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A net-zero emissions economic recovery from COVID-19

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Abstract

1. Economic growth will be a high priority for all countries in the months and years following COVID-19. The transition to net zero emissions can significantly contribute to the recovery.
2. There are lessons from recovery packages following the 2008 financial crisis, but the COVID-19 crisis has had a different structural impact on demand and supply (Section 2).
3. In the lead up to COP26, the UK could provide guidance and methodologies to evaluate proposed recovery packages for consistency with Paris and net zero emissions (Section 3).
4. The UK could lead by example with a recovery package including components on net zero buildings, energy storage, clean industry, transport and greenhouse gas removal (Section 4).
5. Institutionally, this could be supported by establishing a Climate Change Emergency Committee and a Net Zero Delivery Body to implement a coherent response (Section 5).
6. Financially, a new National Investment Bank and focus on green financial instruments could significantly scale-up private investment (Section 6).
7. The UK could help other countries develop net zero recovery packages by instigating a new flexible intergovernmental Sustainable Recovery Alliance (Section 7).

1. Introduction

The COVID-19 emergency has several parallels to the climate emergency. They both represent major systemic risks to human welfare and prosperity, requiring high-quality expert advice to play a key role in shaping the response. In both instances, preparation and cooperation are vital to success.

Emergency COVID-19 economic **rescue packages** have been designed and implemented around the world, already totalling over GBP 6 trillion in G20 nations.¹ Such packages have been necessary to ensure the continued solvency of businesses and the livelihoods of citizens. These packages rightly focus on prevention of immediate harm, rather than reduction of greenhouse gas (GHG) emissions.

In the coming months, however, longer term COVID-19 economic **recovery packages** will be introduced by governments around the world, including the UK. These longer-term packages will have a significant impact on the UK's future prosperity, including its potential to meet its legally mandated net-zero emissions obligation. Collectively the packages will strongly influence whether the targets agreed at COP21 in Paris are met.

This background paper provides greater detail behind the proposals in a COP26 Universities Network Briefing for UK BEIS.² It was developed alongside a related research paper.³ Here, we identify ten fiscal recovery policies (see Table 1) which promise to bring both short-term beneficial economic impact and long-term structural change through decoupling GHG emissions from economic growth. These policies would support the UK to meet its legally binding commitment to net-zero emissions by 2050 while achieving wider social equality by 'levelling up' and addressing regional and intergenerational disparities, as affected workers are retrained, and physical infrastructure and environmental assets are improved.

Strategic investments at the scale required to achieve net-zero emissions would contribute significantly to the economic recovery required by the COVID-19 emergency. According to April 2020 Ipsos polling, the UK public supports green recovery action.⁴ This background paper reviews historical and emerging evidence to make recommendations in four areas: (i) lessons from previous recovery packages; (ii) the appropriate evaluation framework for recovery packages; (iii) how the UK might lead by example through its own recovery; and (iv) how the UK might support other countries in the lead up to COP26 in 2021.

Table 1: Summary of policy item recommendations

Policy Items	Description
Energy generation, storage, and distribution	Invest in zero carbon energy production, storage infrastructure, and interconnection; extend and modernise the grid to support higher renewable penetration and electrification of heat and transport
Reducing industrial emissions	Introduce financial incentives (e.g. wider carbon price floor) for industrial companies to reduce net carbon emissions and increase efficiency in production
Research and development	Invest in high impact sustainability technology research and development that includes start-ups, small and medium-sized enterprises, and large companies
Building climate-smart infrastructure	Investment in low and zero-carbon infrastructure projects, such as public transport infrastructure, that are also resilient to the impacts of climate change, such as flooding
Broadband connectivity investment	Investment in broadband infrastructure to increase full fibre coverage beyond the current set of <10% of UK homes
Nature-based solutions investment	Investment in ecosystem resilience and regeneration by enhancing green spaces, planting trees, and encouraging climate-friendly agriculture and restoring carbon-rich habitats
Electric vehicle conversion	Incentivise uptake of electric cars through financial incentives and fast-charging infrastructure and improve bike lanes to encourage wider uptake of e-bikes
Home renovations and retrofits	Higher carbon standards for new-build homes; financial support for households installing insulation and other energy efficient improvements
Education and training	Funding skills and retraining initiatives, such as through digital further education, to address structural unemployment effects resulting from decarbonisation measures
Conditional bailouts	Bailouts for struggling firms, conditional on improvements against climate-positive criteria, especially for fossil fuel intensive companies such as airlines
Modified supporting structures	
Climate Change Emergency Committee (CCEC)	Rename the Cabinet Committee on Climate Change to the CCEC to ensure that COVID-19 economic recovery is achieved alongside net zero by 2050, through higher visibility and authoritative allocation of government resources
Net Zero Delivery Body (NZDB)	Establish a new NZDB to formulate and deliver a Net Zero Delivery Plan based on independent advice from the Committee on Climate Change
Green sovereign bonds	Issue national green recovery bonds to focus funding on sustainable investment
National Investment Bank	Establish a National Investment Bank to manage and reduce risk in infrastructure projects, and leverage private finance towards a green delivery pathway
Mobilised savers and investors	Direct capital towards green projects through 'recovery plan' ISAs; reducing regulatory frictions in insurance (Solvency II) and retail investment (MiFID)
Financial instruments	Introduce new financial instruments to reduce risks involved in climate-friendly investments, such as contract-for-differences or a regulatory asset-based finance model
Global leadership	
Sustainable Recovery Alliance	Establish an informal global alliance at COP 26 to promote global coherence among recovery packages, build resilience to shocks, and interface with existing initiatives such as Mission Innovation, the Carbon Pricing Leadership Coalition, and the NAP Global Network.

2. Theory: Learning from the Global Financial Crisis (GFC)

2.1 Rapid spending with high economic multipliers

The COVID-19 post-pandemic economic slowdown is likely to be different in nature to the GFC of 2008. The banking system and corresponding financial plumbing remains functional, unlike in the GFC, yet both demand-side business activity and physical supply lines will need rebuilding. Nevertheless, common to both crises is an uncertainty and lack of confidence in economic outlook, creating an environment in which consumers are likely to retrench on spending. In this same environment, businesses will continue to cut investment and shed labour, and without intervention banks will become more cautious in extending credit. The combined impact of these actions will prove self-fulfilling in delivering a weaker economy through classic Keynesian ‘multiplier’ and ‘accelerator’ effects, where a small reduction in spending leads to a multiplied reduction in national income. This mechanism is common to all major historical macroeconomic recessions.

The economic impact of the pandemic, and the measures taken to deliberately close down economic activity to prevent contagion, is estimated at £2.4 billion per day in the UK alone.⁵ By the time the pandemic is deemed mostly under control, both demand and supply capacity will have taken a knock. Moving from relief to recovery will therefore require action to simultaneously restore demand and bolster supply. The slowdown comes at the end of a long period of low productivity and surplus desired saving, pushing global neutral real interest rates close to zero.⁶ With policy rates so low, the limitations of monetary policy to boost demand require an emphasis on public borrowing to provide fiscal support.

The focus of any recovery plan should be channelling global desired saving to stimulate growth. Global interest rates have been so low for so long because too much global saving has been chasing too little investment. During and following the GFC, expansionary policies which focussed on investment were more effective at restarting economic activity than austerity-based policies. This testifies to the importance of understanding and assessing ‘multipliers’ which reflect strong returns to public borrowing to boost spending and investment.⁷ The response to the financial crisis of 2008/2009 showed that the best strategy for public debt sustainability is investment in growth.

Studies from NBER⁸ and the IMF⁹ show that fiscal multipliers associated with government spending fluctuate from near zero when the economy is operating close to capacity, up to 1.5-2 or even 2.5 respectively during recessions, such as the one we currently face.¹⁰

With such multipliers, increased tax revenues will go a long way to financing the initial expenditure. Government investment in a slump not only generates positive benefits, it also prevents negative hysteresis effects on future supply, whereby capital is scrapped and labour skills are lost as a result of protracted under-utilisation.¹¹ Llewellyn Consulting applied estimates only to fiscal injections based on *additional* borrowing (rather than measures carried out within an unchanged borrowing envelop, which merely substitutes borrowing elsewhere). Using three models for the UK by the IMF and the OECD, they find that the multiplier lies in a narrow range of 2.5 to 3.0.¹²

Policymakers must decide which key assets to focus UK investment on, reflecting changing technologies and the need to generate growth and secure competitiveness in the 21st century. Key areas for investment will include: intangible and knowledge capital to induce dynamic innovation and secure economies of scale in production; human capital to secure the skills and jobs necessary for a 21st century economy; social and institutional capital to deliver effective and functional government and (especially renewable) natural capital to provide the lifeblood of social and economic activity.

2.2 A sustainable recovery

The climate challenge today is more urgent than it was during the GFC, due to a higher level of the global atmospheric stock of GHGs. It is important that governments act to reverse continuing carbon lock-in and the coupling of GHG emissions with economic growth. The opportunities today are also much greater following sharp reductions in the cost of renewable and resource efficient technologies. Environmental, social and governance considerations, and the risk of asset stranding associated with propping up unproductive and redundant high carbon sectors, are much higher on the investor and regulator agenda. Finally, tackling climate change is higher on the political agenda with climate-positive measures far more politically and socially welcomed.

In the short run, there is strong evidence that green stimulus policies are economically advantageous when compared with traditional fiscal stimuli. Studies evaluating green packages in the wake of the GFC found that green projects, such as renewable energy infrastructure lead to higher numbers of jobs created compared with traditional stimulus and long-run cost savings.¹³ High labour intensity yields multipliers above one in the short run, because new jobs stimulate demand and crowds in spare resources. In the long run, however, activities with lower productivity has multipliers below one. In the short run, clean energy infrastructure is particularly labour intensive as it is developed and installed, creating twice as many jobs per dollar as fossil fuel investments.¹⁴ Similarly, construction projects, like insulation retrofits and building wind turbines, are less susceptible to offshoring than

traditional stimulus measures.^{15,16} In the long term, as the operation and maintenance of more productive clean technologies makes them less labour intensive they generate higher long-run multipliers arising from resulting energy cost savings.¹⁷ This has significant flow-on effects to the wider economy.

Investment more broadly in clean technologies, such as electric vehicles (EVs), lowers their costs and, as they outcompete fossil fuel alternatives, helps to accelerate deployment and innovation in a virtuous reinforcing cycle.¹⁸ The “clean innovation machine” can be more innovative and productive than the conventional high-carbon alternative; knowledge spillovers generated along the way then benefit the whole economy.¹⁹

It follows that there is significant potential to improve the quality and impact of the UK recovery package by explicitly mandating that investments must collectively target a net-zero emissions future. During the 2008/09 global financial crisis, governments embarked on a variety of green stimulus programmes, amounting to 16% of the total public stimulus.²⁰ This time around, governments can be more ambitious as available options are now cheaper. These investments include efficiency retrofits of homes, zero carbon new homes, zero carbon enabling infrastructure (including for renewable energy) and connected demand response mechanisms, public transport and electric vehicles, as listed in Table 1. Combined with historically low interest rates, this represents a sizable opportunity to finance green projects if supported by long-term contracts and government-backed counterparties.

In doing so, it is important that the government recognises the distributional issues that need to be addressed in the recovery. Young workers are most exposed to the economic impact of the lockdown, as employees aged under 25 are more than twice as likely to work in a sector shut down as a result of social distancing - low earners are also seven times more likely to work in these sectors.²¹ Meanwhile, wealthier households are likely to accrue savings and assets during the crisis, as their spending is typically higher on activities that are prohibited by the lockdown. Any fiscal recovery plan should be socially inclusive, helping those most impacted by any pandemic-induced recession, or “pancession”. Where appropriate, policy design should target co-benefits which address inequalities – whether associated with wealth, education, health or other. For example, energy efficiency retrofits could be targeted towards lower income households that have a higher likelihood of forgoing heating in the winter due to cost. Any new recovery initiatives will also require training of new staff and, where necessary, retooling and reskilling those whose livelihoods are threatened by the shift away from carbon-intensive production. Against a background of trends that will rapidly generate unequal impact, from AI and automation to ‘Big Data’, it is imperative that a recovery package addresses worker dislocation through investment in repurposing human

capital and investing in natural capital to improve the environmental and physical infrastructure assets inherited by future generations. By integrating the environmental and the social in this way, the recovery plan would help to realise the objective contained in the Paris Agreement of achieving a 'just transition'.

Finally, government spending on a sustainable recovery may lead, in due course, to public acceptance of higher taxes to pay for the public spending. In the UK, this may provide an opportunity to extend the idea of the carbon price floor, introduced in 2013, beyond the electricity sector. Now is a good moment, with highly volatile oil prices, to plan to eliminate fossil fuel subsidies, or introduce or broaden carbon prices that might be inversely linked to fossil fuel prices, smoothing out the impact of wild swings in fossil fuel markets on consumer prices.

3. Measurement: A framework for evaluation of net-zero recovery packages

The success of a recovery package should be evaluated based on whether it achieves shorter-term goals of renewing economic activity, and longer-term structural goals, including addressing wider social inequalities, levelling up regional disparities, and whether the recovery is consistent with the transition to net-zero emissions. Guidance on a set of evaluation criteria would help governments rapidly screen policies to develop their recovery packages. Once selected from this pool, policies can then be targeted in both application and mechanism to meet the specific non-economic, non-green objectives of government. For instance, investment in worker training programmes for emerging industries can be targeted to low income groups. Similarly, assistance for small businesses to purchase new energy-efficient vehicle fleets can be made available in the form of direct subsidy as opposed to complex conditional loan agreements. Additional funding for clean research and innovation projects could bring UK funding levels up to EU average levels, with additional incentives for SMEs, which would deliver high medium- and longer-term benefits. This should be coupled with an overhauled approach to funding processes to radically reduce assessment and decision-making lead time.

Economic metrics

Fiscal injections in a time of economic recovery are often described as ideally being 'timely, targeted and temporary'.²² One might add 'transformative' as a desirable attribute to capture the idea that post-crash recovery should play a broader role than simply providing short-term stimulus.²³ Fiscal recovery can and should help to address the broader long-term challenges facing a nation and accelerate the positive transitions already underway. It is within this

context that we build our framework for evaluating the economic metrics of a sustainable recovery package.

Having reviewed previous fiscal packages from multiple geographies, we found that two policy attributes have a particularly pronounced role in shaping policy impact: the economic return for every dollar of expenditure (i.e. its short- and long-run economic multipliers) and the time required for legislation to bring real-world impact (i.e. its speed).²⁴ While the latter relates directly to a measure of timeliness, the former speaks to the importance of targeted policy, as well targeted spending leads to high relative economic multipliers.²⁵

Compared to the GFC, in the wake of COVID-19 we have seen a more rapid, severe and wholesale halting of the economy, yet without systemic failure of any particular industry (distinct from 1973-75, 1981-82, 2001 and 2008-09 etc.). The need for rapid and high-impact spending is hence more vital today than possibly at any time before. High multiplier policies will naturally bring a greater number of employment opportunities and fast intervention will mean taxpayers spend less time out of work. Yet, without an understanding of the duration and ultimate depth of recession, it is difficult to ascertain how long a recovery may take and therefore how long stimulus outcomes will need to be sustained. This is important as speed of implementation and duration often have an inverse relationship, and whether such projects are temporary in nature is dependent on the balance struck. For example, unless they are shovel-ready, high capital infrastructure projects generally have long lead times but spread economic impact over many years. Nevertheless, these metrics form a comprehensive starting point for assessing the economic success of a stimulus, green or otherwise.

Climate metrics

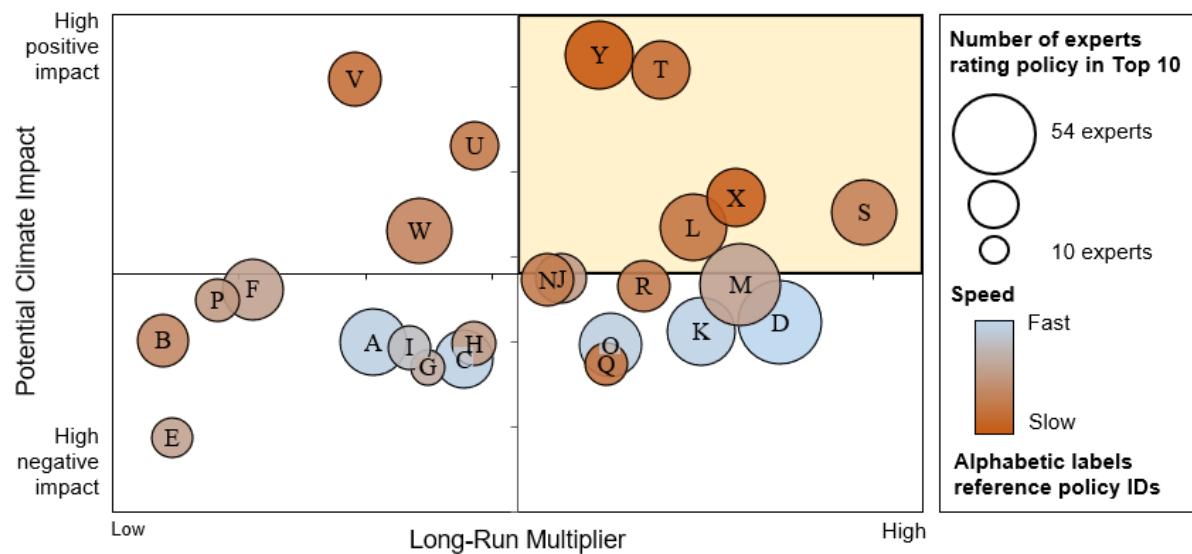
Assessing the impact on the climate of different recovery packages is a non-trivial exercise.²⁶ Recovery packages might be assessed on what proportion of spending was “green”, where “green” implies some directional element towards reducing climate impact. A more useful and intellectually valid approach would be to focus on whether the spending accelerates progress towards net-zero emissions of long-lived climate pollutants on the timetable required. Further work is required in this area. While the impact of interest is likely on ‘net GHG emissions’ measured in tonne of CO₂ equivalents on a GWP100 basis, if significant methane-reducing policies are under consideration, GWP* should be considered as a more accurate, yet more complex assessment tool.²⁷ Additional domain-specific complements are not directly incorporated in this analysis but should be carefully considered by policymakers seeking to form policy to meet strategic ambitions. These complements could include targets for energy security, as in the case of the 2008 South Korean Green New Deal,²⁸ energy efficiency as in the case of the Energy Efficient Homes Package included in Australia’s 2009

Nation Building and Jobs Plan,²⁹ or renewable energy infrastructure as provided for in the American Recovery and Reinvestment Act 2009.³⁰

4. Application: A Sustainable Recovery Package for the UK

A sustainable recovery in the UK —that stimulates desirable economic activity post COVID-19 and is on a path to net-zero emissions targets — could involve many different possible elements. In a companion paper, Hepburn et al. (2020) assemble a list of top 25 fiscal policy archetypes, based on a review of past and current stimulus policies,³¹ and provide a survey of officials in finance ministries and central banks of G20 countries on the features of these policy archetypes was conducted in April 2020. Key results are shown in Figure 1 below.

Figure 1: Preliminary survey results from G20 finance and central bank officials.



A	Temporary waiver of interest payments	N	Worker retraining
B	Assisted bankruptcy (super Chapter 11)	O	Targeted direct cash transfers or temporary wage increases
C	Liquidity support for large corporations	P	Rural support policies
D	Liquidity support for households, start-ups and SME's	Q	Traditional transport infrastructure
E	Airline bailouts	R	Project-based local infrastructure grants
F	Not for profits, education, research, health inst. bailouts	S	Connectivity infrastructure
G	Reduction in VAT and other goods and services taxes	T	Clean energy infrastructure investment
H	Income tax cuts	U	Buildings upgrades
I	Business tax deferrals	V	Green spaces and natural infrastructure
J	Business tax relief for strategic and structural adj.	W	Disaster preparedness, capacity building
K	Direct provision of basic needs	X	General R&D spending
L	Education investment	Y	Clean R&D spending
M	Healthcare investment		

Figure 1 shows that policies in the desirable upper right quadrant (large long-run multiplier and strongly positive impact on climate) included connectivity infrastructure (S), general R&D

spending (X), education investment (L), clean energy infrastructure (T), clean energy R&D spending (Y). Each of these were also often identified as being in the top 10 most highly desirable policies of surveyed experts. Other notable policy options included healthcare investment (M) and buildings upgrades (U). Non-conditional airline bailouts performed poorly in terms of multiplier, speed and climate metrics.

Informed by these results, and our review of the literature, we recommend that a UK sustainable recovery package should include consideration of the following elements.

Large-scale investments

- **Transforming energy generation, storage and distribution.** Investment should be targeted to zero carbon energy generation (particularly renewable energy initially), short- and long-term storage, interconnectors and grid modernisation infrastructure. Investment in this sector will help ensure that electricity generation is zero carbon by 2030 and that capacity exists by this point to facilitate decarbonisation of transportation and heating.
- **Transforming industrial energy usage.** Incentivise key energy-intensive industrial sectors (steel, cement, ceramics, chemicals, pulp and paper) to produce first low-carbon and then zero-carbon products and guarantee to purchase them at a profitable price upon successful transition. Invest in carbon capture and storage (CCS) and hydrogen projects and infrastructure.
- **Transforming carbon-intensive sectors.** Encourage carbon-intensive sectors (e.g. construction, transport) to use carbon-reduction as a tool to improve productivity, quality and reduce waste by requiring reporting of all material and operational carbon costs.
- **Climate resilient infrastructure.** Invest in infrastructure projects that promote climate change resilience. Public participation and consultation are essential to ensuring implemented infrastructure is fair to all and has sufficient public support.
- **Broadband connectivity.** Embed working from home practices through accelerating plans to install high-speed broadband connectivity and accelerate the goal of nationwide connectivity by 2033. Full fibre broadband (with speeds of 1 Gbps or more) covers fewer than 10% of UK homes, compared to 70% or more in Spain, Sweden and Portugal and almost 100% in South Korea and Japan.³²
- **Nature-based solutions.** Build upon the 25 Year Environment Plan and new Agriculture Bill³³ to invest in tree planting and soil management practices that enhance carbon storage, biodiversity, and food production efficiency. Expand green

spaces, such as parklands, and accelerate wetland & peatland restoration and protection. Invest in ecosystem resilience to mitigate climate-related natural disasters.

Accelerating investment in high-sustainability impact technologies

- **Research and development investment.** The UK government in 2017 introduced a target to invest 2.4% of GDP in R&D by 2027. It currently invests just under 1.69% of GDP,³⁴ which is less than the EU28 average and much lower than the US, South Korea and Japan.³⁵ A renewed focus should be placed on this target with a strong emphasis on supporting high sustainability impact technologies.
- **Develop effective public R&D funding mechanisms to advance both innovation and competitiveness.** This could involve ramping up funds for R&D in small firms,³⁶ developing national laboratories (learning from experiences at ARPA-E and the Carbon Trust respectively), investing in facilities,³⁷ and building an agency for the development of emerging technologies,³⁸ identifying and supporting sectoral “national challenges” in support of zero-carbon technologies, among other areas. It is important that increased investments in these areas are accompanied by sustained and predictable institutions innovations, as the UK approach in energy innovation has been very volatile compared to other countries.

Incentivising individual-level change

- **Electric bikes, cars and corresponding infrastructure.** Promote electric vehicle ownership through fast-charging infrastructure (building on the £500m promised in the March 2020 Budget),³⁹ appropriate bicycle lanes, and greater subsidies for e-bikes and electric car purchases (cut from £4500 to £3500 in October 2018).⁴⁰ Supplement this with expansion on the recent decarbonisation consultation document⁴¹ by ensuring that: only electric cars can be purchased after 2030; there is an accessible nationwide charging system by 2030; and no internal combustion vehicle can be driven after 2040.
- **Home renovations and retrofitting for energy efficiency.** Implement a vast and well-funded scheme to bring UK housing up to the standards of energy efficiency that are already widespread in Scandinavia. Simultaneously embark on a program to prepare every home in the UK for conversion from natural gas to heat pumps, hydrogen or district heating by 2050, supplementing the government’s Low Carbon Heat scheme. This may further contribute to entrenching work from home practices by reducing energy bills in a cost-effective manner.
- **Education and training.** Invest in digital further education and retraining initiatives to redirect workers from fields that will be most impacted by decarbonisation efforts and

to provide a swathe of green economy employment opportunities for new school, college and university leavers.

Bailouts

- **Bailouts conditional on a legal commitment and pathway to net-zero emissions.** Bailouts should include conditions requiring rapid improvements in corporate climate performance and a timeline to net-zero emissions, particularly for fossil fuel intensive industries such as airlines.

5. An institutional framework for recovery in the UK

To ensure that the COVID-19 economic recovery response aligns with the long-run objective of achieving net-zero emissions by 2050, the UK government should review its institutional apparatus. Tackling both the COVID-19 response and net-zero objectives will require an unprecedented mobilisation of resources. The existing independent Committee on Climate Change (CCC) provides highly-valued objective advice. To ensure implementation, we suggest building on existing institutions with minor but important modifications to the institutional architecture: a Climate Change Emergency Committee and Net Zero Delivery Body tasked with implementing a Net Zero Delivery Plan.

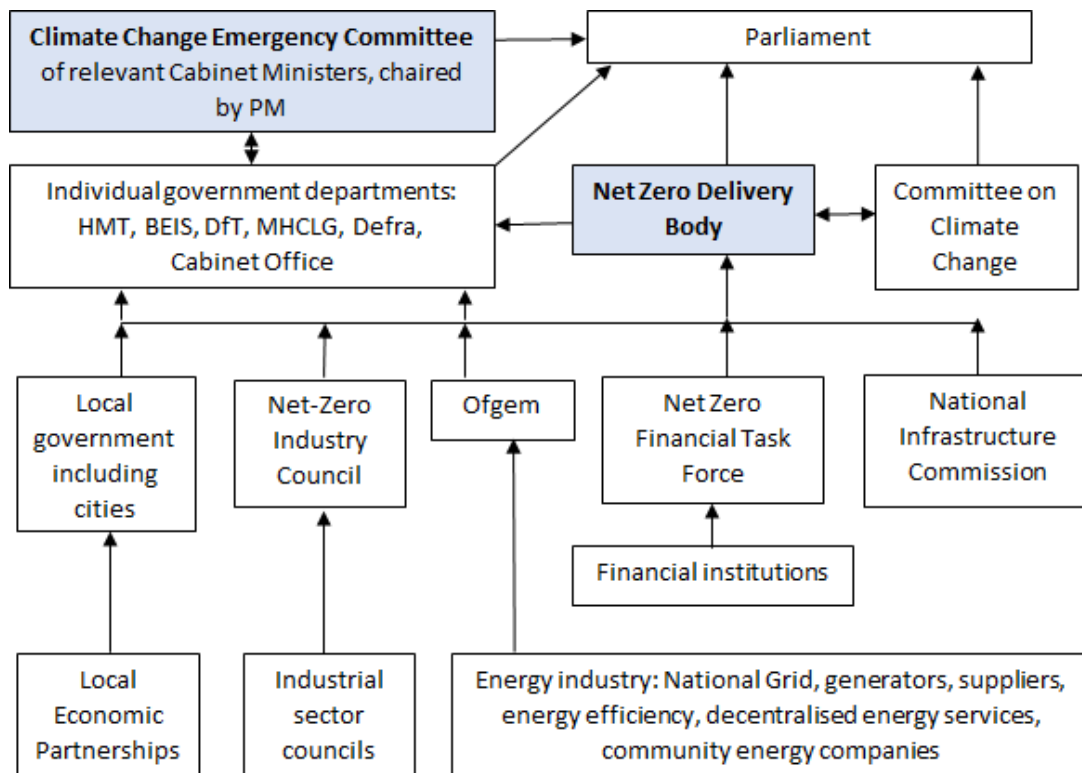
While departmental responses are essential to delivering the green stimulus package, we anticipate that their activities are likely to be inefficient and siloed unless they are integrated into a coherent Net Zero Delivery Plan. With many governmental institutions already in place, as well as the CCC, a central institution to coordinate across various parts of government will promote a consistent response as the UK experiences significant structural change. We therefore propose the establishment of a Net Zero Delivery Plan that details the UK's pathway to net zero by 2050, to be delivered and overseen by two new specialised institutional bodies, outlined below. A key question is how quickly such bodies could be credibly established.

The Climate Change Emergency Committee (CCEC) is a renamed version of the existing Cabinet Committee on Climate Change, which was announced in October 2019 but had its first meeting in March 2020. The membership of the committee has still not been published. This committee, composed of relevant Cabinet Ministers and chaired by the Prime Minister, should meet regularly to ensure the appropriate degree of visibility and authoritative decision-making which is necessary to coordinate effective use of governmental resources in achieving the dual objectives of COVID-19 economic recovery and net-zero emissions by

2050. The CCEC will oversee and coordinate the Net Zero Delivery Plan and the Net Zero Delivery Body.

The Net Zero Delivery Body (NZDB) will be led by BEIS and will include representatives from local authorities, the industrial sector, Ofgem, financial institutions, the CCC and the national infrastructure commission. The NZDB will be responsible for delivering the Net Zero Delivery Plan (see Figure 2), and with enabling legislation delivered by the relevant government departments. The Net Zero Delivery Body and Plan will be overseen and coordinated by the CCEC; it will additionally be advised by the existing CCC and will be responsible to Parliament.

Figure 2: Proposed Institutional Structure. Net Zero Delivery Body is a unit tasked with delivering the Net Zero Delivery Plan, overseen by the Climate Change Emergency Committee, which is a renamed version of the Cabinet Committee on Climate Change, explicitly placed on an emergency footing. Both will interface with existing departments and teams.



6. Financing the sustainable recovery

Financial instruments are a core leverage point for a new Net Zero Delivery Body (see Figure 2). Over the past decade, the sustainable finance agenda has been propelled forwards through successive crises – first the dot-com bubble, then the global financial crisis and now the currently unfolding recession. At each stage, the case for a more systematic and comprehensive approach to harnessing finance for climate action and sustainable development has deepened, and on this occasion the scope for such an approach is even more pronounced.

To be successful, the Net Zero Delivery Plan will need to provide both strategic direction and an initial government spending boost. This can draw on large pools of savings in the following ways.

i. Sovereign Bonds: Much of the funding for such a sustainable stimulus would come from increased government borrowing in the form of additional sovereign bonds, as well as other public issuance, for example, from development banks. So far, around \$60bn of green sovereign bonds have been issued by 12 countries; a further 10 nations have already indicated that they will issue green bonds this year.⁴² The UK should fast-track the issuance of national green ‘recovery bonds’ that drive forward the green, social and sustainable sovereign bond agenda. This could be the basis for an internationally coordinated issuance of sovereign sustainability bonds.

ii. Public Financial Institutions: The case for the UK to establish a National Investment Bank⁴³ with a focus on managing and reducing risk in infrastructure projects to leverage private finance is made more compelling by the need to finance projects which enhance the domestic green delivery pathway. The Bank would have an explicit sustainability mandate and could seek out net-zero-aligned projects which require external intervention to reduce risk. In addition, the mandates for existing institutions, such as the crucial SME-focused British Business Bank, could also be extended to include support for an inclusive net zero transition. Public investment banks have the potential to crowd-in private investment, while developing climate-resilient infrastructure,⁴⁴ and experience with the KfW in Germany reveal that such institutions can be vital to the growth of the green energy sector.⁴⁵ A National Investment Bank could further contribute to rebalancing regional economic development and supporting SMEs.⁴⁶

iii. Mobilising savers and investors: Further steps could be taken to explicitly target the mobilisation of capital from individual savers and institutional investors. These include exploring the scope for ISAs to be dedicated solely to ‘recovery plan’ projects in the next year. In addition, potential regulatory frictions hindering the flow of capital could be explored, such as insurance (Solvency II) and retail investors (MiFID).

iv. Unconventional financial instruments: Future electricity, fuel and carbon prices do not give the necessary assurances of profitability for long-term, substantial private investment in zero-carbon assets. Futures markets have tenors far too short to assure finance for the longer-lived technologies (nuclear and CCS). Regulators with an appropriate degree of political independence, with a politically specific mandate, can ensure that durable assets are financed at very low weighted costs of capital (WACCs), through various designs for long-term contracts. This is demonstrated by the Regulatory Asset Based finance model, which can be supplemented with incentives for out-performance and penalties for under-delivery. Auctions for renewable Contract for Differences (CfDs) have been shown to deliver lower costs and have been used with great success in offshore wind. The RAB model has also found success outside of energy markets, with successful use in financing the stand-alone Thames Tideway Tunnel at 2.5% real.⁴⁷

7. A Sustainable Recovery Alliance with UK leadership

Both the COVID-19 pandemic and the climate emergency are global in nature. The UK has an opportunity to advocate for sustainable recovery packages, both as fiscal stimulus and in the form of climate action. Global cooperation on both fronts is an opportunity to secure the success of COP26. Coordinating green recoveries sends a signal to the world that climate action is a tangible reality, despite the lack of revised pledges under the Paris Agreement.

The UK could catalyse global coordination by establishing a Sustainable Recovery Alliance (SRA) at COP 26. As a flexible “coalition of the willing” outside of the UNFCCC architecture, the group would promote a shared vision of a sustainable recovery. Its central aim would be to improve coherence among domestic and multilateral efforts through practical cooperation and information exchange. The SRA could interface with intergovernmental initiatives such as Mission Innovation. The UK’s domestic efforts form the foundation for global leadership.

Existing UK government bodies are well-positioned to provide intellectual and financial support. In partnership with BEIS and the Department for Environment Food & Rural Affairs, DfID should allocate funding toward efforts to support partner countries in designing such packages. These efforts can both stimulate economic activity and assist countries in managing the impacts of climate change in the long term. The FCO’s Cross-Government Prosperity Fund could play a supporting role in mobilising funding towards projects that enact netzero objectives.

The implementation of new institutional architecture in the UK, through the CCEC and NZDB, will create new pathways for resource and information sharing. The UK will be well-placed to guide international climate policy, using the expert resources of these institutions to provide support based on the UK climate policy model. In this vein, it is vital that the UK develops a comprehensive evaluation framework within which our own policies are assessed. Such a framework would strengthen the credibility of the UK's global leadership.

Launching such an alliance is an ambitious undertaking. The diplomatic strategy should begin this summer and have two pillars: engage widely and include developing countries' interests from the outset. Previous Presidencies have found engaging a wide range of actors, including G7 and G20 partners, finance ministers, and multilateral banks. The High-level Champion has a role to engage the private sector with the aim of new announcements in line with a sustainable recovery. Embassies and consulates have a strong role supporting the overall effort to bring countries on board.

Engaging developing countries recognizes the need to respect different national strategic objectives as countries experience differing economic timelines through the COVID-19 crises. Such an inclusive strategy also requires taking a range of environmental priorities into account. The SRA must equally consider decoupling emissions from economic growth and building resilience to future economic and environmental shocks.

The UK should serve as co-chair. China may be a natural partner to work with the UK in establishing and growing the alliance. The Chinese recovery is expected to happen first, and decisions made in the recovery package are likely to influence the upcoming 14th Five-Year Plan. Therefore, there is significant impetus for the UK and China to collaborate in the context of COP 26 to promote mutually beneficial sustainable recovery packages focused on long-run environmental issues and achieving net zero.

Practically, to protect the legitimacy and ambition of the Alliance, countries would be required to meet a minimum standard on climate ambition and perhaps carbon pricing in order to join the group. Unquestionably, for arguments of global unity the more countries who are to be involved, the better, but there is much to be said for making every effort not to water-down Alliance objectives. The minimum standard should not hinder wider participation but should refer to the goals of the Paris Agreement.

8. Summary and Conclusions

Although the upcoming economic slowdown is without direct historical parallel, insights based on mechanisms common to all macroeconomic recessions provide a framework within

which the UK Government can learn from the GFC of 2008. A fiscal stimulus focussed on investment for a sustainable recovery is preferable to a traditional stimulus for the UK, given higher short- and long-run multipliers, and the fact that UK is legally bound to reach net-zero carbon emissions by 2050 in any event.

The UK's sustainable recovery package should be measurable and evaluable. The policies recommended in this brief are expected to perform well on our established metrics of fiscal multiplier, speed of implementation, and climate impact, but designing experiments to test this *ex post* will help prepare for future crises.

We have proposed ten specific elements of a sustainable recovery package in Table 1. These include bailouts conditional on climate-positive changes, particularly in aviation or other fossil-intensive companies. Green investments should also be made into infrastructure, covering a wide range of industries. Job-intensive clean infrastructure investment will generate high fiscal multipliers and accelerate the path towards net zero. Energy-intensive industrial sectors can be challenged to reduce their carbon emissions, supported by a CCS program. Nature-based solutions net-negative emission agriculture and infrastructure for resilience can mitigate anticipated future climate damage. Broadband infrastructure expansion can contribute to entrenching work from home practices where possible, turning a short-term climate-friendly behavioural change into a long-term one.

Similarly, energy efficient retrofits can reduce energy bills for work from home individuals, encouraged through individual-level incentives. For those who return to commuting, investment in fast-charging infrastructure and higher subsidies for electric car purchases can ensure that those who travel contribute less to the atmospheric stock of GHGs. With a background of trends that will generate unequal impact, sustainable recovery measures must also address employment displacement through education and training programs to repurpose human capital for a greener UK economy, allowing strong uptake of new jobs created in green sectors, while taking social inclusion into account. Investment in technology research and development is strongly linked with productivity and competitiveness. Hence accelerating investment in high sustainability impact technologies could bring broad benefits.

To maximise the impact of the sustainable recovery package in the long run, we propose that the UK Government implements measures to support a delivery plan. The foundation of the Climate Change Emergency Committee and a Net Zero Delivery Body to implement a Net Zero Delivery Plan will ensure that governments remain accountable on the path towards net zero by 2050, while coordinating government resources effectively. Supplemented by green private finance reforms, this will amplify the long-run multipliers of a sustainable recovery package.

Finally, the UK is well-positioned to advance these approaches and to support other economies reach net zero. UK institutions, both new and existing, will be able to engage in resource and information sharing, furthering the climate agenda abroad, more immediately through COVID-19 recovery packages, and into the future through COP26. A new sustainable recovery alliance would provide a good forum for the UK to facilitate this leadership. Within the context of a global climate emergency, it is vital that the UK develops an inclusive multilateral approach to ensure that low-income countries are supported, while mitigating for the costs of the climate crisis domestically.

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