

INVESTING IN A RESILIENT NET-ZERO UK RECOVERY

SEIZING THE STRATEGIC OPPORTUNITY OF THE RESILIENT NET-ZERO ENERGY ECONOMY

PREPARED BY E3G

Following the coronavirus pandemic, the UK can chart an economic recovery that puts the country on track to meet its target for net-zero emissions in a way which meets the needs of everyone, now and into the future. This is the most effective way to build economic resilience. With the UK co-hosting important UN climate talks next year, it is also an opportunity for the UK to show global leadership.

Prime Minister Boris Johnson made clear that the UK Government's commitment to delivering net zero emissions by 2050 "remains undiminished" by the public health crisis.¹ There has been a significant decline in emissions, with a decrease in daily global carbon emissions of 17% during the lockdown,² and there is now a need as the Prime Minister put it, to "entrench those gains" as the lockdown lifts, by prioritising investment in low carbon infrastructure.

While the immediate policy response to the crisis should rightly focus on improving public health outcomes, specific areas of the resilient net-zero energy economy are very well-positioned to offer high-impact strategic opportunities for driving a robust UK recovery, in both the near and long term. These proposals will create employment opportunities, boost consumer spending and support the levelling up agenda across the UK – with focus on regions most affected by unemployment and inequality.

Key points

- > Given the backdrop of economic contraction, substantial debt and increasing uncertainty, investing in the resilient net-zero energy economy represents a strategic no-regrets opportunity for driving a robust green UK recovery in the near and long term.

¹ <https://www.businessgreen.com/news/4015202/boris-johnson-promises-prioritise-low-carbon-investment-uk-covid-19-recovery>

² Le Quéré, C., Jackson, R.B., Jones, M.W. et al. Temporary reduction in daily global CO₂ emissions during the COVID-19 forced confinement. Nat. Clim. Chang. (2020). <https://doi.org/10.1038/s41558-020-0797-x>



-
- > Investment in net-zero energy infrastructure and energy efficiency projects meet important criteria which indicate that they should be fast-tracked in stimulus measures. They will contribute toward job creation, boost productivity, and improve long-term resilience.
 - > Specifically, we identify building efficiency, low-cost renewable power generation and system flexibility as high-impact strategic opportunities for driving a resilient net-zero UK economic recovery.
 - > Stimulus focused on retrofitting buildings to high energy efficiency standards can quickly and reliably ‘level up’ employment opportunities creating 150,000 jobs to 2030 and deliver household savings of £7.5 billion per year that translate into consumer spending.
 - > Longer term recovery and regional job creation can be powered by harnessing the UK’s offshore wind resource and advancing system flexibility through home energy management solutions and electric vehicle charging facilities.
 - > These proposals will deliver geographically targeted local employment, reduced energy bills that will improve economic competitiveness and increase the spending power of individual consumers in the near and long term.

Economic overview of the UK’s situation

The UK entered the COVID-19 economic crisis with some fundamental risks, including low productivity, emerging from almost a decade of austerity in spending and with a substantial anticipated infrastructure bill,³ uncertainty caused by Brexit, and a worsening global trade picture. The crisis has **exacerbated, or just uncovered, risks in the global economy**, whether through a change in attitudes to globalisation,⁴ or magnifying the risks of a Chinese recession,⁵ or the debt overhang since the 2008 crisis.

The **UK economy is expected to contract in 2020**. The IMF’s estimate for the UK is a fall of 6.5% in 2020, and growth of 4% in 2021, while the Bank of England’s scenario – not a forecast – presents a fall of 14% this year, and growth of 15% next year. Uncertainty remains on how long the path to recovery will take, with Chancellor Rishi Sunak outlining that it is “not obvious there will be an immediate bounceback”.⁶

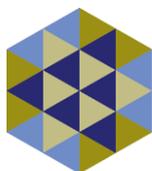
All forecasts are subject to massive uncertainty and are based on three underlying assumptions. First, the IMF forecasts (and the BoE scenario) rely on the disease being contained by end 2020, and that there will be no significant secondary spike. Second, these date from before we know the full extent of the impact on Africa and Latin America, and while the disease is still widespread in the US. Third, these underestimate

³ The case for spending strongly on public services and infrastructure was strongly made by the Chancellor in the **March 2020 Budget** – the crisis has not changed the underlying risks of underinvestment that the Chancellor was addressing.

⁴ See for example **this piece** by Edward Luce in the FT.

⁵ For a sobering reminder, see Prof Michael Pettis **here**.

⁶ <https://www.bbc.com/news/amp/business-52719230>



E3G

the risks of a more difficult recession, for example the so-called U or L shaped recessions which the US Federal Reserve has said policymakers need to prepare for.⁷

The **immediate response to the crisis has been very significant** – the stabilisation of an economy moving into lockdown, has relied on massive government spending and over the next year will cost the UK government in excess of £132bn.⁸ Debt will continue to rise very substantially because of the policy decisions that governments will make to stabilise and stimulate the economy. While this could be offset by the continuation of very low interest rates and the UK's ability to borrow in its own currency, the UK and other debt burdens will still weigh on global economic activity.

UK policymakers have some clear economic goals:

- > A fast recovery of jobs and incomes to ensure immediate consumption, especially of services, picks up.
- > Advancing the aim of “levelling up” across the country, addressing the decades of underinvestment in economic and social opportunities in regions outside of London and the South East.
- > Filling the anticipated “gap’ in growth in 2021-22, due to losses probably already suffered due to the failure of firms and reduced capacity due to restrictions.
- > Addressing the impact of higher debt, and continued low interest rates, on the UK economy.
- > Strengthening the resilience of the economy, given the severe shock it has just experienced.

Proposals for economic recovery measures must therefore deliver against a challenging background. Social distancing rules may limit actions that require close contact – so actions which are remote, or on empty sites, or outside buildings, may be more suitable in the near-term. These could include training, external renovations, or nature-based solutions. Greening the economy is, of course, not the only area for governments to focus on. However, vital action on resilience, including investing in the health and care sectors, can and should be aligned with bolstering resilience to climate shocks and mitigating against worsening impacts.

The strategic opportunity of investing in the net-zero energy economy

Economic recovery and productivity require a modernised, efficient, flexible, robust and least-cost energy system. Investment in the resilient net-zero energy economy:

- > Can deliver quickly on job creation in the immediate-term and the longer-term
- > Offers the opportunity to deliver on the levelling-up agenda in key regions
- > Help improve longer-term economic productivity
- > Are innately valuable, including for improving resilience, and so makes any debt incurred ultimately repayable.

⁷ See [this piece](#) by Michael Jacobs in the Independent.

⁸ <https://obr.uk/coronavirus-analysis/>



E3G

This section outlines two pillars of the resilient net-zero energy economic opportunity:

- > Rebuilding for resilience: Energy efficiency's offer for net-zero compatible stimulus and recovery
- > Powering a net-zero recovery: Opportunities of investing an interconnected and flexible power system

Rebuilding for resilience: Energy efficiency's offer for a resilient net-zero compatible stimulus and recovery

The **litmus test for a resilient net-zero recovery is buildings**: energy efficiency improvements to date are saving households £500 a year and huge potential remains. The UK's housing stock represents 20% of emissions, and the current pace of decarbonisation is not yet on track for 2050. Meanwhile, household incomes and spending have dramatically reduced while energy costs have risen as people stay at home. The construction sector – accounting for 2.3 million people in work at the end of 2019 – is among the hardest-hit by the crisis, and is historically a 'first responder' to stimulus.

There is **growing consensus** and action from experts (including the Committee on Climate Change, National Infrastructure Commission and UK universities) and governments (Denmark, New Zealand) that emphasises the role of buildings' energy efficiency in pandemic recovery to **meet economic, climate, health and resilience goals**. Energy efficiency stimulus in the UK is a route to sustained benefits from jobs, increased consumer spending, getting on track to net-zero, reduced pressure on the NHS, and households and businesses more resilient to public health, economic and climate risks.

Most energy efficiency upgrade work can be readily accommodated within social distancing guidelines **right away**, for instance where it is carried out on the outside of buildings and in self-contained spaces such as lofts. In addition to safety, **energy efficiency meets three essential criteria for stimulus** supporting the UK's economic recovery.

- > First, investment in home renovation for net zero will **help to 'level up' infrastructure and opportunity across the UK – supporting over 150,000 skilled and semi-skilled jobs to 2030, reducing household energy expenditure by £7.5 billion per year** at today's prices – doing more in regions most affected by unemployment, under-investment and fuel poverty.
- > Second, **energy cost savings for households translate into a persistent boost to consumer spending on local goods and services**, in addition to household spending on the upgrades themselves – a dynamic that accelerates economic recovery. **Energy efficiency delivers a net benefit to the economy and the public purse**: Germany's federal energy efficiency programme has **succeeded**



E3G

in leveraging €6 of private energy efficiency investment for every €1 of public money spent on the programme, recouping its outlay through VAT receipts alone.

- > Third, **energy efficiency stimulus delivers quickly and reliably** by linking it to **shovel-ready projects**, delivery mechanisms and supply chains already in place under **existing schemes for homes and public buildings** across the UK, through social housing providers and local authorities already leading the way, their partnerships, energy suppliers, Salix Finance, regional energy hubs and agencies – and by **leveraging the growing participation of the financial sector**.

Powering a resilient net-zero recovery: Opportunities of investing an interconnected and flexible power system

The most resilient and competitive post-COVID economies of the future will be those that are able to harness low-cost renewable power generation to maximum effect. Electricity, as the mainstay of the future energy system, should be decarbonised to support a robust UK recovery and to realise the transition to a resilient net-zero economy by 2050.

There have been growing calls for making the energy transition an integral part of the wider recovery, with evidence to support placing renewable energy and system flexibility at the heart of longer-term stimulus measures.⁹ The UK, with one of the best offshore wind resources in Europe, including vast and largely untapped opportunities in the North Sea, is exceptionally well placed to capture the opportunities that this presents.¹⁰ It is already a global leader in offshore wind technology and there is huge scope to capitalise on this leadership position.

Given the variable nature of the output of renewable energy generation, and that the current power system operational practises are not well-suited to accommodating large volumes of such renewable output, further investment in system flexibility will be required.¹¹ This investment will allow the UK to connect a higher proportion of cheap renewable energy to the grid and will create employment opportunities.¹² Investment in renewable energy and system flexibility meet three essential criteria for stimulus in a distinct yet complementary manner to those associated with energy efficiency:

- > First, **a targeted stimulus package can provide the opportunity to deliver on the levelling-up agenda in key regions.** For example, this could include building an integrated and interconnected offshore grid in the North Sea capable of accommodating high volumes of offshore wind capacity. This will further reduce the costs of individual windfarm projects by limiting the need for new connection infrastructure. It will also significantly improve system

⁹ <https://irena.org/publications/2020/Apr/Global-Renewables-Outlook-2020>

¹⁰ <https://windeurope.org/wp-content/uploads/files/about-wind/reports/Unleashing-Europes-offshore-wind-potential.pdf>

¹¹ National Grid currently has a major project to reduce curtailment of renewable resources during periods of low demand.

¹² Ram, Manish & Aghahosseini, Arman. (2019). Job creation during the global energy transition towards 100% renewable power system by 2050. *Technological Forecasting and Social Change*. 10.1016/j.techfore.2019.06.008.



E3G

flexibility through the ability to trade energy with other North Seas countries. It will create new jobs in east coast towns and cities and reinforce their potential as low carbon industrial hubs of the future.

- > Second, stimulus measures that deliver timely investment in an interconnected and flexible power system will **build resilience and efficiencies in the economy and support an orderly transition to a net-zero energy economy**. The competitiveness and feasibility of a clean and flexible power system has dramatically shifted since the global financial crisis, with investment in clean energy infrastructure is now a real option for driving economic recovery. The costs of renewable power technologies, particularly solar PV and wind power, have fallen fast and are expected to continue to reduce.
- > Third, investment in renewable energy generation will result in most job creation opportunities maturing in the medium and long term. However, investing now in the infrastructure to improve system flexibility will deliver benefits in terms of **immediate local employment which can be geographically targeted**, and rapidly translate **into reduced energy bills that will improve economic competitiveness and the spending power of individual consumers**. Investing to create the necessary flexibility involves evaluating investment options all along the value chain. Two options particularly are relevant in the economic recovery context for their ability to be managed and delivered by selected local authorities which can help create 'lighthouse' smart low carbon towns and cities:
 1. **Installation programme of home energy management systems that will enable consumers energy use to be controlled and adjusted**. Such systems are widely available and can be competitively procured. Installation programmes can be targeted on specific areas focused on their ability to create employment and/or improve social conditions. They would have access to new smart tariffs currently restricted to well-off early adopters. Installation programmes can run alongside those to improve energy efficiency and/or upgrade broadband services.
 2. **Installation of large smart electric vehicle charging facilities at depots where delivery, taxi, public transport, or other large fleets of electric vehicles can be parked**. This would both create a significant capacity of flexible power and reduce fuel costs, as well as encouraging a faster switch to electric vehicles.

While meeting key stimulus criteria, the proposed options for an energy efficient, interconnected and flexible power system would 'rebuild for resilience' and put the UK on a solid footing for a net-zero compatible economic recovery that ensures homes and workplaces play their part. The investment and structural preparations for the net-zero transition enable a shift in the balance of investment from government towards households and businesses over time.



E3G

Approaches to delivering these opportunities

Recent weeks have seen an extraordinary financial and economic policy response to the COVID-19 crisis both in the UK and around the world. While the immediate crisis demanded swift stabilisation measures, the future stimulus and recovery phases must be designed thoughtfully and with the desired future shape of the economy in mind including the UK's net-zero emissions target and its commitments under the Paris Agreement.

Putting health, safety and livelihoods at the centre of the response

The pandemic has clearly demonstrated how a functioning economy is reliant upon the health and wellbeing of its workers. Safer, more secure working conditions are critical to ensuring industries can recover while being resilient to further pandemic-induced shocks and impacts on Government spending. This should include planning for a just transition for workers currently employed in high-carbon industries.

- > **Put health and safety first:** Government, industry, health experts and unions can work to establish best practice measures to ensure workers remain safe as the economy reopens. This is particularly the case in the construction sector, in which the large number of contractors on any given site means that communication and enforcement of safety rules needs to be highly robust.
- > **Secure employment conditions and workers' representation:** Tripartite talks between Government, employers, employees and self-employed contractors have been seen in Denmark as a reliable way of securing equitable conditions and providing long-term economic resilience achieved¹³.

Skills and training schemes

The UK faces high unemployment levels and millions of workers are furloughed. At the same time, there is a skills gap for delivery of the net-zero changes required across industries and supply chains. There are opportunities to introduce retraining schemes for those in high carbon sectors as well as improving the skills in sectors like construction to ensure that high-quality energy efficiency measures can be installed. The government can support the scaling up of existing schemes and initiatives:

- > **Bristol's 'One City' climate plan** includes a focus on training and skills, seeking integration of training and requirements for carbon neutral and climate resilient related knowledge and skills into further education, apprenticeships and job roles.

Government-backed investments in largescale infrastructure projects, building on current commitments

Large, multi-year cash injections by government made in infrastructure projects can provide a major boost for industries and their supply chains, while reducing costs,

¹³ (Peter-Hansen, Vind & Villumsen, 2020)

supporting jobs and skills. These can build upon and fast-track existing government schemes and commitments. Examples include:

- > **Powering the North Sea:** Invest in an integrated and interconnected North Sea offshore grid capable of accommodating high volumes of offshore wind capacity. Investments of scale in power have been deployed in Portugal targeting €5bn (£4.47bn) in private investment to build a solar-powered green hydrogen production plant and boost economic growth.¹⁴
- > **Green home renovations:** Providing support for home renovation projects of scale in the social housing sector. Such a scheme has recently been adopted by Denmark, earmarking DKK 30 billion (£3.5 bn+) for green social housing renovations between 2020-2026.¹⁵

Regional and Local Authorities and local delivery partners

To ensure measures span the length and breadth of the UK, supporting recovery where its most needed to address unemployment and deprivation, the Government should work with and enhance the financial and technical capacity of Local Authorities and local delivery partners – for instance, Local Economic Partnerships (LEPs) – to deliver effective and locally appropriate solutions. Examples include:

- > **Channelling support through Regional Energy Hubs:** BEIS has set up a network of Hubs, offering funding to LEPs to develop energy and low carbon strategies. Support could be used to supercharge these efforts.

Financing net-zero and resilience as part of a strategy for economic recovery

The future emissions intensity of the economy is very strongly path dependent. Investments that avoid carbon intensive energy sources now and in the next few years will avoid locking in high emissions into the medium and long term. This will also avoid the future potential stranding of these high-carbon assets and the associated financial stability risks.¹⁶ A range of policies, incentives and finance options can be deployed to support resilient net-zero recovery:

- > **HM Treasury's review into funding the transition to a net zero greenhouse gas economy should include a quantitative assessment of the UK's climate investment needs.** Without such a comprehensive assessment of the scale and type of funding needed, climate mitigation and adaptation policies risk falling short of what is needed and may build in future risk to the UK economy. A lack of quantification of either the fiscal risks of climate change or the costs of measures to offset them will undercut the effectiveness of the government's response to the economic crisis induced by COVID-19. In the interim prior to the completion of such an assessment, and recognising the need for stimulus measures that can be fast tracked, focus should be placed on the no-regrets net-zero energy infrastructure and energy efficiency

¹⁴ See: <https://www.reuters.com/article/us-health-coronavirus-portugal-energy-idUSKBN22C1T2>

¹⁵ See: <https://www.trm.dk/nyheder/2020/groen-genopretning-af-danmark-30-mia-kr-til-renoveringer-i-den-almene-boligsektor/>

¹⁶ https://climateactiontracker.org/documents/706/CAT_2020-04-27_Briefing_COVID19_Apr2020.pdf

measures proposed in this briefing which can drive an economic recovery that also puts the country on track to meet its target for net-zero emissions.

- > **Establish a National Infrastructure Bank as a dedicated financial institution with a clear mandate to support the net-zero and resilient transition.** This type of institution has the potential to crowd-in private investment, for example in renewable energy and energy efficiency, while developing climate-resilient infrastructure and could further contribute to rebalancing regional economic development and supporting SMEs¹⁷.
- > **The UK should pump-prime measures to leverage private funding,** and guide alignment of public and private interests to deliver blended capital solutions. In the short term this could be done in partnership with the Green Finance Institute and the Social Impact Institute. Over the medium term these actions could part of the role of a new National Infrastructure Bank.
- > **Establish robust climate and social conditions on government-backed loans.** Green conditions have been seen in France, with terms that require to halve its emissions from domestic flights by 2024,¹⁸ and Canada has said that corporations seeking bridge financing under the Large Employer Emergency Financing Facility (LEEFF) will be required to demonstrate environmental sustainability and aim to meet national climate change goals.¹⁹ HM Treasury has said that companies borrowing more than £50m through the COVID bailout scheme will be blocked from paying dividends or bonuses and pay rises to senior management – further conditionalities could be added with social and environmental criteria, for example businesses could be required to have a credible plan for aligning their operations with the UK’s net-zero target and the Paris Agreement.²⁰
- > The UK’s Whole of Government Accounts (WGA) should be restructured in order to identify and designate green spending across sectors; this would allow the HMT to assess whether public finance is being deployed as required to deliver the UK’s goals.²¹ The WGA could be adjusted to count adaptation as an investment instead of spending, as adaptation is known to provide indirect returns.²²
- > The UK should create a National Resilience Office within the Cabinet office **with responsibility for considering the resilience implications of all investment plans and decisions and ensuring that appropriate steps**

¹⁷ Allan, J., Donovan, C., Ekins, P., Gambhir, A., Hepburn, C., Robins, N., Reay, D., Shuckburgh E., and Zenghelis, D. (2020). A net-zero emissions economic recovery from COVID-19. Smith School Working Paper 20-01.

¹⁸ See: <https://news.gtp.gr/2020/05/04/european-commission-approves-e7bn-french-aid-air-france/>

¹⁹ <https://pm.gc.ca/en/news/news-releases/2020/05/11/prime-minister-announces-additional-support-businesses-help-save>

²⁰ As reported in the FT (2020) <https://www.ft.com/content/f5eb2d30-db85-4911-9d4e-6af3e14bfab8>

²¹ **OECD has done work on this matter.**

²² <https://www.macquarie.com/au/en/perspectives/the-adaptation-imperative.html>;

https://www.spglobal.com/_assets/documents/corporate/ratingsdirect_pluggingtheclimateadaptationgapwithhighresiliencebenefitin.._.pdf



are taken to address them.²³ The Office should work closely with the Infrastructure and Projects Authority.

The Energy Efficiency Infrastructure Group (which as a member E3G actively supports) has proposed, aligned with its 2030 vision, a **two-year, high value-for-money stimulus package**. The proposed new measures build on the current set of stabilisation instruments and dovetails into a longer-term energy efficiency programme for the UK's longer-term recovery, boosting UK resilience and putting the economy on track to net-zero. It includes:

- > **£9.2 billion worth of commitments to energy efficiency investment made in the Government's 2019 manifesto** – to the Social Housing Decarbonisation Fund, Home Upgrade Grants and Public Sector Decarbonisation Scheme – need to be treated as **instrumental to an energy efficiency stimulus package**, financially and programmatically, by bringing forward and deploying **£1.5 billion of investment in low income households, social housing and public buildings** over the next two years.
- > A range of **incentives worth £1.2 billion for all homeowners designed to leverage £3.2 billion of private investment** over the next two years – comprising a renewed Landlords Energy Saving Allowance for landlords who exceed the Minimum Energy Efficiency Standard, a Stamp Duty rebate for energy efficient properties, government-backed low or no-cost finance for renovations and the 5% rate of VAT on building energy renovation restored for all.
- > **£0.1 billion ear-marked for Clean Heat Grants from 2022 for two year brought forward to now** while maintaining, and offered as an alternative to, the Renewable Heat Incentive, to drive the development of the market for low carbon heating, particularly heat pumps.
- > This **£2.8 billion investment over two years** would **unlock a further £3.4 billion** from households, social housing providers and the public sector estate. It would **support 42,500 full-time equivalent jobs across the supply chain over the two-year period, while one million households across every part of the country would save a quarter – currently £270 – of their rising energy costs.**

There is a global recognition that responses to the current crisis should be building on green investment frameworks and long term decarbonization plans.²⁴ The economic recovery measures which will be introduced in the UK in response to COVID-19 represent an opportunity to ensure that our economy will be resilient to future shocks. The proposed measures for economic recovery presented in this briefing will create employment opportunities, boost consumer spending and support the levelling up agenda and shift our emissions trajectory towards net zero.

²³ Fifteen Steps to Green Finance.

²⁴ <https://blogs.worldbank.org/climatechange/thinking-ahead-sustainable-recovery-covid-19-coronavirus>



E3G

About E3G

E3G is an independent climate change think tank operating to accelerate the global transition to a climate-safe world. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere.

More information is available at www.e3g.org

Copyright

This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 2.0 License.

© E3G 2020