

## **Invest in net zero infrastructure**

Infrastructure will shape our lives for years to come. A low carbon, circular economy improves quality of life and futureproofs against climate shocks.

Investment in infrastructure that is both aligned with the UK's net zero emissions goal and delivers wider environmental benefits provides more and faster economic and social benefits than higher carbon alternatives, helping to get people back to work in the short term, and building low carbon capacity into the long term. Public and private finance should be mobilised to create the building blocks for a resilient and green future.

### **Challenges and risks in recovery**

Given the long lifetimes of most infrastructure projects, government infrastructure investment after the Covid-19 pandemic will influence the level of UK carbon emissions for decades to come.

Unless the government changes the infrastructure it invests in, it will fail to deliver on a green and resilient economy because:

- 1. It is still investing in infrastructure that is not net zero aligned.** Since 2017, our analysis of the National Infrastructure and Construction Pipeline shows that the government has spent over £11 billion in high carbon transport infrastructure, such as roads and airports, and this year it has announced plans to invest [£27.4 billion](#) in 4,000 miles of new road to 2025.
- 2. It has underinvested in low carbon infrastructure needed to meet its net zero goal.** Our assessment shows there is still a £14.1 billion gap in annual investment for low carbon transport, buildings, natural capital and industrial infrastructure.
- 3. It has not addressed the poor visibility and policy gaps that are undermining private investment in net zero infrastructure.** The UK's infrastructure pipeline fails to provide project specific information for much of the planned investment past 2021, and no updates have been published since November 2018. The National Infrastructure Strategy has been repeatedly delayed; and unambitious policy is limiting business investment in infrastructure for resource efficiency, natural capital and building energy efficiency.

## Opportunities in recovery

- **Strengthen digital infrastructure.** Upgrading digital infrastructure, particularly in rural areas, will allow increased home working and facilitate the transition to a smart, low carbon and decentralised energy system.
- **Make homes more energy efficient.** Better investment in the UK's housing stock will ensure homes are warmer, more comfortable and less vulnerable to the changing cost of energy.
- **Speed up the switch to clean energy.** Expanding renewable power, including enabling more onshore wind, offshore wind and solar, supports a domestic energy system protected from future shocks.
- **Invest in transport, natural infrastructure and resource efficiency.** Benefiting businesses, farmers, local communities and the health of the nation. These opportunities are discussed in more detail in the other briefings in this series.

## Investment and policy for net zero infrastructure

### Set out a vision for infrastructure

The government's National Infrastructure Strategy should empower the UK's engineers, architects, planners and financiers to build infrastructure that benefits the economy, people and nature. It must be published without delay to set out a vision for the UK's infrastructure.

### Use a 'net zero test'

Much of the new infrastructure built now will still be in place in 2050, so it makes sense to align it with future UK emissions targets. To avoid short sighted decisions that ultimately waste public funds, environmental assessments that require alignment with net zero should be compulsory as part of the infrastructure planning process, to ensure it supports the transition to a lower carbon economy.

Environmental assessments for infrastructure should also ensure they are compatible with the goals set out in the 25 year environment plan, including going further than the aim to achieve net biodiversity gain, to achieving net environmental gain in all infrastructure projects by 2050. A net zero test should be independently verified and monitored by the Committee on Climate Change and the Office for Budget Responsibility, as suggested by [The Climate Coalition](#).

### Invest in homes

[Whole house retrofit](#), initially targeting social housing, would have immediate and far reaching potential for upgrading the energy efficiency of UK homes that need it. Whole house retrofits transform houses in one step with high levels of energy efficiency, renewable energy generation, low carbon heating and battery storage installed together. This type of retrofit is happening already in the Netherlands, and has [been trialled](#) in the UK, in Nottingham and Essex.

At least 11 million UK homes are suitable for whole house retrofits, including 2.3 million social homes. Estimates suggest a large scale programme would add £11 billion a year to the current £13.9 billion value of the UK retrofit market by the 2030s. But economies of

scale are required to bring costs down to help this type of retrofit to become more widespread.

The government should support scaling up the domestic supply chain by allocating £300 million of public funding for a pipeline of deep retrofit projects (which should enable the retrofitting of around 40,000 units of social housing). This could be allocated on a 'commit and review' basis, where funding is conditional on a per home cost reduction, with a goal of achieving subsidy-free retrofits over time. A similar strategy has resulted in fast and drastic reductions in the cost of offshore wind energy. In the case of whole house retrofits, tenants and, eventually, homeowners would benefit from energy bill reductions of up to 60 per cent.

Beyond this, stimulating private investment in the domestic energy efficiency market will be important to drive this transformation. An [additional £1 billion](#) of public capital every year should mobilise a further £3.5 billion in private investment.

Alongside this public investment, other measures should be taken to encourage private companies to invest in building upgrades. These include bringing the VAT rate for building renovation and repair (currently 20 per cent) in line with that for new build (set at zero VAT). The higher VAT rate [discourages whole building retrofit](#), preventing the scale up of industrialised, high performance retrofit supply chains. Further opportunities to unlock private finance in the housing sector have been outlined by the Green Finance Institute through [20 demonstrator projects](#).

These interventions would have a significant impact on jobs creation. Research has shown that cutting VAT on building renovation could support 100,000 extra jobs across the economy over five years, while a more extensive programme of housing retrofit could generate up to [108,000 net jobs per year](#) until 2030. With nearly two thirds of the housing stock across the UK falling below the energy performance rating EPC D, [analysis shows](#) that new employment could be created across the country.

## **Upgrade digital infrastructure**

The pandemic has led to the rapid normalisation of home working and it is estimated that this [will be sustained](#) at higher levels following the crisis.

Upgrading home broadband would bring widespread social and economic benefits, with [studies suggesting](#) full fibre expansion could boost UK productivity by £59 billion by 2025 and provide 500,000 jobs by 2038. It can also enable [270,000 additional people to live in rural areas](#), driving local growth and enhancing communities around the country.

Improved digital infrastructure can also help to make our energy system ready for a more decentralised, responsive and low carbon future. For example, it can help to optimise and monitor the energy used in buildings. [New policy](#) that requires operational ratings for buildings and the mandatory public disclosure of in-use energy performance would enable this. The National Australian Built Environment Rating System, which relies on such measures, saw a reduction in office building energy use of 40 per cent over 13 years. This, coupled with regulation to raise minimum energy efficiency standards, will help UK businesses to achieve an estimated [£5 billion a year](#) in energy savings by 2030.

## **Improve the energy system**

Moving to a smart low carbon energy system that can support the increased electrification of heat and transport will require a more strategic approach.

Significant scaling up of renewable capacity is needed in the 2020s to get it to [at least half](#) of total generation and increase offshore wind capacity, from the current 8.5GW to the 40GW by 2030 pledged in the Conservative Party's last manifesto. The government should promote new renewable capacity by setting out a strong pipeline of Contract for Difference auctions to give the private sector the confidence it needs to scale up investment.

Upgrading the energy system requires a more co-ordinated approach to offshore wind infrastructure. Promotion of flexibility markets and local energy markets that fully value [community energy](#) would address barriers preventing the deployment of [5.5GW storage capacity](#). Ofgem's mandate should also [be expanded](#) to ensure that regulation drives investment towards the net zero goal. [Research](#) published by National Grid shows that moving towards a net zero energy system could create 117,000 jobs across the country, including many in the north east and north west, of which 65,000 are expected to be new jobs.

The government should also ensure delivery of infrastructure for low carbon transport and resource efficiency and promote investment in natural capital. These priorities are discussed in more detail in the other briefings in this series.

**This is one of five briefings supporting our publication [Blueprint for a resilient economy](#)**

### **Green Alliance**

11 Belgrave Road, London, SW1V 1RB  
020 7233 7433  
[ga@green-alliance.org.uk](mailto:ga@green-alliance.org.uk)  
[www.green-alliance.org.uk](http://www.green-alliance.org.uk)

blog: [greenallianceblog.org.uk](http://greenallianceblog.org.uk)  
twitter: [@GreenAllianceUK](https://twitter.com/GreenAllianceUK)

The Green Alliance Trust is a registered charity 1045395  
and company limited by guarantee (England and Wales) 3037633, registered at the above address

Published by Green Alliance, June 2020