SEPTEMBER 2020

Turning stimulus into recovery

From the Green Homes Grant towards a resilient Net Zero economy

ENERGY EFFICIENCY INFRASTRUCTURE GROUP

About the Energy Efficiency Infrastructure Group

The Energy Efficiency Infrastructure Group is a growing and broad-based coalition of over 25 industry groups, NGOs, charities and businesses asking for rapid improvement in energy efficiency policy for UK homes and buildings. Massive improvements in energy efficiency are the litmus test for a credible pathway to net zero emissions and ending fuel poverty. The EEIG is calling for energy efficiency to be treated as a national infrastructure investment priority, with a commensurate target – achieving an Energy Performance Certificate (EPC) rating of C (on a scale from A (most efficient) to G) for all homes by 2030 – and clear governance arrangements, a long-term plan and a pump-priming capital budget to achieve it. While it represents the views of the EEIG as a whole, this briefing does not necessarily represent the views of its individual members.

Turning Stimulus into Recovery: Summary

The Government's decision to include a major focus on green home retrofits among stimulus measures announced this summer was a welcome, ambitious first step – if short-term – to support jobs and boost economic activity across the country. With the Comprehensive Spending Review and other major policy decisions expected by the end of this year, now is the time to build on summer's announcements and set out a long-term programme that combines recovery from the pandemic with getting on track to net zero greenhouse gas emissions.

Only a long-term programme and investment plan to decarbonise homes can provide confidence for industry to invest in the supply chain, and for consumers to invest in their homes over this decade. Only a long-term programme underpinned by public capital investment can ensure the economic benefits needed for better recovery are maximised, as it ensures:

- → Larger and more widespread energy cost savings that boost spending across the country, driving economic expansion;
- → Which generate a greater return to the taxpayer by way of tax cuts that the expansion affords;
- → Together driving more job creation in the wider economy, particularly in local retail and services, and a larger permanent increase in GDP.

Turning stimulus into recovery while forging the path to zero carbon homes requires a comprehensive, ambitious and fair Government programme and investment plan for the next ten years. Economic recovery must be connected to getting on track for net zero. This report envisions how a such a programme contributes to all six of the Comprehensive Spending Review's priorities:

1. **Stronger recovery by prioritising jobs and skills:** a long-term programme supports 190,000 jobs in energy efficiency and heat across a range of trades through to 2030; with opportunities to upskill the workforce to meet the net-zero challenge; and Government working with businesses, unions and employees to ensure green jobs are quality jobs. Underpinned by public investment, the number of net additional jobs created in the wider economy beyond the end of the programme – especially in local retail and services, induced by increased consumer spending – is easily in excess of 100,000.

2. **Levelling up by investing in infrastructure, innovation and people:** an ambitious, achievable long-term programme to get all homes to at least EPC C by 2030 reduces household energy expenditure by £7.5 billion per year at today's prices – averaging £400 per home upgraded – doing more in regions most affected by unemployment, under-investment and fuel poverty, reducing north-south and rural-urban disparities in infrastructure, opportunity and living costs.

3. I**mproving public service outcomes, including from the NHS:** the Public Sector Decarbonisation Scheme reduces schools' and hospitals' energy costs, freeing up money for frontline services. The avoidable pressures placed on the NHS by fuel poverty and cold, unhealthy homes are consigned to the past, potentially preventing 10,000 excess winter deaths every year and saving the NHS £1.4 to £2 billion annually.

4. **UK as a scientific superpower:** supported by industrial and innovation strategy,

a long-term programme supercharges home retrofit, driving productivity gains. New buildings' energy consumption can be demonstrably halved by 2025, and so too the cost of retrofitting to that standard. A Heat Pumps Sector Deal supports the creation of a mass market for smart zero carbon heat by the mid-2020s. Innovation investment accelerates the creation of new standards for the use and sustainability of construction materials and products, supporting the establishment of a circular economy. The rollout of digital infrastructure assures the carbon and energy performance of buildings, providing investor confidence for a thriving market in new, green financial products and services.

5. **Strengthening the UK's place in the world:** ahead of COP26, a long-term investment programme closes the UK's biggest climate policy gap – decarbonising heat – to meet domestic carbon budgets, demonstrating how to combine ambitious climate action with economic recovery and inspiring other nations to do the same. UK-based manufacturers with world-leading expertise in insulation and exterior systems, glazing, low carbon heating, ventilation, air-conditioning and building control systems drive construction sector exports well beyond the £8 billion seen in 2016. UK construction and financial service providers gain competitive advantage in foreign markets seeking to deliver net zero buildings.

6. **Improving delivery of commitments:** a new National Infrastructure Bank leads the reduction of investment risk for decarbonising home and buildings, reducing the financing cost and drawing in capital markets and institutional investors to back new green financial products and services at scale. Local councils lead on improved delivery of commitments by engaging communities, coordinating supply chains, protecting consumers and raising capital. The new Bank assists local actors in drawing up investable heat and energy efficiency plans while Government continues to invest in their delivery capabilities. Good governance supports the delivery of net zero and fuel poverty targets at national and local levels.

To arrive at this vision, the foundations for a long-term programme and investment plan for the decarbonisation, resilience and safety of our homes need to be laid through the raft of critical policy decisions expected by the end of this year, building on the positive trajectory set up by the Green Homes Grant. The EEIG has carefully analysed pathways for, and the balance of, public and private investment needed. On this basis, our major recommendations are that by the end of 2020:

→ **BEIS extends the retrofit project completion timeline of the Green Homes Grant** by at least six months (with vouchers allocated by the end of March 2021), ensures strong delivery of its first phase and other near-term measures, using them as a launchpad for a long-term programme and investment plan for decarbonising homes.

→ **HM Treasury, through the Comprehensive Spending Review, allocates a further £7.8 billion of public capital to BEIS for home energy efficiency investment over the four years to the end of this Parliament,** building on the energy efficiency funding already allocated in this summer's Economic Statement. This includes the full deployment of the Government's manifesto commitments, and would bring the total public energy efficiency investment in homes during this Parliament to £9.2 billion. In addition, it allocates £5.8 billion of public capital over the next four years towards supporting heat pumps deployment in existing homes, drawn from the £100 billion infrastructure budget for this Parliament.

- **HM Treasury, in its National Infrastructure Strategy, designates zero carbon heat and energy efficiency as infrastructure investment priorities and proceeds to establish a new National Infrastructure Bank** to bridge economic recovery with achieving net zero, as well as to play an important role in governing delivery and attracting private investment for decarbonising homes.

- **HM Treasury, in its next Budget, introduces a suite of new structural incentives** to drive demand for home energy upgrades using Stamp Duty, a Landlords Energy Saving Allowance, reduced VAT and explores a carbon price on natural gas use with compensatory measures.

- **BEIS, in its Heat & Buildings Strategy, brings forward the EPC C target to 2030, sets a new target to halve emissions from heating existing homes by 2030, expands the trajectory for minimum energy performance standards and sets out how to deploy its capital allocations for energy efficiency and heat decarbonisation** to complement structural incentives.

- **BEIS, in its Fuel Poverty Strategy**, revises the measurement of fuel poverty as it proposed, and **places health and wellbeing along with locally led delivery at the heart** of how it intends to meet the 2030 fuel poverty target.

Energy Efficiency Infrastructure Group, September 2020

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1 Introduction and context

1.1 The Energy Efficiency Infrastructure Group (EEIG): a mission to decarbonise UK homes

The EEIG is a growing and broad-based coalition of over 25 industry groups, NGOs, charities and businesses asking for rapid improvement in energy efficiency policy and investment for UK homes and buildings. Given that the UK housing stock is one of the least efficient in Europe[1], massive improvements in energy efficiency are the litmus test for a credible pathway to net-zero emissions and ending fuel poverty.

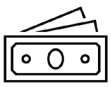
This report considers how the Government can turn stimulus into resilient recovery, charting a long-term plan through a comprehensive set of measures announced through forthcoming policy decisions that get homes on track to meet the UK's net-zero target. It builds upon the EEIG's previous report, *Rebuilding for Resilience*[2], which set out the case that energy efficiency should be a key stimulus measure in the wake of the coronavirus pandemic. It also provides an update from our 2019 report, *The Net Zero Litmus Test*[3], which proposed a long-term vision to decarbonise UK homes and analysed progress to date against these measures.

The EEIG welcomes the new £2bn Green Homes Grant scheme as an opportunity to boost jobs and scale the supply chain needed to end fuel poverty and decarbonise homes. Estimated to support 600,000 households, while the measure acts as a welcome first step, much more will be needed to retrofit the UK's 28.5 million existing homes. Without a long-term capital investment programme and a smooth transition strategy, positive progress made on green employment, sustainable jobs and scaling up UK supply chains could fall off a cliff edge once the scheme ends, repeating boom-bust failures of the past. Stimulus needs cementing in a long-term programme and investment plan articulated through the Comprehensive Sending Review, Budget and National Infrastructure Strategy, the Heat and Buildings and Fuel Poverty Strategies to bring confidence to the industry.

The EEIG has set out and refined its vision for a comprehensive long-term programme and investment plan that:

Governance

Treats energy efficiency as a national infrastructure investment priority, with a commensurate target – achieving an Energy Performance Certificate (EPC) rating of at least C[4] or equivalent (recognising EPCs' evolution) for all homes by 2030 – clear governance arrangements, a long-term plan and capital budget to achieve it.



Public capital

Provides additional public capital investment of £1.8 billion per year to 2030, bringing the total to £2.5 billion – much of it supporting low income households – that can help unlock at least £4.8 billion of private investment each year.

Able to pay incentives

Establishes adequate incentives for 'able to pay' homeowners and landlords, such as lower Stamp Duty for more efficient homes and 0% interest loans for renovation.

[1] Guertler, Carrington & Jansz (2015) The Cold Man of Europe - 2015

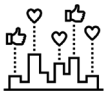
[2] EEIG (2020) Rebuilding for Resilience: Energy efficiency's offer for a net zero compatible stimulus and recovery

[3] EEIG (2019) The Net Zero Litmus Test: Making energy efficiency a public and private infrastructure investment priority

[4] On a scale from A (most efficient) to G.

Regulation

Sets out robust regulation, strengthening over time towards requiring at least EPC C, that requires some homeowners to take action and inspires others to plan and invest for the future.



Local and fair delivery

Supports a long-term approach to delivery in which local authorities play a core role in tackling fuel poverty, creating demand and growing local supply chains.

Advice and standards

Ensures strong advice provision, quality assurance underpinned by actual energy performance, and safety standards.

1.2 Where we are now

The coronavirus pandemic has put the UK under enormous social and economic strain, highlighting pre-existing fault lines in our society and leading many to the conclusion we need to 'build back better' – addressing the numerous inequalities that exist across our country, and decoupling economic advancement and social wellbeing from high-carbon activities. The first stage of this process has mainly seen measures to stabilise and some to stimulate the economy. With concerns about a second wave of the virus, the urgency of setting a longer-term recovery plan in motion increases. Decisions can now be made to steer the country and industry towards a more inclusive and resilient future. The UK's 2050 net zero target must be woven into the roadmap for recovery, incorporating the EEIG's litmus test of achieving EPC C for all homes by 2030.

The EEIG welcomes the new measures for homes decarbonisation introduced since the onset of the pandemic, which can serve as the foundation for a long-term programme that supports recovery:

- **£2 billion Green Homes Grant stimulus scheme** for England, partly drawing on the Home Upgrades Grant promised in the Conservative manifesto, providing grants up to two thirds – capped at £5,000 – of the installed cost of measures for homeowners. Low income households can receive vouchers covering 100% of the cost up to £10,000. Grants can be used to purchase insulation, heat pumps, solar thermal, energy efficient windows and doors, and heating controls.
  - **£500 million** of the £2 billion will be administered locally across England: £200 million via the Green Homes Grant's **Local Authority Delivery (LAD)** scheme – whereby local authorities can bid for funding to support low-income households in their area – and £300 million via Local Energy Hubs at a later date. LAD projects must be completed by 31 March 2021.

- **£1 billion under the Public Sector Decarbonisation Scheme** from the Conservative manifesto to improve the insulation and energy efficiency of public buildings, and to invest in green heating technology over the next year.

- **£50 million from the Social Housing Decarbonisation Fund** pledged in the manifesto, initially to pilot new approaches to retrofitting social housing at scale. Timescale unconfirmed.

- In Scotland, **£1.6 billion for energy efficiency and heat in homes and buildings** pledged by the Scottish Government over the next Parliament that supports existing long-term plans.

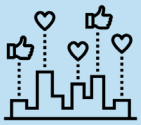
- In Wales, **£9.5 million Optimised Retrofit Programme** in Wales, to fund energy efficiency measures in up to 1,000 existing homes owned by registered social landlords and councils. Launching in September 2020, timeline unconfirmed.

1.3 'Litmus test' for net zero – the EEIG's progress tracker

In 2019, the EEIG updated its vision for a long-term programme and investment plan to get the UK's homes on track to achieve net zero. The six key elements of the programme – details and sub-elements for which can be seen in the EEIG's *Net Zero Litmus Test* report from last year[5] – are set out below alongside an assessment of Government commitments so far. Progress has been made since 2019 with the announcement of the Green Homes Grant – turning red areas to amber. The real test for net-zero lies in a long-term programme and investment plan, which is yet to be delivered – and could turn many progress indicators green.

[5] EEIG (2019) The Net Zero Litmus Test: Making energy efficiency a public and private infrastructure investment priority

EEIG'S CORE ASKS OF UK GOVERNMENT		SEPTEMBER 2019	SEPTEMBER 2020
Governance	**Governance:** Energy efficiency must be designated a national infrastructure investment priority. It must include the Government's target for all low-income homes to EPC C by 2030 and bring the target for all other homes forward from 2035 to 2030 to align it the statutory net zero target. It needs to be driven by a comprehensive and long-term programme with dedicated governance mechanisms, and set out a trajectory for continued improvement until all homes are fully decarbonised by 2050.	The Government had set the target to get all homes up to EPC C by 2035 but not yet designated energy efficiency as an infrastructure priority, nor set up a dedicated body to oversee a long-term programme.	Energy efficiency has not yet been designated an infrastructure investment priority, nor have bodies been assigned to oversee a long-term programme. The net zero target means the EPC C target needs to be brought forward to 2030 to ensure the UK gets on track.
Public capital	**Ring-fenced additional public capital investment averaging £1.8 billion per year to 2030,** bringing the total investment funded from public budgets and household energy bills (via the Energy Company Obligation) to £2.5 billion, deployed to fully support low-income households and incentivise a further £4.8 billion of private investment from landlords and those able to pay. A plan to raise a total investment of £7.3 billion per year to 2030 is needed.	Almost no additional funding had been allocated to residential energy efficiency since public investment was halved compared to 2012.	The £2 billion Green Homes Grant stimulus constitutes a large new investment, but public capital commitments need sustaining beyond March 2021, accompanied by a long-term investment plan.
Able to pay incentives	**Proper incentives for the 'able to pay' market** to thrive and unlock the £4.8 billion of private investment needed. This should include a Stamp Duty incentive, zero interest loans and incentives to pump-prime demand for green finance where needed as recommended by the Green Finance Institute.	No incentives had been introduced to help homeowners improve energy efficiency.	The Green Homes Grant includes a welcome incentive for the 'able to pay' but must form part of a suite of evolving incentives that leverage increasing amounts of private finance beyond the scheme's end in March 2021.

EEIG'S CORE ASKS OF UK GOVERNMENT		SEPTEMBER 2019	SEPTEMBER 2020
 *Regulation*	**Using regulation to set minimum standards and reduce costs,** by tightening rented sector regulation over time to an EPC rating of C by 2030, the eventual introduction of a mandatory minimum EPC rating for owner-occupied homes at point of sale, and ensuring large-scale demonstration projects are completed to support a target for all newly built homes to be net zero carbon across all energy uses in their *operation* and climate-resilient from 2030 at the latest.	Government had confirmed regulation to prevent private rental of homes with EPC ratings of F or G and plans to raise ambition. There were no plans for minimum standards for owner-occupied homes. It had announced its intention to ensure new homes are supplied with non-fossil heat from 2025.	Regulation to forbid private lettings of homes with EPC ratings of F or G has come into force. The publication of plans to raise this standard to EPC C by 2028 is welcome, and Government intends to publish similar plans for social housing. There are still no plans for minimum standards for owner-occupied homes. It has consulted on the Future Homes Standard, which should be phased in early and strengthened.
 *Public capital*	**A long-term, fair and local delivery programme** similar to Scotland's – which places local authorities at the heart of delivery through area- or locally-based renovation schemes, local heat and energy efficiency plan development, local jobs and supply chains, localised and personalised advice services, and an integrated approach to energy efficiency and heat that prioritises low-income households.	Government had not set out any plans to implement a local authority-led delivery programme.	The Local Authority Delivery (LAD) competition is a welcome component of the Green Homes Grant package, as is the planned scheme for Local Energy Hubs, but the Government has not set out plans to implement a local authority-led delivery programme. Given their short time frame, these schemes do not yet constitute a systematic approach to equip all local authorities with the capital and coordination capacity required.
 *Able to pay incentives*	**Local and long-term renovation advice, alongside full adoption of the independent Each Home Counts and Hackitt reviews' recommendations** to ensure informed consumer choice backed by the highest quality and safety standards.	The Government had ended the Energy Saving Advice Service, not set up any independent advice centres at local level and the Each Home Counts review's recommendations had not yet been practically rolled out. The Hackitt Review had reported and an implementation plan was published.	*The Each Home Counts* review's recommendations started being rolled out in the Energy Company Obligation, with some initial steps (TrustMark accreditation) being applied under the Green Homes Grant. The Simple Energy Advice service is available for households seeking grants, but there is no requirement for a home assessment by a qualified retrofit professional to ensure correct measures are installed. Detail on the elements of an end-to-end, integrated quality assurance and safety framework to support all future policies is still needed.

1.4 Critical decision points ahead

Looking towards the UK's longer-term recovery, there are key, connected, policy decisions due this year which will play a decisive role in determining success on the road ahead:

Major decisions at HM Treasury:

- **Comprehensive Spending Review:** A spending review is carried out approximately every 3 years to set departmental capital and current spending budgets. The Treasury is expected to publish the review later in autumn which should cover capital spending over the rest of this Parliament and current spending for the next three years.
- **Next Budget:** The Budget will set the economic agenda running up to an election in 2024, allocating cash for the Prime Minister's 'levelling up' plan to spread economic prosperity, as well as considering taxes to control the deficit. The second wave of coronavirus cases has delayed the Budget, which was originally planned for this autumn.
- **National Infrastructure Strategy:** The delayed National Infrastructure Strategy is a 30-year plan which is expected to set out infrastructure investment of £100bn over this Parliament, in the context of investment needs for transport, local growth and net zero to 2050.

Major decisions at BEIS:

- **Heat and Buildings Strategy:** Due to be launched in late autumn, the strategy will lay out the long-term policy framework for how the UK will tackle the challenge of decarbonising buildings, encompassing the deployment of energy efficiency improvements and zero carbon heating solutions such as heat pumps.
- **Fuel Poverty Strategy:** Set to update the 2015 Strategy, this will contain metrics, targets and milestones, proposals to address vulnerability as well as a policy plan to end fuel poverty by 2030.

Each of these is a vital chance for the UK to show leadership on decarbonising homes. Taken together, they present an opportunity to meet the challenges for stronger net zero governance recently laid down by the Institute for Government[6] and the Prime Minister's Council for Science and Technology[7] – and set out a joined-up, ambitious and fair approach that embeds the EEIG's six recommendations in the UK's recovery plans, paving the way to 2030 and beyond.

[6] Rutter et al. (2020) Net zero: how government can meet its climate change target

[7] CST (2020) A systems approach to delivery net zero: recommendations from the Prime Minister's Council for Science and Technology

2 How a long-term programme meets priorities for a sustained and sustainable recovery

2.1 Stimulus can kickstart housing stock transformation, but only if it is built on

The short-term boost from the Green Homes Grant scheme needs to be partnered with a strategy and investment plan which ensures that this boosted economic activity is sustained to deliver long-term objectives – increased household spending and GDP, levelling up jobs, statutory targets for net-zero and fuel poverty, infrastructure and resilience – after it ends in its present incarnation.

Boom and bust retrofit cycles linked to short-term policies create uncertainty and investment reluctance for industry, finance and consumers, and could undermine the benefits of short-term gains made on green employment and levelling up. While industry welcomes the £3bn energy efficiency stimulus package for homes and the public sector, the short horizons for allocating its budget and deploying measures is a cause of much concern, with worries about demand and work collapsing if a long-term programme is not developed.

Short-term spikes in demand – without visibility of what is to come and expected of households and the supply chain later – can lead to demand distortions, with consumers delaying decisions to improve their homes in the hope that generous offers become available again. The lack of a longer-term roadmap undermines market confidence and certainty and is likely to hold back businesses and financial institutions from investing in the skills, products and services needed for sustained progress on home decarbonisation to 2030 and beyond. The supply chain and delivery partners need confidence and certainty to plan and invest in their capabilities and abilities to deliver quality at scale for the long-term.

Lessons can be gained from the past and other countries. The results from the Green Deal Communities scheme, which supported local authorities in promoting Green Deal take-up, were extremely disappointing and enhanced local take-up has not persisted[8]. The especially short timescales for local authorities to apply for, and spend, the funding available played a significant role in this failure, which also contributed to a misperception that local authorities, rather than scheme design, were responsible for unmet expectations. With similarly short timescales for implementation, the Green Deal Home Improvement Fund – with which the Green Homes Grant has numerous parallels – also failed to create a self-sustaining market for solid wall insulation.

A long-term approach is therefore critical, and the combination of policy levers – fiscal, financial, regulatory, educational – will be vital to build industry and consumer confidence and ensure public capital is deployed in a way that attracts in private finance, builds markets and secures value for public money. Case studies of France, Germany and Scotland show how these places have been able to sustain high renovation rates in this way[9]. Joining a growing list of countries[10], these nations have recently augmented their long-term programmes in response to the economic crisis, as shown in Table 1.

[8] Guertler (2018) Silver Buckshots? Opportunities for closing the gap between ambition for, and policy and investment tro drive, UK residential energy efficiency renovation

[9] Ibid.

[10] Including Australia, Denmark, Italy, Luxembourg, New Zealand – see EEIG (2020) Rebuilding for Resilience: Energy efficiency's offer for a net zero compatible stimulus and recovery.

Table 1: Recent and near future public investments in energy efficiency retrofit

COUNTRY	PRE-PANDEMIC PUBLIC INVESTMENT PER YEAR (HOUSING ONLY)	HOMES RENOVATED PER YEAR [RENOVATION RATE]	PER CAPITA [£]	INVESTMENT FRAMED AS GREEN STIMULUS/RECOVERY FROM NOW[11] (ALL BUILDING SECTORS)	PER CAPITA [£]
United Kingdom	£0.7bn	150,000 [0.5%]	£10.50	£3.7bn in one year[12]	£55.50
France	€2.2bn	390,000[13] [1.1%]	£28.60	€3.4bn per year for 2 years[14]	£43.50
Germany	€1.5bn	276,000[15] [0.7%]	£15.70	€2.5bn per year for 2 years[16]	£26.20
Scotland	£0.2bn	50,000 [2%]	£35.20	£0.3bn per year for 5 years[17]	£58.70

Lessons such as these – a long-term approach, consistency, building confidence for the supply chain to invest in consumer engagement, delivery capability and capacity, offering finance and incentives alongside regulatory drivers of demand – need to be applied together in a strategic and coherent policy programme. If the UK builds on the Green Homes Grant and develops a long-term investment programme, it can move from laggard to leader in buildings retrofit amongst European nations.

A long-term roadmap for home retrofits will require customer confidence in the quality and benefits of energy efficiency improvements. The successful deployment of the Green Homes Grant and other building decarbonisation stimulus measures can help blaze the trail to net-zero.

The EEIG recognises the intention to mobilise the supply chain rapidly and redeem grant vouchers before April 2021. However, the full benefits that a long-term programme can deliver will be not achievable within this timeline. The Green Homes Grant should allow physical retrofit projects to complete later, provided they were allocated a voucher by the end of March 2021. This is vital to ensure certain complicated, large-scale or weather-dependent projects can be finished to high standards. This consideration will be even more important should the country go into a second pandemic-induced lockdown. The Government should consider extending the retrofit project completion timelines of the scheme to cater for uncertainty, maximise the benefits for households and businesses and extend the runway for the implementation of a long-term programme, at a minimum to autumn 2021.

[11] Total public investment, not additional, starting in 2020 or 2021.

[12] Includes Public Sector Decarbonisation Scheme announcement from Summer Economic Statement.

[13] Deep retrofits only in 2017. 2.1 million home renovations incorporating energy efficiency measures were supported with public funds overall.

[14] France is committing €6.7 billion to the renovation of homes and public buildings over the next two years – an annual increase in public investment of 50%.

[15] Deep retrofits supported by public KfW infrastructure bank only in 2017.

[16] Germany is increasing its public investment in buildings renovation by two thirds to €2.5 billion per year for the next two years.

[17] Annual average. The Scottish Government plans to double its investment over the next Parliament in energy efficiency in heat compared to the current Parliament to £1.6 billion over five years.

2.2 A long-term, large-scale public investment strategy is essential to maximise the macro-economic benefits of energy efficiency

Without making homes energy efficient, UK households will spend £7.5bn more in energy costs a year in 2030 at today's prices[18]. After 'direct rebound' effects – such as a household choosing to maintain a warmer home – long-lasting home energy upgrades secure energy cost savings and increase disposable income. Critically, this results in a *persistent* boost to consumer spending and *accelerated* economic recovery. In practice, reduced spending on energy immediately translates into spending on higher value local goods and services[19], which manifests itself in high levels of further job creation, or 'induced' jobs.

The economy-wide level and geographic reach of energy savings achieved by energy efficiency investment is therefore critical to maximising economic benefits and can only be realised by a long-term programme. The Centre for Energy Policy (CEP) at the University of Strathclyde modelled the macro-economic impacts of a £10.9 billion energy efficiency investment through the Energy Company Obligation (ECO) spanning 2013 to 2028. CEP found that it initially triggers wider economic gains through an 'enabling' stage: the timeframe within which the retrofit supply chain is meeting consumer demand for home upgrades, but that this economic expansion on its own does not outlast the retrofitting timeframe[20]. The source of sustained expansion emerges through the additional 'realisation' stage of widespread energy efficiency gains. Energy savings lead to increased real incomes, spending, induced job creation and growth across communities, which marks energy efficiency upgrades out from many other forms of investment-led growth.

When accompanied by fiscal and financial incentives for energy efficiency and home heating upgrades directed at able-to-pay households, the 'enabling' stage prompted by public investment can have a very large direct impact on consumer spending and construction sector jobs by encouraging households to invest additional capital in energy efficiency improvements. For example, for every €1 invested by Germany's national infrastructure bank KfW to incentivise energy efficient renovation through interest rate and capital subsidies in 2016, building owners were motivated to borrow and spend €6[21] – while the federal government has nearly recouped its outlay through increased VAT revenue alone[22]. Only a long-term programme can sustain a transition from the initially high levels of subsidy under the Green Homes Grant to levering in high amounts of private investment.

As well as avoiding down-side risks associated with boom-and-bust policies, sustained energy efficiency investment to deliver widespread energy savings serves as a long-term 'recovery engine'[23]. The job creation and economic expansion induced by the increase in real disposable incomes exceeds the impacts on construction sector activity and jobs once retrofitting winds down. As shown in Figure 1, major gains are made in the retail, services and other sectors, while job losses in energy supply are comparatively negligible.

[18] Op. cit.

19 EC (2017) The macro-level and sectoral impacts of Energy Efficiency policies; IEA (2014) Capturing the Multiple Benefits of Energy Efficiency

[20] Turner et al. (2020) A Net Zero Principles Framework: Fundamental Questions for Public Policy Analysis

[21] Calculated from Institut Wohnen und Umwelt & Fraunhofer Institut (2018) Monitoring der KfW-Programme „Energieeffizient Sanieren" und „Energieeffizient Bauen" 2016; BFM (2016) Haushaltsgesetz 2016

[22] Added to this are less directly accountable increases in income and corporation tax revenues, and employer and employee social security contributions Cambridge Econometrics & Verco (2014) Building the Future: The economic and fiscal impacts of making homes energy efficient, which should easily make the investment revenue-positive.

[23] See EEIG (2020) Rebuilding for Resilience: Energy efficiency's offer for a net zero compatible stimulus and recovery.

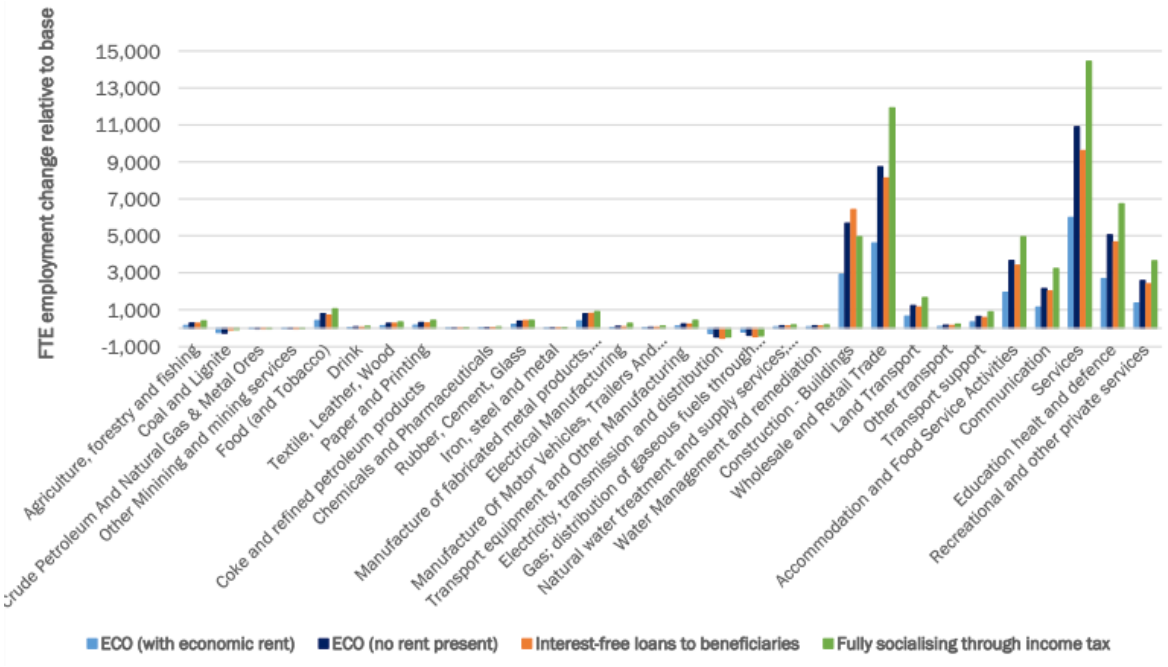


Figure 1: Employment changes in 2028 due to different funding mechanisms by UK sector[24]

Figure 1 also shows the impacts of different funding mechanisms. Within the same spending envelope, the funding mechanisms vary in the extent to which funding translates into energy efficiency upgrades. Interest-free loans (orange) and public investment (green) translate into more homes upgraded and greater energy savings – 5.7% average across all households – than ECO (2.4% and 4.6% for its two variations), accounting for the larger number of induced jobs. Loans and public investment produce net increases in employment of 45,200 and 64,700 respectively, compared with 19,500 and 37,400 for the two variations of ECO. Public investment is more effective than loans in terms of induced jobs and sustained GDP increase – as shown in Figure 2 – because the economic expansion enables reduced taxation after the programme, driving further disposable income gains, sustaining the GDP increase, while ensuring a return to taxpayers.

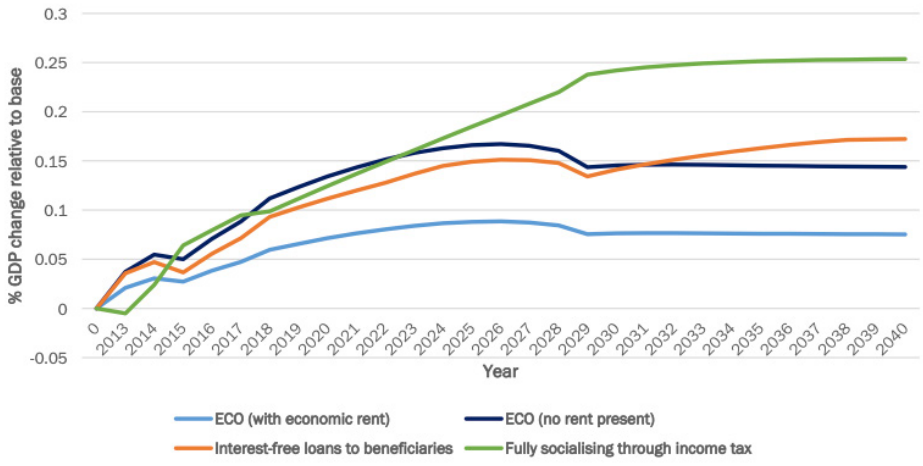


Figure 2: Comparison of GDP changes under different funding mechanisms[25]

[24] Katris, Turner & Vishwakarma (2020) Funding UK Residential Energy Efficiency : The Economy-wide Impacts of ECO and its Alternatives

[25] Ibid.

Owing to smaller energy savings across the economy, ECO's funding mechanism sustains a lower level of GDP increase after retrofitting activity ends in 2028, as can be seen following the dips in Figure 2's blue lines in 2028.

The £10.9 billion investment options modelled by CEP at Strathclyde produce an average energy saving of 17.2% for each household reached – averaging between 2.4% and 5.7% across all households owing to the difference in the number of homes improved. This is small by comparison to the impact of improving 19 million homes to EPC C by 2030. On the tentative assumption that the linear relationship between the ECO and loan funding mechanisms' energy savings and GDP gains continues to hold as savings increase, Table 2 compares the impact with CEP's scenarios of reaching 19 million homes, and illustrates what larger energy savings in each upgraded home could achieve.

Table 2: Impact of different long-term energy efficiency programmes on GDP and jobs

	SCENARIO	ENERGY SAVING PER IMPROVED HOME	AVERAGE ENERGY SAVING ACROSS ALL HOUSEHOLDS [%]	SUSTAINED GDP INCREASE IN 2040 [%]	NET JOB CREATION BY END OF PROGRAMME
CEP[26]	ECO (with economic rent)	17.2%	2.4	0.07	19,500
	ECO (no rent present)		4.6	0.14	37,400
	Interest-free loans		5.7	0.17	45,200
	Direct public funding		5.7	0.25	64,700
EEIG modest	19m homes (loans)		11.5	0.35	90,900
	19m homes (public funding)		11.5	0.51	130,100
EEIG central	19m homes (loans)	25.0%	16.7	0.51	131,700
	19m homes (public)		16.7	0.75	188,500
EEIG stretch	19m homes (loans)	37.5%	25.0	0.76	197,100
	19m homes (public)		25.0	1.12	282,100

The EEIG is advocating a balanced approach to funding the retrofit of 19 million homes, comprising the existing supplier obligation, publicly funded incentives and low-cost financing. What CEP's research makes clear is that **only a long-term programme which produces the breadth and depth of energy savings can achieve significant and sustained gains in GDP and employment after retrofitting activity ends.** Further, socialising the cost of upgrades through income taxation maximises these gains for a given level of energy saving. Therefore, placing public investment at the heart of a long-term programme is a priority – for which the Green Homes Grant is a powerful step in the right direction.

[26] Ibid.

2.3 Only a long-term programme and investment plan for energy efficiency can build back better while meeting Spending Review priorities

Homes are at the heart of our society, essential for wellbeing and social stability. Never has this been more apparent than during lockdown. Millions of families and households live in buildings which are not fit for the future – highly inefficient, vulnerable to climate shocks, and contributing to unnecessary winter deaths and illness through cold and unhealthy living conditions. Energy use in homes accounts for one fifth of the UK's greenhouse gas emissions, with further environmental concerns arising through the lifecycle of buildings and construction. A step change is needed to put the UK on track for zero-carbon homes – centred on health, wellbeing, efficiency and sustainability.

The Treasury's Comprehensive Spending Review will set departmental capital budgets for the rest of this Parliament, therefore playing a decisive role in determining what progress can be made towards zero-carbon homes over the next four years. This process should assess the needs of all departments to deliver on an ambitious and comprehensive approach to energy efficiency beyond current core funding – for example, considering the spending needs of the Department of Education to underpin a training programme to embed zero carbon skills into the construction workforce, or the needs of UK Research & Innovation to accelerate and deepen the Transforming Construction Challenge.

The Treasury's Comprehensive Spending Review (CSR) sets out six priorities which will guide decision-making on capital allocation – these are:

1. Strengthening the UK's economic recovery from Covid-19 by prioritising jobs and skills;
2. Levelling up economic opportunity across all nations and regions of the country by investing in infrastructure, innovation and people – thus closing the gap with our competitors by spreading opportunity, maximising productivity and improving the value add of each hour worked;
3. Improving outcomes in public services, including supporting the NHS and taking steps to cut crime and ensure every young person receives a superb education;
4. Making the UK a scientific superpower, including leading in the development of technologies that will support the government's ambition to reach net zero carbon emissions by 2050;
5. Strengthening the UK's place in the world;
6. Improving the management and delivery of our commitments, ensuring that all departments have the appropriate structures and processes in place to deliver their outcomes and commitments on time and within budget.

The sections below consider these priorities, describing the current state of play and how a long-term programme to future-proof UK homes can act as a recovery engine that 'builds back better'.

2.3.1 CSR priority 1: Stronger recovery by prioritising jobs and skills

Home retrofits are labour-intensive and mostly done by SMEs, creating green employment opportunities up and down the country. Areas that currently fall behind on

energy efficiency performance – predominantly outside of London and the South East – offer greater opportunities for job creation and are well matched with higher prevailing levels of unemployment. To get the UK on track to deliver the advancements needed on home decarbonisation required to meet climate targets, a focus on skills and training will be needed to ensure the workforce is on track to deliver to PAS 2035 standard or equivalent, and businesses accredited to TrustMark and MCS schemes.

CURRENT STATE OF PLAY

- **Jobs:** Green Homes Grant schemes estimated to support over 100,000 jobs for one year (although it is yet to be seen if these are short-term or sustainable jobs).
- **Skills:** Contractors under the Green Homes Grant scheme require accreditation to PAS 2030:2017 (and must deliver to PAS 2035:2019 if accredited to PAS 2030:2019), businesses must be accredited with TrustMark or MCS quality marks. £2bn Kickstart scheme subsidises companies who create new jobs for people aged between 16 and 24, supporting around 300,000 jobs. £1.6bn has been allocated to tackle unemployment through careers advice, work search support and traineeships.

FURTHER ACTION NEEDED TO TURN STIMULUS INTO BETTER RECOVERY INVOLVES

- **Sustaining and growing jobs and skills for the long run:** A long-term, multi-year Government programme with clear targets for energy efficiency and heat would sustain consumer demand and provide industry with certainty and confidence to invest in jobs and skills, helping to prevent employment freefall once stimulus is removed. Phasing in the Future Homes Standard before 2025 to prepare and accelerate progress on zero carbon homes would galvanise the development of construction skills and supply chains.
- **Upskilling the workforce to meet net zero demand:** Furloughed, laid off and other workers need to be offered training for low carbon skills, scaling up capacity for PAS 2035 (and reducing the cost of) TrustMark and MCS business accreditation, and to improve on-site productivity.
- **Ensuring green jobs are safe and secure:** To maintain confidence in the role of green home retrofits as a long-term recovery engine it will be important to ensure associated job opportunities are desirable, secure and stable. Government needs to work with businesses, unions and employees to address concerns over working conditions to make the construction industry more resilient.

OUTCOMES FROM A LONG-TERM PROGRAMME AND INVESTMENT PLAN INCLUDE

- A long-term energy efficiency programme supports over 150,000 skilled and semi-skilled jobs to 2030 across the supply chain in every part of the country, doing more in the regions that need it most[27]. To decarbonise heating, the installer base would grow to at least 38,000 to halve home heating emissions by 2030[28]. Many further jobs in retail and services are created that persist well beyond the programme, induced by the persistent boost to consumer spending from energy savings (see section 2.2).
- Young people and construction sector workers furloughed or laid off are offered an opportunity to train to the highest standards to assure energy efficiency and system performance, thereby driving systematic up-skilling and productivity of the workforce[29].

[27] EEIG (2020) Rebuilding for Resilience: Energy efficiency's offer for a net zero compatible stimulus and recovery

[28] Estimate based on HPA (2019) Delivering Net Zero: A Roadmap for the Role of Heat Pumps

[29] Webb (2016) Heat and Energy Effciency: Making Effective Policy

- Tripartite agreements between Government, employers, employees and self-employed contractors – as seen in Denmark[30] – swiftly and reliably ensure that jobs in decarbonising homes are desirable, safe, stable and therefore more resilient to future economic shocks.
- The trades in the UK's housing repair, maintenance and improvement market had a turnover of £28bn in 2018[31] – a long-term programme sustainably adds at least £7bn to this market.

2.3.2 CSR priority 2: Levelling up by investing in infrastructure, innovation and people

With more efficiency investments and jobs needed in regions already facing high unemployment, support for zero carbon homes can help level up opportunities and wellbeing[32]. There is also a need to invest in zero carbon heat and measures to enhance the resilience of properties to anticipated climate shocks. Support for energy efficiency and heat needs to be suited to a wide range of household circumstances to ensure widespread take-up and secure 'levelling up' impacts. Government policies can differentiate between low-income and 'able to pay' households to level the playing field, while taking a holistic approach to end fuel poverty.

CURRENT STATE OF PLAY

- **Stimulus measures support supply chains**: £2bn Green Home Grant (GHG) scheme offers £5,000 per household, rising to £10,000 for low-income households. Councils and partners are responsible for allocating £500m to help low-income households, including social housing. £50m Social Housing innovation stimulus for whole house retrofits.
- **Supporting low income households:** Conservative manifesto included £3.8bn for Social Housing Decarbonisation Fund and £2.5bn for Home Upgrade Grants for low income households. ECO requires energy companies to install energy efficiency measures in homes of those who need them most. Warm Home Discount Scheme for low income households.
- **Scaling zero carbon heat:** Zero carbon heating measures included in GHG and Public Buildings Decarbonisation Schemes. Domestic Renewable Heat Incentive extended to until March 2022, to then be replaced with £100m Clean Heat Grant to support heat pump purchases.

FURTHER ACTION NEEDED TO TURN STIMULUS INTO BETTER RECOVERY INVOLVES

- **Longer-term policy clarity to boost industry confidence to invest in regional supply chains while long term strategy gets underway:** Extending the GHG retrofit completion time to at least autumn 2021 would sustain activity, providing more time a new strategy to get off the ground.
- **Ensure public capital support is available to all tenures, household groups, energy efficiency and heat over a sustained period:** This needs to start with the full delivery of

[30] Peter-Hansen, Vind & Villumsen (2020) How to solve the crisis? Strengthen workers' voices

[31] ONS (2020) Output in the construction industry

[32] EEIG (2020) Rebuilding for Resilience: Energy efficiency's offer for a net zero compatible stimulus and recovery

manifesto pledges for energy efficiency, including extended delivery of new commitments to support able to pay households and heat pump take-up introduced by the Green Homes Grant.

- **Structural incentives to support 'able to pay' market to become self-sustaining and drive widespread take-up:** These may include low cost finance, Stamp Duty and Council Tax incentives, lowered VAT, capital allowances and early clarity on future regulatory requirements for home energy and carbon performance.
- **Scaling up solutions for climate resilience:** Codes of Practice and standards relating to flooding and heat shocks (such as the Code of Practice and guidance for property flood resilience - RP1055 and BS 851188) – as well as knowledge of the role of buildings themselves in reducing flood and urban heat island impacts – are enhanced and widely socialised to develop more resilient retrofit services, with business models and financial products developed that can scale up adoption.

OUTCOMES FROM A LONG-TERM PROGRAMME AND INVESTMENT PLAN INCLUDE

- More investment in home energy infrastructure per capita flows to areas outside of London, the Home Counties and the South East, with attendant, persistent benefits to local jobs and economies.
- Energy services for warm, comfortable homes become affordable for those who can least afford them, ending energy inefficiency as the leading cause and a symptom of fuel poverty, levelling up resilience to health and wellbeing risks from unhealthy homes.
- Energy efficiency and low carbon heat investment levels up rural-urban infrastructure and living cost disparities.
- Individual homes are 'fit or the future', resilient to anticipated climate shock including heat waves, cold snaps, water stress and flooding.
- Neighbourhoods face reduced flooding risk and urban heat island effects.

2.3.3 CSR priority 3: Improving public service outcomes, including the NHS

Inefficient homes are hard and expensive to keep warm and exacerbate risks of respiratory and circulatory problems, as well as poor mental health. Raising quality of life through better homes can have broader societal benefits, including better educational attainment. Improving energy efficiency is an opportunity to enhance resilience to health and wellbeing risks and reduce pressure on the NHS – risks which will be heightened should lockdowns be tightened in colder months. While energy efficiency will not solve poverty, a focus on supporting low income households can help towards alleviating pressures on other public services including the NHS.

Making public buildings energy efficient cuts energy bills and epitomises responsible use of public money, allowing resources to be redirected to support education, health and other public services. The installation of on-site renewable generation can provide long-term paybacks, creating a more resilient and sustainable operating model for public estates.

CURRENT STATE OF PLAY

- **Creating warmer, healthier homes:** Programmes focused on improving insulation in social housing, fuel poor and low-income homes – Social Housing Decarbonisation Fund, Green Homes Grant offer for low income households, Local Authority Delivery Scheme, Energy Company Obligation and Minimum Energy Efficiency Standards (MEES) for the private-rented sector.
- **Reducing the costs of running public buildings**: £1bn tranche of Public Sector Decarbonisation Scheme to improve the insulation and energy efficiency of public buildings, and to invest in green heating technology over the next year.

FURTHER ACTION NEEDED TO TURN STIMULUS INTO BETTER RECOVERY INVOLVES

- **Delivery, topping up in this Parliament, and extension of relevant Conservative manifesto pledges to 2030:** including the Social Housing Decarbonisation Fund, Home Upgrades Grant – part-deployed as the Green Homes Grant's low-income household offer and the Local Authority Delivery scheme – and Public Sector Decarbonisation Scheme.
- **Continued Energy Company Obligation reform:** to ensure it delivers all appropriate home energy upgrades to beneficiary households with a focus on healthy homes, early clarity on what succeeds it in 2022, and extending commitment to its successor from 2028 to 2030.
- **Ensuring the health sector's widespread involvement in locally led delivery:** to consistently identify households at risk of the adverse impacts of living in a cold home.

OUTCOMES FROM A LONG-TERM PROGRAMME AND INVESTMENT PLAN INCLUDE

- Household finances and health are more resilient when needing to stay or work at home.
- Cold and damp homes-induced illness and a quarter of excess winter deaths – 10,000 linked to cold housing conditions – are potentially avoided each year by 2030, reducing pressure on the NHS, saving between £1.4 and £2.0 billion each year in England alone[33], and other public services.
- Decarbonisation of buildings reduces energy bills through energy efficiency improvements and on-site renewable generation. Taxpayer spending reduced, freeing up capital for other services. Public sector procurement, energy and carbon performance inspires by example and reduces supply chain costs for all tenures. Development of high-quality supply chain that extends into commercial real estate sector.

2.3.4 CSR priority 4: UK as scientific superpower, including for net zero

There is an opportunity to invest in the tradespeople and manufacturing base that will underpin the decarbonisation of UK homes through local supply chains; with research and innovation to accelerate progress towards net zero. UK-based manufacturers have world-leading expertise in insulation, glazing, low carbon heating, ventilation and building control systems. With confidence in short and long-term domestic demand, manufacturers and service providers can invest and flex their capacity to match[34]. Government support can also drive the digital infrastructure needed to decarbonise UK homes.

Scientific leadership can ensure that the UK's recovery and net zero transition are environmentally and socially sustainable: there is a need to embed sustainable and circular design into the materials and products used to decarbonise homes. The UK can show leadership through reflecting these considerations in the forthcoming Heat & Buildings Strategy and Industrial Strategy activity. To name just a few considerations, this could include a review of embodied carbon[35]; circular design and construction; a review

[33] BRE (2015) The cost of poor housing to the NHS

[34] Chief Construction Adviser (2015) Solid Wall Insulation: Unlocking Demand and Driving Up Standards

[35] LETI (2020) LETI Embodied Carbon Primer: Supplementary guidance to the Climate Emergency Design Guide

of potential toxic or harmful chemical and substances; and accelerated phase-out of F-gases in heat pumps[36].

CURRENT STATE OF PLAY

- **Supporting science, research and innovation:** numerous funded innovation initiatives are underway in relation to energy and carbon in the built environment, including for whole-house retrofits, solid wall insulation, smart meter enabled thermal efficiency ratings, green home finance, electrification of heat[37], the 2030 Transforming Construction Challenge and the Prospering from the Energy Revolution programme.
- **Voluntary measures** underway to develop standards on sustainability and resilience of UK buildings, as well as digital infrastructure needs for zero carbon homes.

FURTHER ACTION NEEDED TO TURN STIMULUS INTO BETTER RECOVERY INVOLVES

- **Compressed and additional innovation investment**: diffusing products and techniques for enhanced productivity; supporting participants in the Industrial Strategy's Transforming Construction Challenge to halve energy use of new builds and halve costs of by 2025. Establishing a Heat Pumps Sector Deal – analogous to offshore wind industry – to boost supply chains, create green jobs and lower costs.
- **Leading on sustainability research and science,** building on existing work regarding embodied carbon, sustainable materials and construction for energy efficiency retrofits and zero carbon heat. This should integrate areas included in the EU Taxonomy such as circular economy, pollution, water and ecosystems.
- **A long term strategy to build the digital infrastructure around home decarbonisation:** through a standardised, industry-recognised Building Renovation Passports framework and Metered Energy Savings methodology; enabling the use of anonymised smart metering data to develop new products and services, including for retrofit finance; and building out the retrofit data warehouse to drive continual quality improvement.

OUTCOMES FROM A LONG-TERM PROGRAMME AND INVESTMENT PLAN INCLUDE

- Innovation in technologies and techniques drives down cost and enhances productivity of zero carbon construction and renovations across the supply chain, enabling them to be deployed at scale sooner; delivering competitive advantage for trade opportunities in related materials, products and services.
- The UK retrofit industry and zero carbon heat supply chain shifts to a sustainable and circular approach in design and construction, helping reach the net zero target in a socially and environmentally resilient way.

2.3.5 CSR priority 5: Strengthening UK's place in the world

Ahead of the UK and Italy's hosting of important UN climate talks (the 26th Conference of Parties – COP26), it is critical the UK shows leadership to energise and inspire the international community to join the net-zero transition. The UK cannot achieve its net zero goal if concerted progress on decarbonising homes and heat is not made within the next decade, meaning that decisions made during this Parliament are critical for progressing to 2030. With progress being made in other sectors, the UK's authority

[36] Environment Agency & Defra (2019) Bans on F gas in new products and equipment: current and future

[37] BEIS (2020) Innovations in the built environment

as a leading voice on climate policy depends in large part on the development and deployment of a credible, long-term zero-carbon plan for UK homes and buildings.

Heating buildings accounts for 21% of the UK's emissions, second only to transport, and is a sector in which progress has been severely lacking. Currently, only 8% of the UK's heat is provided from renewable energy, making it joint second-to-last in the European league table[38], while the UK's housing stock is among the least efficient in Europe[39]. A decision on substantive action to decarbonise heat to 2030, coordinated with energy efficiency, is needed this year to get on track, building on the decision to include heat pumps in the Green Homes Grant scheme.

CURRENT STATE OF PLAY

- → The UK lags behind: homes in the UK are among the least efficient in Europe, with slow progress also on heat pump and heat network deployment compared to peer nations.
- → Homes account for much of the climate shortfall to 2030: projected carbon emissions from homes account for nearly 40% of the gap to meeting the UK's fifth carbon budget, more than any other sector's contribution to the shortfall[40 41].
- → A platform for leadership: The UK is co-hosting COP26 in 2021 and seeking to inspire ambition and action in other nations.

FURTHER ACTION NEEDED TO TURN STIMULUS INTO BETTER RECOVERY INVOLVES

- → Underpinning the politics of climate ambition: The UK needs to demonstrate leadership by delivering an ambitious and credible long-term plan through BEIS's Heat and Buildings Strategy, properly resourced through the Comprehensive Spending Review.
- → Developing net zero trade and industry: The UK can attract and develop world-leading expertise on zero-carbon heating through launching a long-term Heat Pumps Sector Deal to attract foreign direct investment for zero carbon heating solutions manufacture and installation across this decade.

OUTCOMES FROM A LONG-TERM PROGRAMME AND INVESTMENT PLAN INCLUDE

- → The UK bolsters its manufacturing and export base for zero carbon home supply chains. UK-based manufacturers with world-leading expertise in insulation and exterior systems, glazing, low carbon heating, ventilation, air-conditioning and building control systems drive construction sector exports well beyond the £8 billion seen in 2016[42].
- → The UK's growing track record of progressive and demonstrably successful policy making inspires other countries to drive ambition further at COP26, 31 and 36.

2.3.6 CSR priority 6: Improving delivery of commitments

Decarbonising homes at speed and scale to the highest standards requires measures to improve management and delivery of commitments. The current lack of demand for energy efficiency and low carbon heat improvements is a critical barrier to decarbonising the UK's building stock, as well as to unlocking large scale private investment[43]. To achieve the breadth and depth of action needed for net zero, locally led delivery of investable solutions tailored to individual, community and local circumstances – supported by good national governance, public capital and backed by increasingly confident investors – is essential.

[38] Eurostat (2020) Renewable energy for heating and cooling

[39] Guertler, Carrington & Jansz (2015) The Cold Man of Europe - 2015

[40] BEIS (2019) Updated energy and emissions projections: 2018

[41] CCC (2016) Fifth Carbon Budget Dataset

[42] CCC (2019) UK housing: Fit for the future?

[43] GFI (2020) Stimulus actions for a greener and more resilient property sector

CURRENT STATE OF PLAY

- Climate emergencies and local leadership: two thirds of Councils committed to net zero by 2035 or sooner[44], with 39% actively delivering clean energy transitions. Some public funding is available, including Local Authority Delivery (LAD) and Local Energy Hubs schemes worth £500m in 2020/21.
- Coordinated governance is largely lacking: the Heat Networks Delivery Unit is a notable exception, but more comprehensive governance structures are needed.
- Devolved nations lead the way: all have stronger national governance of home decarbonisation, with larger roles for local government in coordinating delivery and better results.
- Emerging green home finance products: a handful of UK lenders currently offer products, while numerous demonstration projects are in development.

FURTHER ACTION NEEDED TO TURN STIMULUS INTO BETTER RECOVERY INVOLVES

- Boosting local delivery structures: extended support for local authorities building on the LAD can be leveraged alongside the Social Housing Decarbonisation Fund and the Energy Company Obligation to build out capacity and capability for delivery across the country. This could lay the foundation for a decentralised network of leadership clusters that can coordinate delivery in a way that is locally democratic and requires only light-touch central governance, for example through zoning[45].
- Strategic public finance and technical assistance supports widescale home retrofits: A new National Infrastructure Bank (NIB) focused on net zero and economic recovery can guide local authorities in making local heat and energy efficiency plans investable, link investor capital with areas that need it, and lower the cost of finance.
- Mainstreaming green finance: Banks deliver subsidised low, no-interest and/or government guaranteed loan scheme for domestic energy efficiency and zero carbon heat. Loan guarantee mechanism for large-scale, quality neighbourhood renovation projects anchored to social housing, dovetailing with the Social Housing Decarbonisation Fund.

OUTCOMES FROM A LONG-TERM PROGRAMME AND INVESTMENT PLAN INCLUDE

- Locally led delivery serves multiple functions that boost investor confidence: administering government grants and public and private finance, engaging communities, coordinating supply chain, providing quality assurance and redress, collaborating with networks of community actors and intermediaries[46].
- Levelled-up local capacity supports delivery of net-zero transition in every part of the country. Local governments and other actors across the country are capable of raising the capital required.
- A new NIB offers households blended loans similar to German KfW bank via the retail banking network.
- Government and NIB support a range of further instruments – mortgages, pay as you save, green leases, energy-as-a-service – to suit individual household and investor circumstances – unlock a rising share of investment from the able to pay, making delivery of heat and energy efficiency commitments reliable and efficient.
- Banks and other finance providers accumulate experience to bring a multitude of attractive financial products for energy efficient construction and renovation to market at scale, backed by institutional investors and capital markets.

[44] 68% of District, County, Unitary & Metropolitan Councils have declared a Climate Emergency to date.

[45] ADE (2020) Heat and Energy Efficiency Zoning: A framework for net zero new and existing buildings

[46] Brown et al. (2020) A Green Stimulus for Housing: The Macro-economic Impacts of a UK Whole House Retrofit Programme

3 Embedding better recovery through decarbonised homes into forthcoming policy decisions

Turning stimulus into recovery and forging the path to net zero requires a comprehensive, ambitious and inclusive government strategy and investment plan which delivers substantial action over the next decade. The success or failure to embed key measures into forthcoming policies and decisions will be instrumental in determining whether the UK can meet its climate targets in a way which is fair, timely and support economic recovery.

Key landing points include:

- → The successful deployment of the **Green Homes Grant** and other stimulus measures;
- → Adequate capital allocations, structural incentives and governance arrangements for home decarbonisation through **HM Treasury's Comprehensive Spending Review, next Budget and National Infrastructure Strategy;**
- → A clear, funded path forward to fully decarbonise UK homes by 2050 including milestone targets for 2030 through **BEIS' Heat & Buildings and Fuel Poverty Strategies;**
- → Joined-up decision making – including from other departments – in the realms of innovation, skills, industrial strategy, digitalisation and green finance that support the above.

The following sections focus on the principal upcoming decisions at HM Treasury and BEIS.

3.1 HM Treasury: Comprehensive Spending Review, Infrastructure Strategy and Budget

The Government's £3.05 billion one-year announcement of the Green Homes Grant (£2bn), Social Housing Decarbonisation Fund (£0.05bn) and Public Sector Decarbonisation Schemes (£1bn) in summer's Economic Statement have been presented by HM Treasury as a "significant down payment on decarbonising buildings", with "allocations for future funding" to be determined "in due course" . In addition to energy efficiency, the Green Homes Grant will support residential heat pump installations. While the share of the £2 billion that might go towards heat pumps is difficult to predict, their inclusion is a welcome step towards integrated delivery of a fabric-first approach to energy efficiency and heat decarbonisation, and is likely to dwarf the £50 million of support planned for heat pumps over two years under the proposed Clean Heat Grant from 2022.

3.1.1 CSR: Energy efficiency investment pathway for homes

The Comprehensive Spending Review (CSR) needs to build on the announcements to set out how continued investment in home decarbonisation will be funded. As a starting assumption, we have set out an illustrative, smooth investment pathway – subject to the goal of EPC C for all homes by 2030 – that allocates two thirds of the Green Homes Grant's budget to energy efficiency improvements in 2020/21. The assumption that the minority third of funding goes towards low carbon heat is predicated on its present relatively small market.
Figure 3 charts the investment pathway for energy efficiency improvements only, adding £2.05 billion in 2020/21 to the funding already in place under the Energy Company

[47] Murray (2020) 'Significant down payment': Chancellor to unveil £3bn green building upgrade package

Obligation (ECO) and the Devolved Nations. Blue denotes public investment (including the ECO) and green denotes private contributions (including from social housing providers).

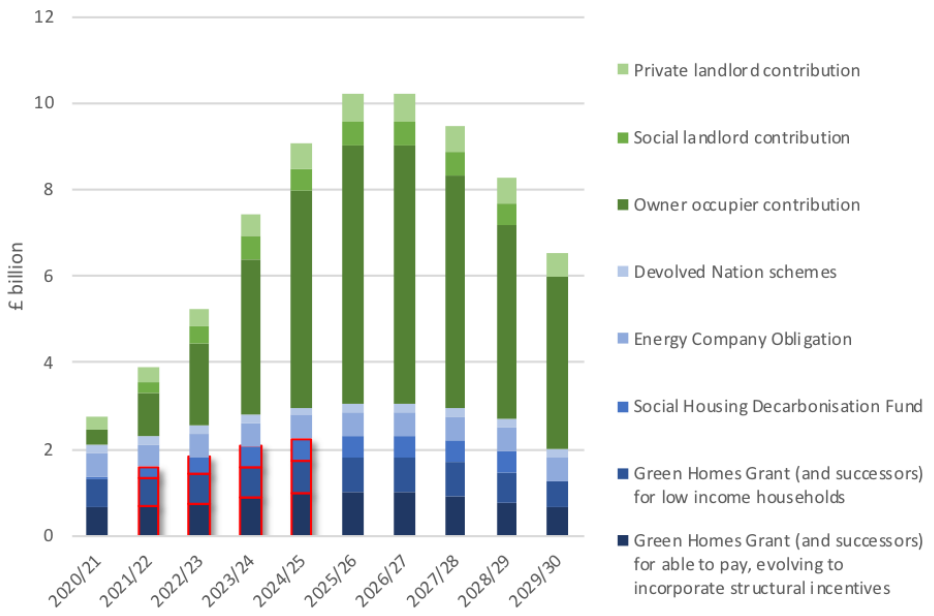


Figure 3: Investment pathway towards EPC C for all homes by 2030

Further assumptions in Figure 3 of note include:

- The total investment going towards achieving EPC C by 2030 from public and private sources is £73 billion – somewhat above the £65 billion previously estimated by BEIS.
- The £3.8 billion earmarked for the Social Housing Decarbonisation Fund over ten years in the Conservative manifesto is deployed in full by 2029/30.
- Increases in devolved nation funding (as set out for example by Scottish Government this September) have not been factored in.
- That in 2020/21, 50% of the Green Homes Grant that goes towards energy efficiency is allocated to low income households and therefore comes out of the £2.5 billion earmarked over five years for the low income-focused Home Upgrades Grant in the manifesto. Over the five years to 2024/25, Figure 3 allocates £3.4 billion to low income households in this way – £0.9 billion in excess of the manifesto commitment to the Home Upgrades Grant
- That in 2020/21 50% of the Green Homes Grant that goes towards energy efficiency is allocated towards incentivising able-to-pay homeowners to invest – and constitutes a funding commitment that was not pledged in the manifesto. Over the five years to 2024/25, Figure 3 allocates £4 billion to a suite of able-to-pay incentives not pledged in the manifesto – the Green Homes Grant only in year one – that can sit alongside and eventually succeed it. The level of subsidy, capped under the

Green Homes Grant at two thirds, falls over time and leverages increasing amounts of private investment – peaking at £6 for every £1 of public investment, as seen in Germany. This is facilitated by the introduction of structural incentives such as:

- Revenue-neutral Stamp Duty that is varied with energy performance (or other revenue neutral fiscal incentives);
- Regulation expanded to cover owner occupied homes' energy performance;
- And low-cost finance offered from public (helped by a new National Infrastructure Bank) and private finance providers (convened on retrofit by the Green Finance Institute and gearing up), lowering the subsidy needed per home.

Figure 4 zooms in on the split in public investment directed towards able to pay (purple) and low-income households (yellow). The pathway maintains an appropriate balance between fully subsidised upgrades for low-income households and the aforementioned suite of able-to-pay incentives, and closes the energy efficiency investment gap identified by England's Committee on Fuel Poverty. The total public investment – including ECO and the Devolved Nations – over the ten years to 2030 is £26 billion, marginally above the EEIG's recommendation.

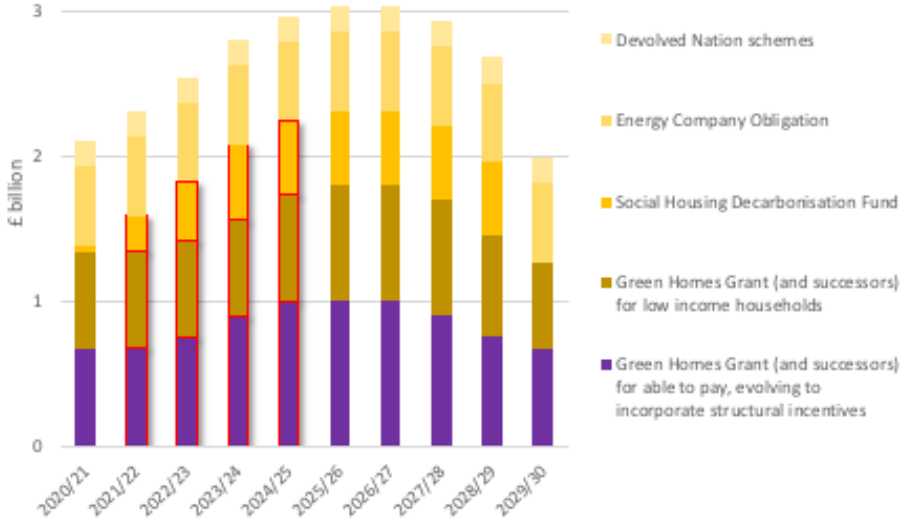


Figure 3: Investment pathway towards EPC C for all homes by 2030

Public capital

The implication of this pathway is that the **Comprehensive Spending Review needs to allocate a further £7.8 billion of public capital towards home energy efficiency investment in addition to the summer's Economic Statement** – indicated in Figure 3 and Figure 4 using red outlines – over the four years to the end of this Parliament. This would bring the total public energy efficiency investment in homes during this Parliament to £9.2 billion.

The £7.8 billion additional public investment the EEIG is calling for over the next four years from 2021 breaks down into £4.5 billion for low income households and social housing and £3.3 billion to incentivise able to pay homeowners – together designed to leverage a further £15 billion from landlords and owner occupiers.

3.1.2 CSR: Heat investment pathway for homes – focus on heat pumps

By reducing demand for heat, energy efficiency upgrades are part and parcel of 'fabric first' heat decarbonisation, and strongly complement the deployment of heat pumps – included in the Green Homes Grant and necessary for heat decarbonisation efforts over the next decade, regardless of the balance of low carbon heat technologies deployed by 2050.

To complement the target of EPC C for all homes by 2030, the EEIG recommends that a UK target be set to reduce today's carbon emissions from heating buildings by 50% by 2030 while embedding the fabric first principle. This would be commensurate with the overall pace of decarbonisation needed domestically and internationally to maintain a decent chance of limiting warming to 1.5°C[48], aligned with Scotland's ambition for heat[49], and can be technically delivered in ten years – principally through heat pumps[50]. Recent work by E3G summarises the rationale, profile and policy levers for this level of ambition[51].

Using the complementary starting assumption to Figure 3 that one third of the £2 billion under the Green Homes Grant is allocated towards heat pumps, Figure 5: illustrative investment pathway for heat pumps towards halving home heating emissions shows an illustrative pathway for heat pumps investment in existing homes, which alongside energy efficiency is commensurate with a 50% reduction in home heating emissions.

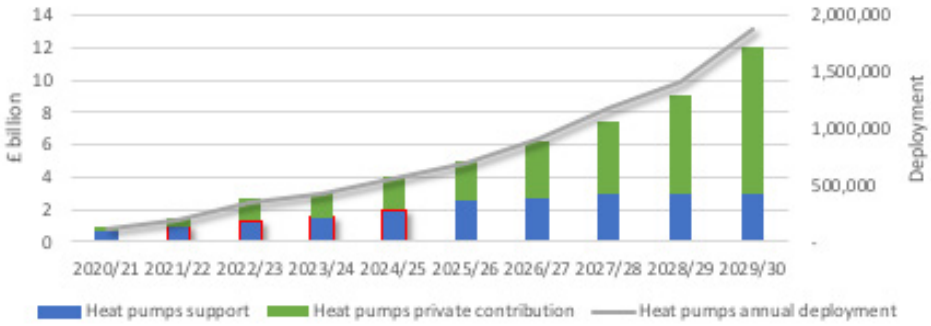
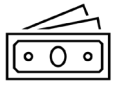


Figure 5: illustrative investment pathway for heat pumps towards halving home heating emissions

As with the energy efficiency pathway, the initially high level of subsidy available under the Green Homes Grant is assumed to transition to a suite of fiscal, financial, regulatory and educational policy measures that reduce the support needed to drive consumer take-up as the market develops.



Public capital

As indicated by the blue bars with red outlines in Figure 5: illustrative investment pathway for heat pumps towards halving home heating emissions , the **EEIG therefore recommends that £5.8 billion of public capital is allocated in the Comprehensive Spending Review towards supporting heat pumps deployment in existing homes, drawn from the £100 billion infrastructure budget for this Parliament.**

[48] By eliminating 45% of today's emissions by 2030 to limit global warming to 1.5°C. IPCC (2018) Global Warming of 1.5 oC.

[49] Scotland is seeking to fully eliminate emissions from heat buildings by 2040. See Scottish Government (2020) Protecting Scotland, Renewing Scotland.

[50] Modelling for the National Infrastructure Commission finds that the combination of energy efficiency and heat pump deployment can reduce emissions from heating buildings by 44% by 2030. See Element Energy (2018) Cost analysis of future heat infrastructure options.

[51] E3G (2020) Getting on Track to Net Zero: ten million heat pumps for homes by 2030

3.1.3 National Infrastructure Strategy

The National Infrastructure Strategy, also expected by the end of this year, is due in response to the National Infrastructure Commission's first National Infrastructure Assessment. It will lay out a long term vision and five year plan for investment in the UK's infrastructure, and needs to afford energy efficiency and heat infrastructure investment priority status, commensurate with achieving net zero and cognisant of the interdependencies and synergies between decarbonised homes, climate resilience, digitalisation, a net zero electricity system and the rollout of EV charging infrastructure.

Governance

Critical to this, and for bridging economic recovery from the pandemic with achieving net zero, is the **need to establish a new National Infrastructure Bank** – also recommended by the NIC and backed by many others[52] – not least in response to the expected loss of funding from the European Investment Bank. For buildings decarbonisation, it can pave the way for private finance offers to flourish[53], lowering their cost and increasing their availability by absorbing initially riskier investments – essential to increasing private investment and reducing subsidy levels. It can also identify, develop and standardise investment propositions, leading and monitoring investment flows to regions that need it most – playing an important role in the governance of a long-term energy efficiency and heat strategy.

3.1.4 Next Budget

The next Budget will need to navigate a challenging balance between a further round of stimulus and recovery measures while managing public finances. It is therefore a key opportunity to introduce a new and revised set of structural incentives to encourage home decarbonisation:

Able to pay incentives

With the Stamp Duty holiday launched at summer's Economic Statement due to end in March next year, the upcoming Budget is the right time to introduce a Stamp Duty rebate for the purchase of energy efficient homes or their subsequent renovation. With time, and as the economic crisis subsides, the rebate can evolve into a revenue-neutral mechanism to embed energy and carbon performance in property values, thereby establishing a powerful price signal to homebuyers and lenders that will complement other fiscal and regulatory mechanisms to support retrofit.

In addition, the Budget presents an opportunity to extend the availability of the lower 5% rate of VAT for energy saving products (including building integrated renewables and low carbon heat) to all households or abolish it altogether.

To facilitate the decarbonisation of heat, the upcoming budget is an opportunity to explore a price on the carbon content of natural gas, coupled with compensatory measures for low income households – to level the playing field for smart and efficient electric heat.

[52] See E3G (2020) Banking on the Future: the case for a Green Infrastructure Bank.

[53] See GFI (2020) Financing energy efficient buildings: the path to retrofit at scale.

Finally, the Budget should reintroduce a Landlords Energy Saving Allowance, for private landlords who retrofit their properties beyond Minimum Energy Efficiency Standard requirements.

3.2 BEIS: Heat & Buildings and Fuel Poverty Strategies

3.2.1 Heat & Buildings Strategy

BEIS' forthcoming Heat & Buildings Strategy will address heat and energy efficiency together, building on the call for evidence on 'Building the Market for Energy Efficiency' that was issued in the wake of the Clean Growth Strategy. Using the Green Homes Grant and the first tranches of the Public Sector Decarbonisation Scheme and Social Housing Decarbonisation Fund as its launchpad, it needs to serve as the blueprint for decarbonising buildings for the next ten years and **bring forward the EPC C target for homes from 2035 to 2030, to support a new goal to halve emissions from heating existing homes by 2030.**

RATIONALE FOR EPC C BY 2030

The Government's 2017 Clean Growth Strategy introduced a target for all homes to reach EPC C by 2035. This was in the context of the UK's previous greenhouse gas emissions target for an 80% reduction by 2050.

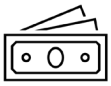
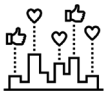
In light of the new, legally binding net zero target and the need to accelerate decarbonisation over the next ten years – particularly the decarbonisation of heat – this energy efficiency target is not ambitious enough. Analogous to the end date for fossil vehicle sales, we therefore recommend bringing this energy efficiency target forward by five years, while encouraging homes to achieve standards higher than EPC C. It would:

- → Help get the UK on track to net-zero emissions and reduce the risk of emissions reduction failure in other sectors.
- → Widen the pool of homes able to take up heat pumps and other low carbon heating, meaning more decarbonised heating can be deployed sooner.
- → Increase the net present value of achieving EPC C in homes.
- → Bring able to pay owner occupiers into line with the targets for all other housing and fuel poor households, fostering a greater sense of inclusivity.
- → Reduce the risks of fuel poverty persisting after 2030.

The Strategy's scope is likely to be considerable – in addition to the targets, the EEIG recommends that BEIS:

Governance

- → Brings forward the EPC C target to 2030 and sets a new target to halve emissions from heating existing homes by 2030, embedding the fabric first principle.
- → Establishes governance arrangements supporting a locally led approach for the Strategy's implementation, learning and refinement; taking on board the possible establishment and role of a new National Infrastructure Bank.
- → Institutes a fabric and energy efficiency first principle, by advancing proposals for a regulatory framework that incentivises or requires distribution system operators to prioritise energy demand reduction and flexibility investments.

	→ Initiates the establishment of a Heat Pumps Sector Deal, mirroring Scotland, to build and attract investment to the market for efficient electric heating.
 *Public capital*	→ Confirms total investment requirement to meet 2030 targets – including for homes a further £7.8 billion of public capital for energy efficiency and £5.8 billion for heat to 2025 – and maps investment needed for further decarbonisation to 2050. → Connects with the green finance agenda to accelerate the launch and diffusion of new financial products and services to leverage private investment.
 *Able to pay incentives*	→ Establishes successor arrangements for the Green Homes Grant's support for energy efficiency (see section 3.1.1), commensurate with the investment that needs to be unlocked to achieve EPC C for all homes by 2030, in alignment with any fiscal incentives introduced by HM Treasury and potential offers from a National Infrastructure Bank. → Establishes long-term successor arrangements for the Renewable Heat Incentive and Green Homes Grant's support for heat pumps – taking on board the impact of the Green Homes Grant on the suitability of the much smaller Clean Heat Grant as an interim successor – designed to ensure that heat pumps have a mass market by the mid-2020s and heat networks investment can scale up, for which the Comprehensive Spending Review decisions will be critical. This needs to be supported by mechanisms that capture the value of heat as a flexible load and the ability to introduce energy tariffs that reward flexible heat demand.
 *Regulation*	→ Publishes the proposed trajectory for Minimum Energy Efficiency Standards required of the private-rented sector – increasing to EPC C by 2030 at the latest – and consults on the development of equivalent standards for the social housing and crucially, the owner-occupied sector – modelled on Scotland's proposals. A roadmap for migrating to carbon performance standards, incorporating actual energy and carbon performance measurement, needs to be set out. → Coupled with migration to carbon performance, sets a trajectory for the phase out of fossil heating system sales, starting with the most carbon-intensive through to a backstop ban for natural gas boilers. → Sets out a roadmap for phasing in the Future Home Standard before 2025.
 *Local and fair delivery*	→ Through a new National Infrastructure Bank and working alongside Local Energy Hubs, supports local authorities and other local actors to prepare investable local heat and energy efficiency plans – drawing on the practical experiences of the Heat Networks Delivery Unit. → Sets out long-term successors to the Local Authority Delivery scheme and planned support for Local Energy Hubs-led delivery. → Coordinates its local delivery approach in close alignment with the Fuel Poverty Strategy.

Advice and standards

- → Rolls out the remainder of the Each Home Counts and Hackitt reviews' recommendations as the supply chain and associated infrastructure scales up.
- → To drive down costs while improving standards and productivity, connects with the innovation, skills – focused on scaling up capacity for PAS 2035 and other relevant standards and TrustMark accreditation, and the delivery of end-to-end quality assurance processes – as well as industrial strategy agendas, including an accelerated Clean Growth Buildings Mission, backed by the Transforming Construction Challenge Fund, that meets a demonstration goal to halve all energy consumption in new buildings and halve the cost of retrofitting to that standard by 2025.
- → Drives digitalisation forwards – by leveraging Trustmark's data warehouse and establishing official protocols for metered energy savings, energy performance verification and building renovation passports.
- → Connects the adaptation, resilience and circular economy agendas with building decarbonisation by setting new standards for sustainable construction materials and techniques that take account of and manage climate impacts, emissions and embodied carbon in buildings across their lifecycle.

3.2.2 Fuel Poverty Strategy

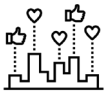
BEIS' forthcoming update of the Fuel Poverty Strategy, also expected this year, represents a reset of the approach to meeting England's statutory fuel poverty targets. In its consultation, BEIS proposed to change the measurement of fuel poverty to a 'Low Income Low Energy Efficiency' indicator, which could increase the number of households deemed in fuel poverty by over one million. An action plan to implement the Strategy is also expected – a valuable addition which was omitted from 2015's strategy. To ensure the transition to zero carbon homes is fair and just, the reviewed Fuel Poverty Strategy needs to be closely intertwined with the Heat & Buildings Strategy. The EEIG recommends that BEIS:

Governance

- → Implements its proposal to include all low-income households living in homes below EPC C in the measurement of fuel poverty to reduce the complexity and challenges of identifying households in fuel poverty for support.
- → Publishes a new fuel poverty action plan with clear roles and responsibilities for actors under the revised strategic framework, compatible with and supportive of the long-term programme for decarbonising homes.
- → Establishes a set of supplementary indicators that track homes that cannot be improved to EPC C and low-income households in EPC C homes that still struggle with energy costs.

Public capital

- → Sets out how the energy efficiency investment gap of at least £8.9 billion to 2030 (predicated on the assumption that Clean Growth Strategy proposals are implemented in full) identified by the Committee on Fuel Poverty will be closed while meeting the 2025 milestone of EPC D, including through the Green Homes Grant

 *Regulation*	offer for low income households and its eventual successor(s). → Publishes proposals for assisting fuel poor owner occupiers who may become affected by Minimum Energy Efficiency Standards regulation in future. → Ensures that private-rented sector Minimum Energy Efficiency Standards are adequately policed and rigorously enforced.
 *Local and fair delivery*	→ Establishes a clear role for, and enables, all local authorities to help deploy the missing capital investment, building on the Local Authority Delivery scheme and subsequent Local Energy Hubs scheme announced alongside the Green Homes Grant. → Establishes mechanisms to ensure that low income households benefit fairly from the transition to low carbon heat.
 *Advice and standards*	→ Ensures that ECO delivers all appropriate energy efficiency measures to fuel poor households by shifting it to a whole house retrofit approach.

4 Turning stimulus into recovery

The Government's decision to include a major focus on green home retrofits among stimulus measures announced this summer was a welcome, ambitious first step – if short-term – to support jobs and boost economic activity across the country. However, only a long-term programme and investment plan can provide industry and consumers with the confidence to invest in decarbonising homes. Only a long-term programme underpinned by public capital investment can ensure the economic benefits needed for better recovery. This can secure larger and more widespread energy cost savings that boost spending across the country, driving economic expansion; in turn generating a greater return to the taxpayer by way of tax cuts that the expansion affords. This could result in a larger number of sustainable jobs created in the wider economy, particularly in local retail and services, as well as a larger, persistent increase in GDP.

Turning stimulus into better recovery and forging the path to zero carbon homes requires a comprehensive, ambitious and fair Government strategy and investment plan for the next 10 years. The opportunity it offers is the ability to connect recovery with getting on track to net zero – by contributing to all six of the Comprehensive Spending Review's priorities.

CSR	OUTCOMES FROM A LONG-TERM PROGRAMME AND INVESTMENT PLAN FOR DECARBONISING HOMES
Jobs and skills	→ A long-term energy efficiency programme supports over 150,000 skilled and semi-skilled jobs to 2030 across the supply chain in every part of the country, doing more in the regions that need it most. To decarbonise heating, the installer base would grow to at least 38,000 to deliver a 50% reduction in home heating emissions by 2030. Many further jobs in retail and services are created that persist well beyond the programme, induced by the persistent boost to consumer spending from energy savings.
Levelling up	→ Young people and construction sector workers furloughed or laid off are offered an opportunity to train to the highest standards to assure energy efficiency and system performance, thereby driving systematic up-skilling and productivity of the workforce. → Tripartite agreements between Government, employers, employees and self-employed contractors swiftly and reliably ensure that jobs in decarbonising homes are desirable, safe, stable and therefore more resilient to future economic shocks. → A long-term programme sustainably adds at least £7bn to the UK's housing repair, maintenance and improvement market.
Public service outcomes	→ More investment in home energy infrastructure per capita flows to areas outside of London, the Home Counties and the South East, with attendant, persistent benefits to local jobs and economies. → Energy services for warm, comfortable homes become affordable for those who can least afford them, ending energy inefficiency as the leading cause and a symptom of fuel poverty, levelling up resilience to health and wellbeing risks from unhealthy homes.

Public service outcomes	→ Energy efficiency and low carbon heat investment levels up rural-urban infrastructure and living cost disparities. → Individual homes are 'fit or the future', resilient to anticipated climate shock including heat waves, cold snaps, water stress and flooding. Neighbourhoods face reduced flooding risk and urban heat island effects.
Public service outcomes	→ Household finances and health are more resilient when needing to stay or work at home. → Cold and damp homes-induced illness and a quarter of excess winter deaths – 10,000 linked to cold housing conditions – are potentially avoided each year by 2030, reducing pressure on the NHS, saving between £1.4 and £2.0 billion each year in England alone, and other public services. → Taxpayer spending reduced, freeing up capital for other services. → Public sector procurement, energy and carbon performance inspires by example and reduces supply chain costs for all tenures. Development of high-quality supply chain that extends into the commercial real estate sector.
UK as scientific superpower	→ Innovation in technologies and techniques drives down cost and enhances productivity of zero carbon construction and renovations across the supply chain, enabling them to be deployed at scale sooner; while delivering competitive advantage for trade opportunities in related materials, products and services. → The UK retrofit industry and zero carbon heat supply chain shifts to a sustainable and circular approach in design and construction, helping reach the net zero target in a socially and environmentally resilient way.
UK place in the world	→ The UK bolsters its manufacturing and export base for zero carbon home supply chains. UK-based manufacturers with world-leading expertise in insulation and exterior systems, glazing, low carbon heating, ventilation, air-conditioning and building control systems drive construction sector exports well beyond the £8 billion seen in 2016. → The UK's growing track record of progressive and demonstrably successful policy making inspires other countries to drive ambition further at COP26, 31 and 36.
Improving delivery of commitments	→ Locally led delivery boost investor confidence by administering government grants and public and private finance, engaging communities, coordinating supply chain, providing quality assurance and redress, collaborating with networks of community actors and intermediaries. → Levelled-up local capacity supports delivery of net-zero transition across the country. Local governments and other actors across the country are capable of raising the capital required. → A new National Infrastructure Bank offers blended loans to households similar to German KfW bank via the retail banking network. → Government and National Infrastructure Bank support a range of further instruments – mortgages, pay as you save, green leases, energy-as-a-service – to suit individual household and investor circumstances – unlock a rising share of investment from the able to pay, making delivery of heat and energy efficiency commitments reliable and efficient. → Banks and other finance providers accumulate experience to bring multitude of attractive financial products for energy efficient construction and renovation to market at scale, backed by institutional investors and capital markets.

To achieve this, the foundations for a long-term programme and investment plan need to be laid through the raft of critical policy decisions expected by the end of the year, building on the Green Homes Grant. Our major recommendations are that by the end of 2020:

- BEIS extends the retrofit project completion timeline of the Green Homes Grant by at least six months, ensures strong delivery of its first phase and other near-term measures, using them as a launchpad for a long-term programme and investment plan for decarbonising homes.

- HM Treasury, through the Comprehensive Spending Review, allocates a further £7.8 billion of public capital to BEIS for home energy efficiency investment in addition to the summer's Economic Statement over the four years to the end of this Parliament. In addition, it allocates £5.8 billion of public capital over the next four years to supporting heat pumps deployment in existing homes, drawn from the £100 billion infrastructure budget for this Parliament.

- HM Treasury, in its National Infrastructure Strategy, designates heat and energy efficiency as infrastructure investment priorities and proceeds to establish a new National Infrastructure Bank to bridge economic recovery with achieving net zero, assigning it a major role in governing delivery and attracting private investment for decarbonising homes.

- HM Treasury, in its next Budget, sets out how to drive demand for home energy upgrades using Stamp Duty, a Landlords Energy Saving Allowance, reduced VAT and explores the feasibility of a carbon price for natural gas use with appropriate compensatory measures.

- BEIS, in its Heat & Buildings Strategy, brings forward the EPC C target to 2030, sets a new target to halve emissions from heating existing buildings by 2030, expands the trajectory for minimum energy performance standards and sets out how to deploy its capital allocations for energy efficiency and heat decarbonisation to complement structural incentives.

- BEIS, in its Fuel Poverty Strategy, revises the measurement of fuel poverty as it proposed, and places health and wellbeing along with locally led delivery at the heart of how it intends to meet the 2030 fuel poverty target.

Appendix – summary of EEIG recommendations for major upcoming policy decisions

Governance

HM Treasury National Infrastructure Strategy

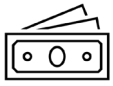
- → Needs to afford energy efficiency and heat infrastructure investment priority status, commensurate with achieving net zero and cognisant of the interdependencies and synergies between decarbonised homes, adaptation, digitalisation, a net zero electricity system and the rollout of EV charging infrastructure.
- → Establishes a new National Infrastructure Bank to bridge economic recovery with achieving net zero – also recommended by the NIC and backed by many others – not least in response to the expected loss of funding from the European Investment Bank. For buildings decarbonisation, it needs to pave the way for private finance offers to flourish, lowering their cost and increasing their availability by absorbing initially riskier investments – essential to increasing private investment and reducing subsidy levels. It can also identify, develop and standardise investment propositions, leading and monitoring investment flows to regions that need it most, critical roles in the governance of a long-term energy efficiency and heat strategy.

BEIS Heat & Buildings Strategy

- → Brings forward the EPC C target to 2030 and sets a new target to halve emissions from heating existing homes by 2030, embedding the fabric first principle.
- → Establishes governance arrangements, supporting a locally led approach for the Strategy's implementation, learning and refinement; taking on board the possible establishment and role of a new National Infrastructure Bank.
- → Institutes a fabric and energy efficiency first principle, advancing proposals for a regulatory framework that incentivises or requires distribution system operators to prioritise energy demand reduction and flexibility investments.
- → Initiates the establishment of a Heat Pumps Sector Deal, mirroring Scotland, to build and attract investment to the market for efficient electric heating.

BEIS Fuel Poverty Strategy

- → Implements its proposal to include all low-income households living in homes below EPC C in the measurement of fuel poverty to reduce the complexity and challenges of identifying households in fuel poverty for support.
- → Publishes a new fuel poverty action plan with clear roles and responsibilities for actors under the revised strategic framework, compatible with and supportive of the Heat & Buildings Strategy.
- → Establishes a set of supplementary indicators that track homes that cannot be improved to EPC C and low-income households in EPC C homes that still struggle with energy costs.



Public capital

HM Treasury Comprehensive Spending Review

- → Needs to allocate a further £7.8 billion of public capital towards home energy efficiency investment in addition to the summer's Economic Statement over the four years to the end of this Parliament. This would bring the total public energy efficiency investment in homes during this Parliament to £9.2 billion.
- → Needs to allocate £5.8 billion of public capital over the next four years towards supporting heat pumps deployment in existing homes, drawn from the £100 billion infrastructure budget for this Parliament.

BEIS Heat & Buildings Strategy

- → Confirms total investment requirement to meet 2030 targets – including a further £7.8 billion of public capital for energy efficiency and £5.8 billion for heat pumps to 2025 – and maps investment needed for further decarbonisation to 2050.
- → Connects with the green finance agenda to accelerate the launch and diffusion of new financial products and services to leverage private investment.

BEIS Fuel Poverty Strategy

- → Sets out how the energy efficiency investment gap of at least £8.9 billion to 2030 (predicated on the assumption that Clean Growth Strategy proposals are implemented in full) identified by the Committee on Fuel Poverty will be closed while meeting the 2025 milestone of EPC D, including through the Green Homes Grant offer for low income households and its eventual successor(s).

Able to pay incentives

HM Treasury next Budget

- → Introduces a Stamp Duty rebate for the purchase of energy efficient homes or their subsequent renovation. With time, and as the economic crisis subsides, the rebate can evolve into a revenue-neutral mechanism to embed energy and carbon performance in property values, thereby establishing a powerful price signal to homebuyers and lenders that will complement other fiscal and regulatory mechanisms to support retrofit.
- → Extends the availability of the lower 5% rate of VAT for energy saving products (including building integrated renewables and low carbon heat) to all households or abolish VAT on these items altogether.
- → Facilitates the decarbonisation of heat by exploring the introduction of a rising tax on the carbon content of natural gas, coupled with compensatory measures for low income households – to level the playing field for efficient electric heat.
- → Reintroduces a Landlords Energy Saving Allowance for private landlords who retrofit their properties beyond Minimum Energy Efficiency Standard requirements.

Able to pay incentives

BEIS Heat & Buildings Strategy

- → Establishes successor arrangements for the Green Homes Grant's support for energy efficiency commensurate with the investment that needs to be unlocked to achieve EPC C for all homes by 2030, in alignment with any fiscal incentives introduced by HM Treasury and the potential establishment of and offers from a National Infrastructure Bank.
- → Establishes long-term successor arrangements for the Renewable Heat Incentive and Green Homes Grant's support for heat pumps – taking on board the impact of the Green Homes Grant on the suitability of the much smaller Clean Heat Grant as an interim successor – designed to ensure that heat pumps have a mass market by the mid-2020s and heat networks investment can scale up, for which the Comprehensive Spending Review decisions will be critical. This needs to be supported by mechanisms that capture the value of heat as a flexible load and the ability to introduce energy tariffs that reward flexible heat demand.

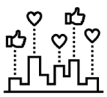
Regulation

BEIS Heat & Buildings Strategy

- → Publishes the proposed trajectory for Minimum Energy Efficiency Standards required of the private-rented sector – increasing to EPC C by 2030 at the latest – and consults on the development of equivalent standards for the social housing and crucially, the owner-occupied sector – modelled on Scotland's proposals. A roadmap for migrating to carbon performance standards, incorporating actual energy and carbon performance measurement, needs to be set out.
- → Coupled with migration to carbon performance, sets a trajectory for the phase out of fossil heating system sales, starting with the most carbon-intensive through to a backstop ban for natural gas boilers.
- → Sets out a roadmap for phasing in the Future Home Standard before 2025.

BEIS Fuel Poverty Strategy

- → Publishes proposals for assisting fuel poor owner occupiers who may become affected by Minimum Energy Efficiency Standards regulation in future.
- → Ensures that private-rented sector Minimum Energy Efficiency Standards are adequately policed and rigorously enforced.



Local and fair delivery

BEIS Heat & Buildings Strategy

- → Through a new National Infrastructure Bank and including Local Energy Hubs, supports local authorities and other local actors to prepare investable local heat and energy efficiency plans – drawing on the practical experiences of the Heat Networks Delivery Unit.
- → Sets out long-term successors to the Local Authority Delivery scheme and planned support for Local Energy Hubs-led delivery.
- → Coordinates its local delivery approach in close alignment with the Fuel Poverty Strategy.

BEIS Fuel Poverty Strategy

- → Establishes a clear role for, and enables, all local authorities to help deploy the missing capital investment, building on the Local Authority Delivery scheme and subsequent Local Energy Hubs scheme announced alongside the Green Homes Grant.
- → Establishes mechanisms to ensure that low income households benefit fairly from the transition to low carbon heat.

BEIS Heat & Buildings Strategy

- → Rolls out the remainder of the Each Home Counts and Hackitt reviews' recommendations as the supply chain and associated infrastructure scales up.
- → To drive down costs, while improving standards and productivity, connects with the innovation, skills – focused on scaling up capacity for PAS 2035 and other relevant standards and TrustMark accreditation, and the delivery of end-to-end quality assurance processes – as well as industrial strategy agendas, including an accelerated Clean Growth Buildings Mission, backed by the Transforming Construction Challenge Fund, that meets a demonstration goal to halve all energy consumption in new buildings and halve the cost of retrofitting to that standard by 2025.
- → Drives digitalisation forwards – by leveraging Trustmark's data warehouse and establishing official protocols for metered energy savings, energy performance verification and building renovation passports.
- → Connects the adaptation, resilience and circular economy agendas with building decarbonisation, for setting new standards for sustainable construction materials and techniques that take account of and manage climate impacts on, emissions from, and embodied carbon in, buildings across their lifecycle.

Advice and standards

BEIS Fuel Poverty Strategy

- → Ensures that ECO delivers all appropriate energy efficiency measures to fuel poor households by shifting it to a whole house retrofit approach.

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