place should be articulated through frameworks such as the Net Zero and Nature Workforce Action plan (which is currently being developed by UK Government).
- The setting, reviewing and updating of targets against which progress is measured and different groups held to account is critical. A lack of careful consideration in this area could act to worsen congestion challenges, thereby driving up costs and reducing potential to realise economic gains, as well as undermining vital consensus around net zero.

More broadly, net zero workforce and broader planning and coordination of net zero actions must be integrated within wider economic decision-making, industrial strategy and labour policies. This is critical given the current economic constraints and geopolitical uncertainties, and because one way or another the transition has and will transform the lives and livelihoods of individuals and communities across the UK. However, the key point is that we have the ability to shape those outcomes for the better, but, crucially, time is running out to exploit opportunities to maximise any benefits of the transition and limit costs.

Further information and contact

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