

Rebuilding for resilience

# Energy efficiency's offer for a net zero compatible stimulus and recovery



# 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.



# Rebuilding for Resilience: Summary

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Prime Minister Boris Johnson declared on 14th May that the Government's commitment to delivering net zero emissions by 2050 "remains undiminished" by the current public health crisis. Greenhouse gas emissions have dipped significantly during the lockdown and there is now a need, as the Prime Minister put it, to "entrench those gains" as the lockdown lifts, by prioritising investment in low carbon infrastructure.

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

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

**Much energy efficiency upgrade work can be readily accommodated** within COVID-19 health and safety guidelines **right away**. In addition to safety, **energy efficiency meets three essential criteria for stimulus** supporting the UK's economic recovery.

- First, investment in home renovation for net zero will **help to 'level up' infrastructure and opportunity across the UK – supporting over 150,000 skilled and semi-skilled jobs to 2030, reducing household energy expenditure by £7.5 billion per year** at today's prices – doing more in regions most affected by unemployment, under-investment and fuel poverty.
- Second, **energy cost savings for households translate into a persistent boost to consumer spending on local goods and services**, in addition to household spending on the upgrades themselves – a dynamic that accelerates economic recovery. **Energy efficiency delivers a net benefit to the economy and the public purse**: Germany's federal energy efficiency programme has **succeeded in leveraging €6 of private energy efficiency investment for every €1 of public money** spent on the programme, recouping its outlay through VAT receipts alone.
- Third, **energy efficiency stimulus delivers quickly and reliably** by linking it to **shovel-ready projects**, delivery mechanisms and supply chains already in place under **existing schemes for homes and public buildings** across the UK, through social housing providers and local authorities already leading the way, their partnerships, energy suppliers, Salix Finance, regional energy hubs and agencies – and by **leveraging the growing participation of the financial sector**.

Beyond schemes already running – the Energy Company Obligation and devolved nation programmes – commitments and new measures comprise the EEIG's proposal, aligned with its 2030 vision, for a **two-year stimulus package that builds on the current**

**set of stabilisation measures, delivers quality and value for money, dovetails into a longer-term energy efficiency programme and the UK's longer-term recovery,** boosting its resilience and putting it on track to net zero:

- **£9.2 billion worth of commitments to energy efficiency investment made in the Government's 2019 manifesto** – to the Social Housing Decarbonisation Fund, Home Upgrade Grants and Public Sector Decarbonisation Scheme – need to be confirmed in full and treated as **instrumental to an energy efficiency stimulus package**, financially and programmatically, by bringing forward and deploying **£1.5 billion of the investment in low income households, social housing and public buildings** over the next two years.
- A range of **additional incentives worth £1.2 billion for all homeowners designed to leverage £3.2 billion of private investment** over the next two years – comprising a renewed Landlords Energy Saving Allowance for landlords who exceed the Minimum Energy Efficiency Standard, a Stamp Duty rebate for energy efficient properties, government-backed low or no-cost finance for renovations and the 5% rate of VAT on building energy renovation restored for all.
- **£0.1 billion ear-marked for Clean Heat Grants from 2022 for two year brought forward to now** while maintaining, and offered as an alternative to, the Renewable Heat Incentive, to drive the development of the market for low carbon heating, particularly heat pumps.
- This **£2.8 billion investment over two years would unlock a further £3.4 billion** from households, social housing providers and the public sector estate. It would **support 42,500 full-time equivalent jobs across the supply chain over the two-year period, while one million households across every part of the country would save a quarter – currently £270 – of their rising energy costs.**
- To **lay the structural foundations for a sustained net zero compatible recovery**, this investment needs to be accompanied by a set of enabling measures that support, for the next two years and beyond: **safety, quality, low carbon skills and on-site productivity** for workers laid-off, furloughed and returning; **additional innovation investment** through, and a compressed timescale for, the Construction Sector Deal; and **leveraging the role of banks** in delivering support through loans.

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

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# Background

## 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 for UK homes and buildings. Given the housing stock is one of the least efficient in Europe<sup>1</sup>, massive improvements in energy efficiency are the litmus test for a credible pathway to net zero emissions<sup>2</sup> and ending fuel poverty. The EEIG therefore recommends a comprehensive government-led programme that:

- 1/ Treats energy efficiency as a national infrastructure investment priority, with a commensurate target – achieving an Energy Performance Certificate (EPC) rating of C<sup>3</sup> for all homes by 2030 – clear governance arrangements, a long-term plan and capital budget to achieve it.
- 2/ 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.
- 3/ 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.
- 4/ Sets out robust regulation, strengthening over time towards requiring EPC C, that requires some homeowners to take action and inspires others to plan and invest for the future.
- 5/ 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
- 6/. Ensures strong advice provision, quality assurance and safety standards.

Improved energy efficiency in buildings since 2004 now saves the typical dual fuel household over £500 per year<sup>4</sup>. Between 2004 and 2018, average household gas consumption fell 33% and electricity consumption fell 19%<sup>5</sup>, despite a significant increase in the number of household appliances. These savings were driven substantially by energy efficiency improvements – including in lighting, appliances, heating systems and insulation<sup>6</sup>.

Huge energy saving potential in UK homes remains untapped. Research by the UK Energy Research Centre found that cost-effective investments in residential energy efficiency and efficient low carbon heating, equivalent on aggregate to getting all homes up to the Band C target, could reduce energy demand by 25%<sup>7</sup>. At current energy prices, this would reduce average household energy costs by £270 per year. In total, this represents an energy saving equivalent to the annual output of six nuclear power stations the size of Hinkley Point C.

Under the net zero target all homes will need to move to zero carbon heating – a challenge against which very little progress has been made to date. Energy efficiency is key to making this transition affordable. In a typically sized home that is efficient, installation of a heat pump could be £1,000 cheaper than for a home that is not<sup>8</sup> and

<sup>1</sup> (Guertler, Carrington & Jansz, 2015)

<sup>2</sup> (EEIG, 2019)

<sup>3</sup> On a scale from A (most efficient) to G.

<sup>4</sup> (CCC, 2017). Comparison with what household energy consumption and bills would have been without energy efficiency measures adopted in homes since 2004.

<sup>5</sup> (BEIS, 2019a). Temperature adjusted energy consumption. Average household electricity consumption based on households on standard electricity tariff. Equivalent data on households on Economy 7 does not go back further than 2010.

<sup>6</sup> (BEIS, 2019c)

<sup>7</sup> (Rosenow et al., 2018)

<sup>8</sup> Heat pump sizing tested with Mitsubishi Electric's Ecodan selection tool; marginal cost of larger heat pump derived from (CCC, 2019a).

running costs would be significantly lower. Energy efficiency can avoid annual costs of decarbonising heat to 2050 of up to £6.2 billion<sup>9</sup>. The transition to zero carbon heat is simply not affordable for UK households without UK Government support to make all homes energy efficient.

### An efficient way to recover: the contribution of energy efficiency investment to economic stimulus

There is growing consensus from industry and policy experts that energy efficiency improvements have a central role to play in a net zero compatible economic recovery.

The Committee on Climate Change, in its recent call to build a resilient recovery from the COVID-19 crisis, advised on how climate policy can play a core part. Amongst its recommendations, it emphasised the role for reskilling and retraining programmes, housing retrofits and low carbon construction<sup>10</sup>. The National Infrastructure Commission has emphasised the importance of bringing forward investment in energy efficiency renovations for homes to contribute to economic stimulus<sup>11</sup>. In a joint piece on pro-market routes to clean and green recovery, Conservative Environment Network and UK Onward recommended a major energy efficiency programme and lower electricity costs<sup>12</sup>. The International Energy Agency (IEA) describes how these measures can support existing workforces and create new jobs; boost economic activity in key labour-intensive sectors; while delivering longer-term benefits such as increased competitiveness, reduced greenhouse gas emissions, improved energy affordability and lower bills<sup>13</sup>. Support for residential retrofits is backed up by Bloomberg analysis<sup>14</sup>, and a study by the University of Oxford identified residential and commercial energy efficiency renovations as scoring highly for potential climate impact in stimulus packages – with co-benefits of decreasing social and health inequality by shrinking real electricity costs and keeping homes warm in winter<sup>15</sup>. The UN Industrial Development Organisation identified investments in efficient infrastructure as a route to boost jobs and reduce production costs<sup>16</sup>.

The potential for job creation is well-established: the American Recovery Act of 2009 promoted the improvement of residential energy efficiency of over 800,000 homes between 2009-2012 with federal support, stimulus interventions that unlocked energy savings and created over 200,000 jobs<sup>17</sup>.

In the current crisis, Denmark is leading the way on ensuring the decarbonisation of homes plays a central role in its post-pandemic recovery strategy, earmarking DKK 30 billion (over £3.5 billion) for green renovations to social housing between 2020 and 2026, including insulation measures, window replacements and replacing oil-fired heating systems<sup>18</sup>. Minister Jørgensen said these improvements will provide for healthier homes and lower energy bills, as well as creating employment opportunities. Australia unveiled a A\$680 million (£375 million) stimulus package aimed at supporting the construction and home building industries, with a A\$25,000 grant to subsidise the cost of renovating an existing property or building a new house. The scheme is intended to provide around 27,000 grants, support 140,000 direct jobs and up to one million related jobs in the residential construction sector<sup>20</sup>. Meanwhile, New Zealand announced a a NZ\$56m increase to the government's insulation and heating programme and plans to build 8,000 new social homes, with a NZ\$1.1bn 'environmental jobs package' to create 11,000 new jobs<sup>21</sup>. Luxembourg has announced 'green stimulus' measures within its recovery plan, focussed on accelerating insulation of homes and increasing renewable energy. State

<sup>9</sup> (Imperial College London, 2018)

<sup>10</sup> (CCC, 2020)

<sup>11</sup> (NIC, 2020)

<sup>12</sup> (Hall & Christie-Miller, 2020)

<sup>13</sup> (IEA, 2020)

<sup>14</sup> (Kaufman, 2020)

<sup>15</sup> (Hepburn et al., 2020)

<sup>16</sup> (Emtairah, 2020)

<sup>17</sup> (Climate Analytics & NewClimate Institute, 2020)

<sup>18</sup> (TRM, 2020)

<sup>20</sup> (Packham, 2020)

<sup>21</sup> (Dreaver, 2020)

subsidies will cover 50% of the green home renovation, capped at €30,000. Subsidies for clean heating have been increased by 25%, and the state will cover 81% of the costs for replacing a heat pump<sup>22</sup>.

## Rebuilding for resilience: considering energy efficiency's contribution across the recovery timeline

The construction sector – whose workers, supply chains and profits will be among the worst hit by the pandemic – must be considered a key priority in a near-term stimulus package for resilient recovery. Ensuring a fiscally responsible and effective response requires careful consideration of how to transition from 1) current fiscal stabilisation measures into 2) an energy efficiency stimulus programme that supports near-term economic objectives safely and lays the foundations for 3) a resilient recovery by providing a pathway to achieving the government's longer-term goals: particularly net zero, fuel poverty, and levelling up of opportunity, infrastructure and resilience.

### Briefing overview

This briefing begins by considering how energy efficiency investment can support the government's 'levelling up' agenda, supporting skilled and secure jobs, improved infrastructure and resilience across the UK, particularly in regions that need it most. Next, it shows how energy efficiency creates a persistent boost to consumer spending and accelerates economic recovery. The briefing sets out energy efficiency stimulus can produce future-proof economic activity quickly and reliably by tapping into the existing delivery capacity and capability across the renovation supply chain and connecting this with the Government's commitments to energy efficiency investment. Finally, it draws out all the elements of a proposed energy efficiency stimulus package into a roadmap that supports longer-term economic recovery: 'Rebuilding for Resilience'.

<sup>22</sup> (Erang, 2020)



# 1 Levelling up opportunity, infrastructure and resilience

## 1.1 Opportunity

**Renovating homes is labour-intensive and mostly done by SMEs. Energy efficiency investment can level up opportunity – supporting over 150,000 skilled and semi-skilled jobs to 2030 – in every part of the country, doing more in the regions that need it most.**

To put this number into perspective, National Grid estimates that between 2020 and 2030, 117,000 jobs will be created in the UK's energy sector under a net zero strategy, with roles linked to low carbon electricity and heating, carbon capture and storage and electric vehicle charging infrastructure<sup>23</sup>. Buildings construction, repair, maintenance and improvement supply chains needed to deliver energy efficiency works mostly comprise small businesses<sup>24</sup> anchored to local areas<sup>25</sup>, meaning most jobs needed to deliver improvements in a given area would be located there.

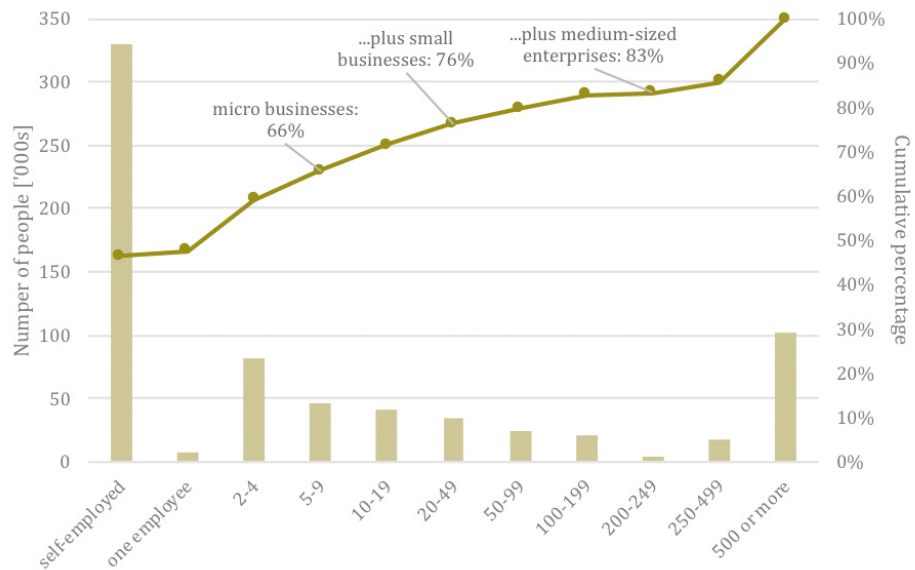


Figure 1: distribution of 'construction of buildings' sector workers by business size band, start of 2019

The self-employed and small firms with fewer than 50 employees accounted for over three quarters – 543,000 – of people working directly in the sector at the start of 2019. Figure 1 shows the scale of investment and 150,000 jobs needed, broken down by region and nation, to deliver EPC C for all homes by 2030 – which the right stimulus package can kickstart.

<sup>23</sup> (National Grid, 2020)

<sup>24</sup> (BEIS, 2020b)

<sup>25</sup> (Owen, Morgan & Killip, 2017)

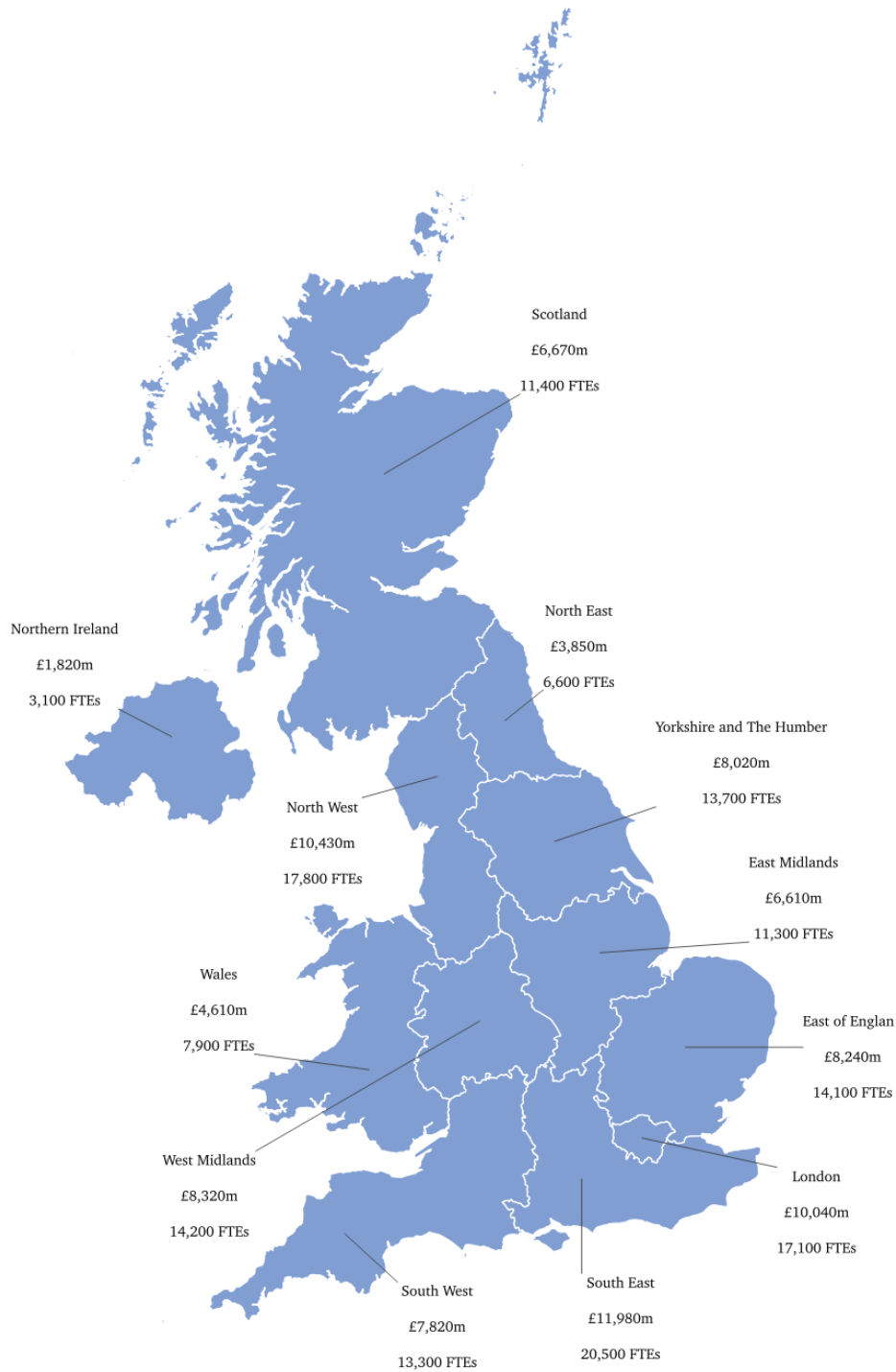


Figure 2: Total investment (public and private) and annual full-time equivalent (FTE) jobs needed to improve all homes to EPC C by 2030<sup>26</sup>

<sup>26</sup> Constituency-level data can be provided by the authors on request.

The per capita investment needed and associated FTEs required to improve our homes in different parts of the country correspond well with regional unemployment levels – shown in Figure 2.

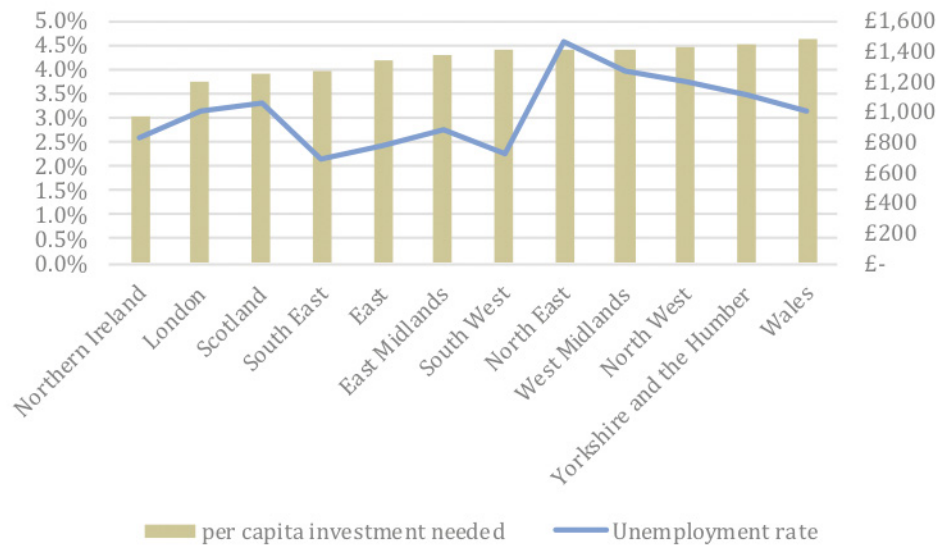


Figure 3: Investment need for EPC C by 2030 per capita compared current unemployment rate (late March 2020<sup>27</sup>) by region / nation

The North East, West Midlands, North West, Yorkshire and the Humber regions of England, and Wales, have the highest per capita energy efficiency investment need and unemployment. The chart does not yet reflect the impact of the current pandemic on unemployment levels, with the first statistics to show this at regional level expected in mid to late May.

Estimates of the investment needed to bring all homes up to EPC C vary. The Government has provided a preliminary estimate of up to £65 billion, dependent on the number of and degree to which individual homes are practical, cost-effective and affordable to renovate under different assumptions<sup>28</sup>. The EEIG's estimate of over £80 billion was calculated using similar constraints, but less restrictively, for example by considering the aggregate cost-effectiveness of achieving EPC C across the housing stock, rather than on a case-by-case basis. Job estimates will vary corresponding to the level of investment and nature of work required.

### 1.2 Infrastructure and resilience

Energy efficiency investment for homes levels up infrastructure and resilience, delivering benefits for all. It is needed most in areas outside of London, the Home Counties and the South East, as shown in Figure 2.

<sup>27</sup> (Powell, Francis-Devine & Foley, 2020; ONS, 2020b). Next ONS publication in May (for April) will show impact of current crisis on unemployment.

<sup>28</sup> (BEIS, 2019d)

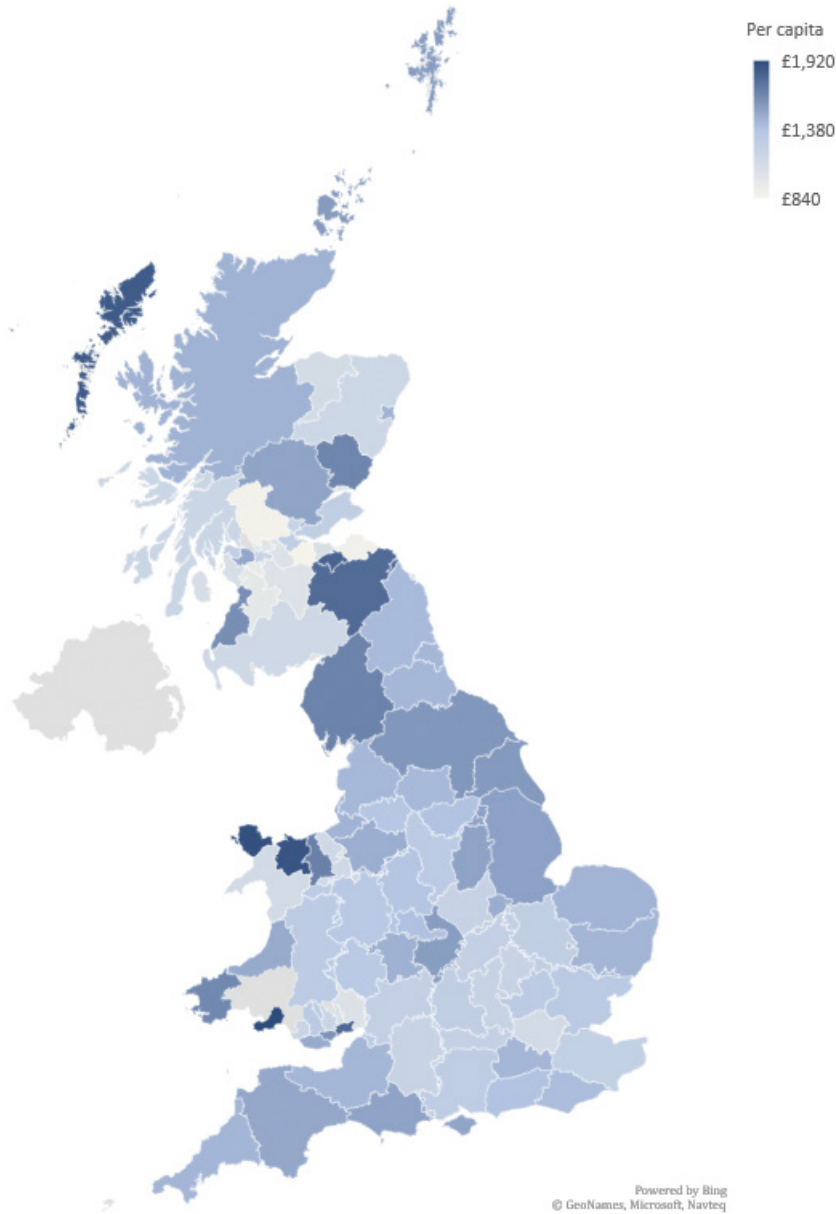


Figure 4: Investment per capita needed to reach EPC C by 2030, by County<sup>29</sup>

There are significant disparities in the incidence of fuel poverty across the country, to which inefficient homes are the main contributor. Energy efficiency investment can level up energy affordability by supporting vulnerable households in or at risk of fuel poverty – and end fuel poverty by 2030.

<sup>29</sup> No county-level data derivable for Northern Ireland. For more granular (Constituency level) data, please contact the author.

For households whose income has fallen, the median decline in income since the lockdown began has been estimated at 30%<sup>30</sup>. Sixty-eight per cent of households had reported a reduction in their income at the end of April, resulting in 23% dipping into their savings to cover living costs and 13% struggling to pay their bills<sup>31</sup> – beyond households who were already in precarious positions. At the same time, energy consumption for people no longer travelling to work is expected to rise, which could lead to domestic energy costs rising by over a third<sup>32</sup>.

The latest available fuel poverty statistics, for 2018, estimate its incidence in England at 10.3%, or 2.4 million households<sup>33</sup>. It is highly likely that this is now on the increase. Improvement in the average energy efficiency of homes in England has been marginal since 2015. Furthermore, energy efficiency for fuel poor households lags behind the average for all households, as has their relative rate of improvement since 2016 – attributed to a decrease in the number of improvements delivered through government programmes in 2017 and 2018<sup>34</sup>. In addition, there is considerable variation in fuel poverty across the country, illustrated in Figure 5.

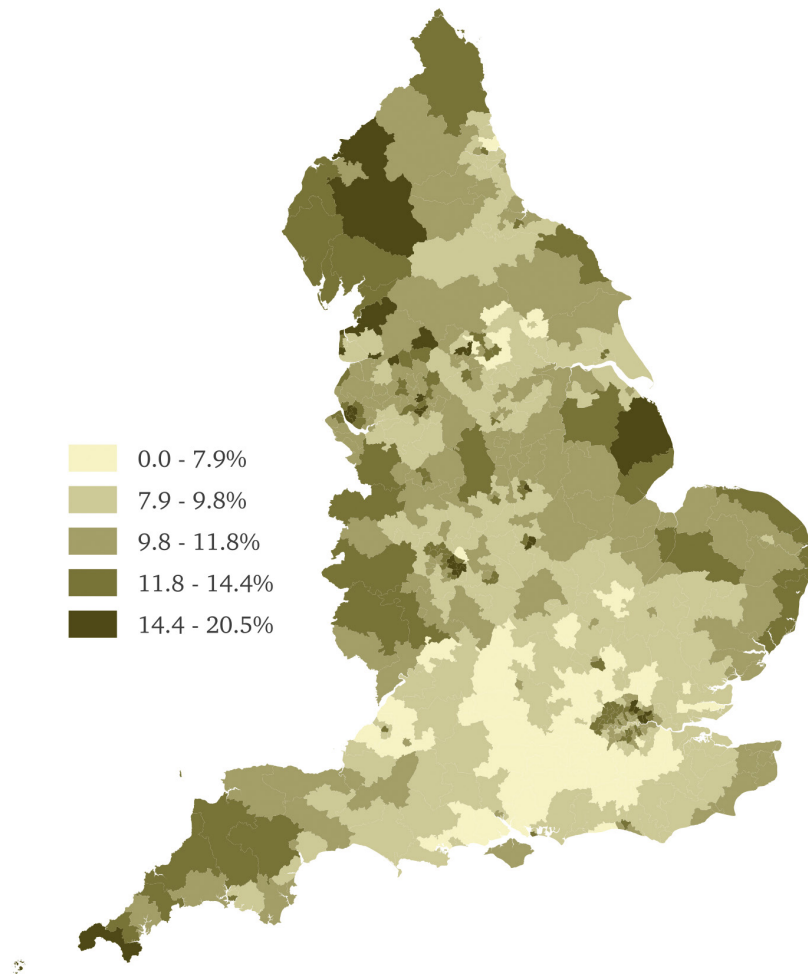


Figure 5: Incidence of fuel poverty in England in 2018, mapped by Westminster Parliamentary Constituency

<sup>30</sup> (CEPR, 2020)

<sup>31</sup> (Resolution Foundation, 2020)

<sup>32</sup> (Partridge, 2020)

<sup>33</sup> (BEIS, 2020c)

<sup>34</sup> (BEIS, 2020a)

The map shows that the incidence of fuel poverty is generally highest in rural areas outside of the South and South East – such as in Cornwall, Cumbria, the East England coast, Lancashire, Lincolnshire, the West Midlands – and in deprived inner-city neighbourhoods including Birmingham, Bradford, Liverpool, Leicester, London, Manchester, Newcastle and Nottingham.

**Inefficient homes are hard and expensive to keep adequately warm and exacerbate the risks of respiratory and circulatory problems and poor mental health. Comprising one of the least efficient housing stocks in Europe<sup>35</sup>, they are a significant contributory factor to excess winter mortality in the UK, which is the sixth highest among all European nations<sup>36</sup>. The clear disparities in the efficiency of homes and fuel poverty within the UK cause health inequalities. Improving energy efficiency is an opportunity to level up resilience to health and wellbeing risks and permanently reduce pressure on the NHS – risks which will be heightened if lockdown restrictions extend into colder months.**

The latest five-year moving average number of excess winter deaths in Great Britain is 35,600 per year<sup>37</sup>. 10,680 deaths were attributable to living in a cold home<sup>38</sup>, one fifth are linked to the coldest quartile of homes and one in ten excess winter deaths are directly linked to fuel poverty<sup>40</sup>.

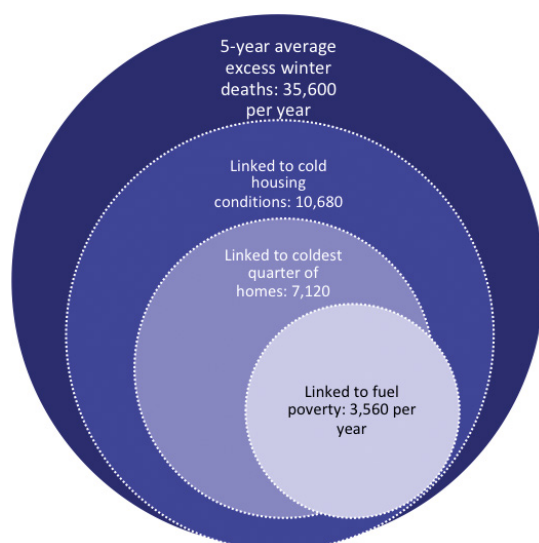


Figure 6: Schematic relationship between total excess winter deaths (EWDs) and different measures of EWDs attributable to cold housing<sup>41</sup>, based on the five-year moving average

The ill-effects of cold homes extend far beyond premature mortality. They worsen physical and mental health outcomes, school attendance and educational attainment for young people, and exacerbate the risks of cardiovascular and respiratory diseases, falls and injuries, and mental ill health for the elderly<sup>42</sup>. The cost to the NHS of health conditions made worse by poor housing is estimated to be between £1.4 and £2.0 billion each year in England alone<sup>43</sup> with the costs of productivity loss potentially far higher<sup>44</sup>. Accelerated energy efficiency investment can prioritise the protection of low-income households living in the least efficient homes from the coming winter, and reduce entirely avoidable pressures on the NHS as it faces unprecedented challenges from the pandemic.

<sup>35</sup> (Guertler, Carrington & Jansz, 2015)

<sup>36</sup> (E3G & NEA, 2018)

<sup>37</sup> Incorporating provisional figures for the winter of 2018/19

<sup>38</sup> (WHO, 2011)

<sup>39</sup> (Marmot Review Team, 2011).

<sup>40</sup> (Public Health England & UCL Institute of Health Equity, 2014)

<sup>41</sup> Adapted from (E3G & NEA, 2018)

<sup>42</sup> (CHIWG, 2007; NEA, 2013; Somerville et al., 2000)

<sup>43</sup> (BRE, 2015)

<sup>44</sup> (Roys et al., 2016)

**Energy efficiency, combined with low carbon heat, is an opportunity to level up rural-urban infrastructure disparities across the UK in the near term.**

Figure 3 shows the distribution of homes with the best and worst EPC ratings in England and Wales broken down by urban-rural classification. The combination of lower energy efficiency and expensive to run heating systems accounts for the higher prevalence of low EPC-rated properties in rural areas. The Campaign to Protect Rural England<sup>45</sup>, the Prince's Countryside Fund<sup>46</sup> and others in the devolved nations<sup>47</sup> have identified this disparity as holding rural areas back.

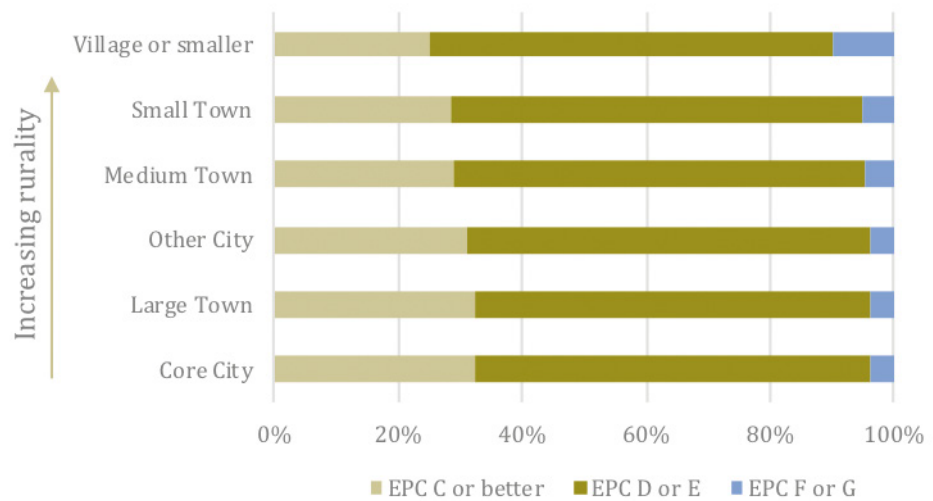


Figure 7: prevalence of best and worst EPC ratings by Westminster Constituency classification on the urban to rural spectrum in England and Wales<sup>48</sup>

The combination of insulation, cheap to run low carbon heating systems and better heating controls presents an opportunity to level up this urban-rural infrastructure disparity. This positions rural areas as a top priority for supporting the decarbonisation of heat and associated supply chains through a near-term stimulus package, to develop the supply chains and lay the foundations for decarbonising heat across the UK.

<sup>45</sup>(CPRE, 2019)

<sup>46</sup>(Skerratt, 2018)

<sup>47</sup>(Bryson Energy, 2018; EAS, 2020; Powell, Keech & Reed, 2018)

<sup>48</sup> Derived using Constituency classification in (Baker, 2018).

## 2 Boosting consumer spending and accelerating recovery

**After 'direct rebound' effects – such as a household choosing to maintain a warmer home – long-lasting home energy efficiency improvements secure energy cost savings and increase disposable income, resulting in a persistent boost to consumer spending and accelerated economic recovery.**

At the micro-level, reduced spending on energy immediately translates into increased spending on higher value local goods and services<sup>49</sup> – the indirect rebound effect – which supports near-term economic recovery. This dynamic persists beyond the short-term as home energy efficiency improvements have an economic lifetime of 12 to 42 years<sup>50</sup> – meaning it would not recede post-stimulus.

The annual energy cost savings to UK households from improving all homes to EPC C amount to over £7.5 billion per year at today's prices<sup>51</sup>. This is after direct rebound effects, meaning it is money in people's pockets.

REGION	ANNUAL ENERGY COST SAVINGS
East	£ 690,000,000
East Midlands	£ 540,000,000
London	£ 910,000,000
North East	£ 320,000,000
North West	£ 850,000,000
South East	£ 1,020,000,000
South West	£ 660,000,000
West Midlands	£ 650,000,000
Yorkshire and the Humber	£ 620,000,000
Northern Ireland	£ 200,000,000
Scotland	£ 670,000,000
Wales	£ 370,000,000
UK	£ 7,500,000,000

Table 1: annual energy cost savings by UK region and nation

Rising energy bills as a result of the current pandemic, highlighted before and estimated at an average per household increase of £32 per month<sup>52</sup>, add to the drag on the economy caused by already significant pre-COVID-19 household energy debt<sup>53</sup>, reducing consumers' disposable income. Moreover, household spending has fallen by between 40 and 50% since the crisis began<sup>54</sup>. Energy efficiency investment produces a direct double dividend, stemming the loss of disposable income as a result of the crisis and boosting spending. Disposable incomes are likely to rise further for households securing the jobs needed to deliver energy efficiency renovations, while welfare costs also reduce.

**In addition, fiscal and financial incentives for energy efficiency measures directed at able-to-pay households (discussed on section 3.3) have a direct impact on consumer spending by encouraging them to invest in energy efficiency improvements. For every €1 expended and 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.**

<sup>49</sup> (EC, 2017; IEA, 2014)

<sup>50</sup> (Ofgem, 2020)

<sup>51</sup> Derived from (Rosenow et al., 2018).

<sup>52</sup> (Partridge, 2020; Cuff, 2020)

<sup>53</sup> (Gausden, 2019)

<sup>54</sup> (CEPR, 2020)



Overall, KfW's programme cost the federal government €1.7 billion in 2016, unlocking €8.4 billion from building owners and nearly covering its own cost through the resultant VAT revenue alone (€1.6 billion)<sup>55</sup>. Crucially, higher capital subsidy levels were contingent on renovations achieving higher energy performance standards that are more costly to achieve, thereby requiring building owners to spend more. This incentive structure, coupled with the low-cost borrowing on offer, was therefore instrumental in achieving the public-private investment leverage ratio of 1 to 6<sup>56</sup> and – reasonably assuming other increased tax revenues easily took it over the line – enables the programme to be revenue-positive.

Amidst the overall fall in household spending, there are signs that households have been spending more on their homes. London Business School's ongoing analysis of real-time spending data found a 10% increase in spending on DIY and home improvements in April 2020, compared to April 2019<sup>57</sup>. From a consumer perspective, energy efficiency incentives and stimulus measures could therefore land on fertile ground in the current economic climate.

**At the macro-level, lower energy demand for heating also reduces gas imports, redirecting spending onto goods and services with a stronger domestic component and therefore improving the balance of payments<sup>58</sup>. Modelling of a similar programme of energy efficiency investment estimated a fall in gas imports of 26%<sup>59</sup>.** Given the UK's gas import dependency, this is currently a major route via which energy efficiency improvements drive GDP, which also increases economic resilience to geopolitical risks.

More broadly energy efficiency improvements accelerate economic output and are estimated to have contributed 25% of UK GDP growth since 1971<sup>60</sup>. How this works and how stimulus can unlock this dynamic is illustrated in Figure 8.

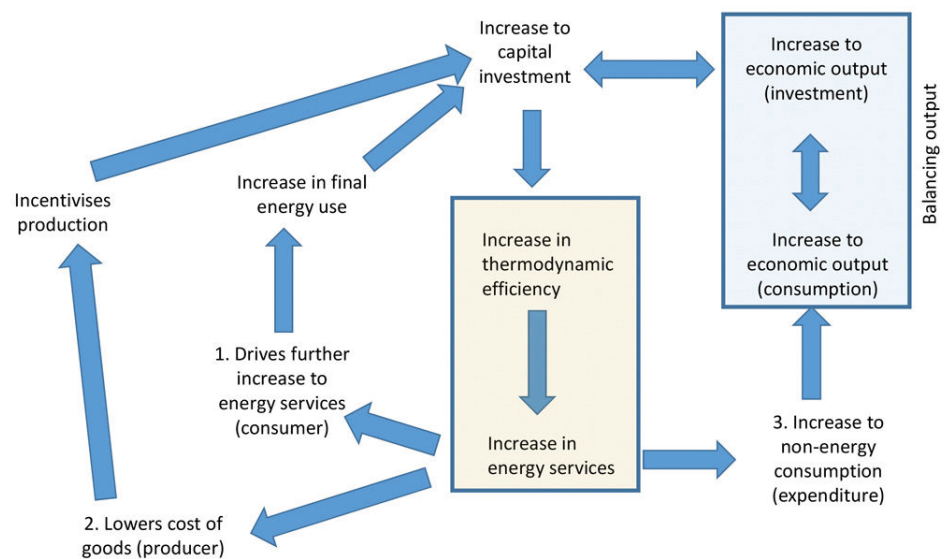


Figure 8: author-annotated schematic – circles highlight role of energy efficiency stimulus households – of the 'efficiency-led growth engine' mechanism; the numbered processes indicate routes through which energy efficiency accelerates growth

<sup>55</sup> (Institut Wohnen und Umwelt & Fraunhofer Institut, 2018). 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).

<sup>56</sup> Calculated from (Institut Wohnen und Umwelt & Fraunhofer Institut, 2018; BFM, 2016)

<sup>57</sup> (CEPR, 2020; Giles, 2020)

<sup>58</sup> (EC, 2017)

<sup>59</sup> (Cambridge Econometrics & Verco, 2014)

<sup>60</sup> (Sakai et al., 2019)

A programme to renovate all homes to EPC C by 2030 would bring average annual gross value added (GVA) from construction sector output to the economy of over £3.5 billion to the UK – shown in Table 2.

REGION	AVERAGE ANNUAL GVA	PRESENT VALUE OF GVA TO 2030 <sup>61</sup>
East	£ 330,000,000	£ 2,700,000,000
East Midlands	£ 260,000,000	£ 2,200,000,000
London	£ 420,000,000	£ 3,500,000,000
North East	£ 150,000,000	£ 1,200,000,000
North West	£ 410,000,000	£ 3,400,000,000
South East	£ 460,000,000	£ 3,800,000,000
South West	£ 310,000,000	£ 2,600,000,000
West Midlands	£ 330,000,000	£ 2,700,000,000
Yorkshire and the Humber	£ 320,000,000	£ 2,700,000,000
Northern Ireland	£ 70,000,000	£ 600,000,000
Scotland	£ 270,000,000	£ 2,200,000,000
Wales	£ 180,000,000	£ 1,500,000,000
UK	£ 3,510,000,000	£ 29,100,000,000

Table 2: gross value added of renovating all UK homes to EPC C by 2030, by region and devolved nation

Others have estimated that the combined impact of energy cost savings, increased consumer spending and investment in energy efficient goods and services from a similarly ambitious programme would be for GDP to be 0.6% higher in 2030 than without it, bringing a value for money ratio of £3.20 to every £1 invested in energy efficiency by government, while delivering £1.25 of tax revenue for every £1 of public money put in<sup>62</sup>.

<sup>61</sup> Using 3.5% Social Time Preference Rate as per HM Treasury Green Book guidance.

<sup>62</sup> (Cambridge Econometrics & Verco, 2014)

## 3 Quick and reliable stimulus that is future-proof

**Stimulus packages have to provide support where it is needed and to deliver economic impact quickly and reliably. Existing delivery capacity and capability across the renovation supply chain – spanning policy through to installers – can meet these criteria.**

Existing policy and programmes, governance and delivery bodies, supply chains and finance providers together constitute significant delivery capacity and capability already in place to swiftly translate energy efficiency stimulus to economic activity on the ground.

### 3.1 Leveraging what we have

**Energy efficiency stimulus is a good fit with immediate need. The wider construction sector – which accounted for 2.3 million people in work (6.4%) at the end of 2019<sup>63</sup> – is among the hardest-hit by the economic crisis and is historically a 'first responder' to economic stimulus.**

The sector has been hard hit by the pandemic. The ONS' fortnightly survey of businesses continuing to trade found that in the period March 6 to April 19<sup>64</sup>, 59% of construction businesses were laying off people in the short term – the highest rate of any sector, with the average across all sectors at 41%. Construction firms also had the lowest rate of recruitment in the short-term: 1% compared to an average of 6%. Construction made the second-most use of the Coronavirus Job Retention Scheme, with 81% of businesses applying for it. And it had among the lowest levels of confidence in having the financial resources to continue operating through the pandemic – 67% of businesses compared to an average of 72%. Estimates produced by the Institute for Social and Economic Research suggest the lockdown has led to a 16.5% drop in employment in the construction industry, with around half a million jobs lost because of lock-down<sup>65</sup>.

On the upside, the sector has the long-standing ability to bounce back from annual seasonal downturns and responds quickly to stimulus<sup>66</sup>. In the context of the current pandemic, however, the need to ensure social distancing and hygiene on site will constrain how swiftly the industry as a whole returns to work – and therefore needs to be designed into stimulus by pursuing a broad range of delivery routes.

**The sector's resilient recovery from the pandemic must mean that health, safety and livelihoods are considered at the heart of the government's response; protecting workers now and into the future. At the same time, there is an opportunity to skill up workers unable to return to sites and to invest in techniques for on-site productivity for those who can.**

Much energy efficiency upgrade work can be readily accommodated within COVID-19 health and safety guidelines and minimal household interaction right away, for instance where it is carried out on the outside of buildings and in self-contained spaces. However, wider sectoral concerns have been raised over firms placing 'houses before health', with Construction Leadership Council guidance for managing return to sites considered insufficiently robust on social distancing and hygiene<sup>67</sup>, especially for a sector in which the large number of contractors on any given site means that communication and enforcement of safety rules needs to be highly robust.

The need to ensure the return to work is safe offers an opportunity for the Government to work with businesses, unions and employees to simultaneously address long-standing

<sup>63</sup> (ONS, 2020c)

<sup>64</sup> (ONS, 2020a)

<sup>65</sup> (Institute for Social and Economic Research, 2020)

<sup>66</sup> (IEA, 2020)

<sup>67</sup> (Unite, 2020b)

concerns over working conditions in the sector to make the industry more resilient. For example, the majority of the million workers under the Construction Industry Scheme who are classed as self-employed and taxed at source were paid weekly, meaning that their circumstances more closely resembled that of being employed – but without the attendant statutory rights<sup>68</sup> nor commensurate support from measures introduced at the onset of the pandemic and therefore deepening its impact and cost to Government.

Safer, more secure working conditions are critical to ensuring the industry can recover while being resilient to further pandemic-induced shocks and impacts on Government spending. Tripartite agreements – between Government, employers, employees and self-employed contractors – have been seen in Denmark as a swift and reliable way of ensuring such conditions can be met and resilience achieved<sup>69</sup>.

In addition, for employees and contractors unable to return to sites in the near-term due to pandemic safety rules, there is a major opportunity to establish vocational education and training programmes to develop the UK's quality net zero construction and renovation skills base for the future. For those that can return, albeit in reduced numbers to individual sites, construction firms have an opportunity to invest in skills and technology to enhance productivity on site – areas which the Industrial Strategy's Construction Sector Deal is well-placed to support<sup>70</sup>, but could accelerate support in response to the economic crisis. Skills and training are a central component of New Zealand's recent COVID-19 budget: it has already allocated NZ\$1.1 billion (£0.55bn) as part of an environmental jobs package, and a further NZ\$1.6 billion (£0.8bn) over four years for trades and apprenticeship training<sup>71</sup>.

**Energy efficiency stimulus would drive activity in a broad spectrum of local trades, which can support the overall construction sector's recovery and resilience while hedging the risk of stimulus failing to achieve impacts swiftly.**

The trades that need to be enlisted span general builders, roofers and labourers – including for conversions and extensions – plumbers, heating and air conditioning engineers, joiners, window fitters, insulation specialists, plasterers and renderers, electricians, painters and decorators<sup>72</sup>. Taken together, these and other trades in the UK's housing repair, maintenance and improvement (RMI) market had a turnover of £28.1 billion in 2018<sup>73</sup>.

It is into this market that net zero renovation needs to be integrated. Energy efficiency stimulus presents a major opportunity to drive the systematic up-skilling of the workforce to create the high quality, cost-competitive and professional building trades needed for net zero in every part of the country<sup>74</sup>.

Key to success in low carbon renovation for the long-term is recognising and understanding the local and small-scale nature of the RMI construction industry<sup>75</sup>. The local nature of building trades' activity indicates a good fit with local delivery of integrated energy efficiency schemes, including planning, locally tailored energy advice and assessments, and community scale awareness raising and partnerships<sup>76</sup>. Keeping work local has social, environmental and economic benefits, meeting the requirements for a sustainable economy.

<sup>68</sup> (Unite, 2020a)

<sup>69</sup> (Peter-Hansen, Vind & Villumsen, 2020)

<sup>70</sup> (BEIS, 2018c)

<sup>71</sup> (New Zealand Government, 2020)

<sup>72</sup> (Guertler, 2018; Laine, 2020)

<sup>73</sup> (ONS, 2020e)

<sup>74</sup> (Webb, 2016)

<sup>75</sup> (Maby & Owen, 2015)

<sup>76</sup> (CIED, 2018)

**Stimulating demand for energy efficiency improvements will also boost UK manufacturing.**

A focus on building renovation offers an opportunity to bolster the UK's manufacturing and export base. The Committee on Climate Change Committee identified the development of expertise in low-carbon, resilient homes as an industrial opportunity for the UK to export innovation and skills – with the construction sector, encompassing contracting, product manufacturing and professional services, exporting over £8 billion of products and services in 2016<sup>77</sup>. Figure 9 provides a snapshot selection of the locations of insulation, cladding system, glass and glazing, heating system and controls manufacturing sites in the UK.

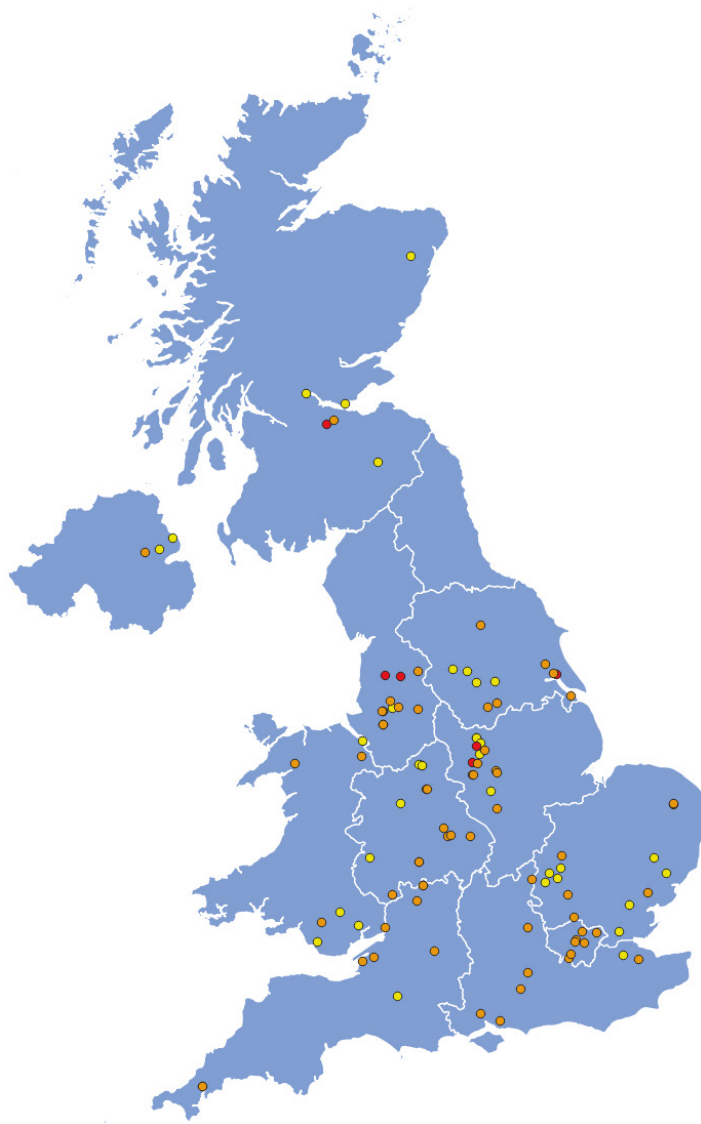


Figure 9: Manufacturing sites for insulation and cladding systems (yellow), glass and glazing (orange), and heating and controls (red) across the UK

<sup>77</sup> (CCC, 2019b)

Energy efficient products comprise the largest segment of the UK's low carbon and renewable energy (LCRE) economy, with £21 billion turnover and 154,000 FTEs<sup>78</sup> working in the segment in 2018. Manufacturing is the largest industry sector in LCRE, with over £15 billion turnover and 84,000 FTEs. UK-based manufacturers have world-leading expertise in insulation and exterior systems, glazing, low carbon heating, ventilation, air-conditioning and building control systems. With confidence in short and long-term domestic demand for their products, especially given global economic uncertainty, manufacturers are capable of and prepared to invest in and flex their capacity to match<sup>79</sup>.

**The energy bill-funded Energy Company Obligation (ECO), operating across Great Britain, has been deploying energy efficiency improvements through its network of partners for over seven years. It must maintain its focus on low income and vulnerable households, and along with devolved nation programmes, can scale back up to business as usual while maintaining social distancing.**

Publicly funded schemes in the devolved nations complement it, particularly Scotland's Area-Based Schemes (operating in every local authority) and Warmer Homes grant, and Wales' Arbed area-based programme and its Nest grant<sup>80</sup>. Their contribution is significant: Wales, Northern Ireland and Scotland invest respectively two, three and four times as much per capita on home energy efficiency programmes than is invested in England through ECO<sup>81</sup>, underpinned by a programmatic approach<sup>82</sup>. Local authorities, registered social landlords, independent energy agencies and supply chain contractors across the country are key delivery partners for deploying ECO and devolved nation investment, with many delivering separate, local schemes. This network is therefore key to deploying an energy efficiency stimulus package.

**Thirty-nine per cent of the UK's 434 local authorities are actively delivering clean energy transitions. They are spread across the country, and many have been taking forward local energy efficiency schemes independent of UK and devolved government support. They often work with, and are supported by, expert managing agents. They can form the backbone of coordinating swift and reliable energy efficiency stimulus on the ground, laying the foundations for net zero compatible recovery.**

Figure 10 shows that the leading 39% of local authorities are distributed across the country<sup>83</sup>. 'Energy leaders' (13%) are those who have been appraised by Edinburgh University's Heat and the City research group to be investing in three or more local energy projects and have a sustainable energy plan underpinning the investments. Local authorities considered to be 'running hard' (26%) are investing in one to two projects, also backed by a local plan. These places are well-placed as conduits for reliably deploying energy efficiency stimulus in the near-term.

<sup>78</sup> (ONS, 2020d)

<sup>79</sup> (Chief Construction Adviser, 2015)

<sup>80</sup> (Scottish Government, 2019a; Greener Scotland, 2019; Welsh Government, 2019, 2018)

<sup>81</sup> (E3G, 2018b)

<sup>82</sup> (E3G, 2018a)

<sup>83</sup> (Tingey & Webb, 2020)63

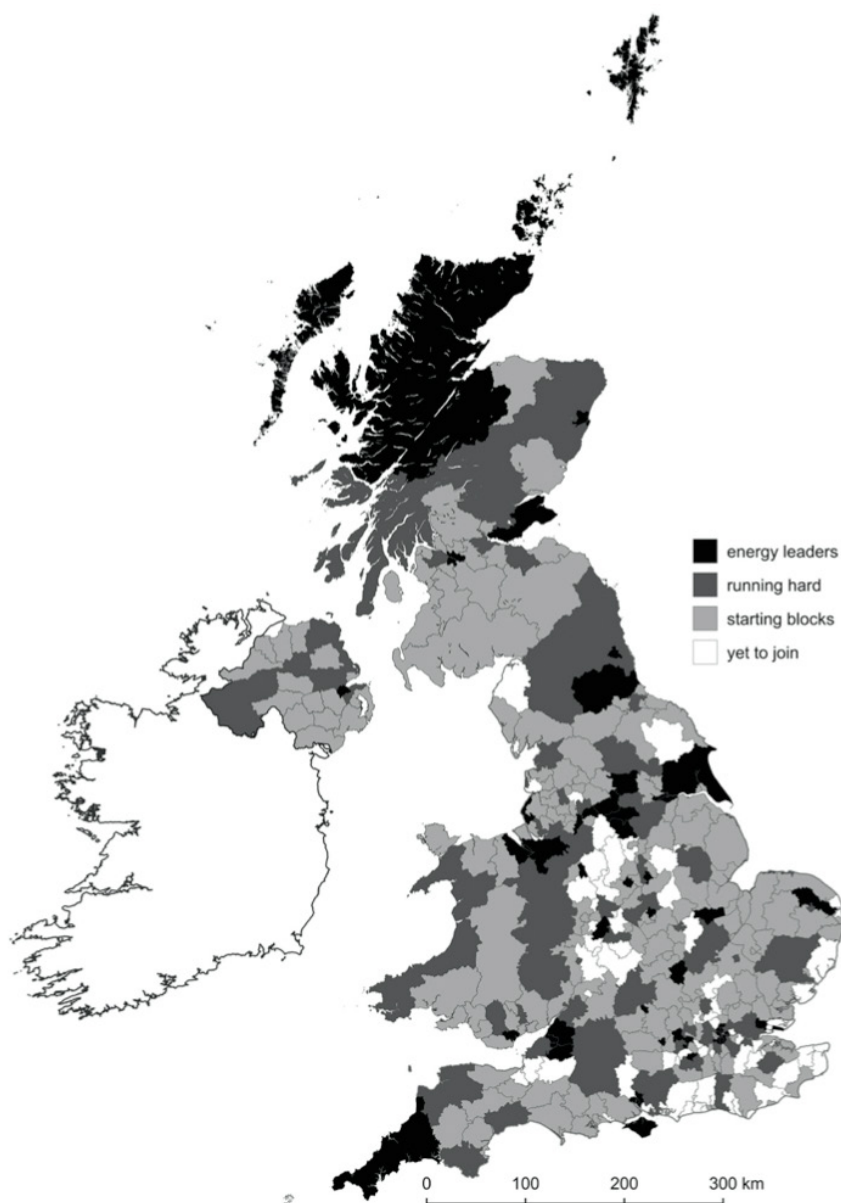


Figure 10: laggards and leaders among UK local authorities (Tingey & Webb, 2020)

Many leading and combined authorities assist their neighbours in tackling energy efficiency, heat decarbonisation and fuel poverty, increasing their capabilities. City regions are ready to play this role. The Mayors of the Manchester and Liverpool city region have called for a programme to retrofit homes with renewable energy technology to reboot the economy and create jobs<sup>84</sup>. A further small window into this is the range of local partnerships, combined authorities, county councils and energy agencies that have developed joint 'statements of intent' outlining their proposals to assist energy companies in targeting their ECO funding under the scheme's flexible household eligibility mechanism, which – capped at 25% of ECO delivery – is over-subscribed.

<sup>84</sup>(Walker, 2020)

COVERAGE	DETAIL	NUMBER OF LOCAL AUTHORITIES
East Sussex	East Sussex Energy Partnership	6
Gloucestershire	Severn Wye Energy Agency on behalf of Warm & Well scheme member authorities	6
Greater Manchester	Greater Manchester Combined Authority and/on behalf of its local authorities, covering four energy efficiency schemes	10
Kent	Kent County Council on behalf of the Medway Sustainable Energy Partnership	3
Lancashire	Cosy Homes in Lancashire Partnership	12
London	Greater London Authority on behalf of Warmer Homes Advice Service member boroughs	4
North Yorkshire	Ryedale District Council on behalf of its neighbours	4
Northamptonshire	Northants Warm Homes partnership	8
Norwich	Norwich City Council on behalf of its neighbours	4
Suffolk	Suffolk Climate Change Partnership	8
Surrey	Surrey County Council on behalf of authorities	10
Warwickshire	Nuneaton & Bedworth Borough Council on behalf of its neighbours	4
West Sussex	Arun District Council on behalf of West Sussex Fuel Poverty Partnership	6
Worcestershire	Worcestershire County Council on behalf of local authorities	6
<b>Sub-total joint statements of intent</b>		<b>91</b>
<b>Additional individual local authority statements across Great Britain</b>		<b>165</b>
<b>Total number of local authorities with statements of intent</b>		<b>256</b>

Table 3: joint and individual statements of intent to use ECO flexible eligibility (BEIS, 2019b)

Supporting this and other local energy investment plans, BEIS has set up a network of Regional Energy Hubs, offering funding to all Local Enterprise Partnerships (LEPs) to develop energy and low carbon strategies<sup>85</sup>. These plans provide a roadmap for stimulus deployment that bolsters local jobs and supply chains – including in regions facing high occurrences of unemployment and fuel poverty. For instance, York, North Yorkshire and East Riding LEP's Local Energy Strategy finds that energy efficiency renovations present major opportunities for insulation manufacturers in the region and local installers, with the promotion of energy efficiency measures predicted to generate 1,400 jobs in the region<sup>86</sup>.

**Leading social housing providers – often themselves local authorities – and their supply chains are a key delivery route for energy efficiency stimulus.** Social housing renovation and construction works are usually carried out to the highest standards of quality and energy performance compared to other tenures, and follow long-term stock maintenance and improvement plans. Housing associations alone have invested £10.9 billion in their stock in England since 2010<sup>87</sup>. These planned investments represent a pipeline of shovel-ready projects that can be leveraged for swift and reliable stimulus

<sup>85</sup> (Community Energy Hub, 2019)

<sup>86</sup> (York & North Yorkshire Local Enterprise Partnership, 2018)

<sup>87</sup> (NHF, 2019)



deployment to support them to the next level of energy efficiency. These investments can also support the scale-up of supply chains that deliver high quality workmanship with the potential and track record to expand into private housing. L&Q is an example of a housing association that has branched out to become one of the largest affordable housing developers in the UK, as well as London's largest landlord<sup>88</sup>.

**In crafting regionally appropriate responses, there is a significant role for the dozens of independent energy agencies in the third sector dotted around the UK who are active well beyond their neighbourhoods** – well-known examples include the Centre for Sustainable Energy and Changeworks – who have immense locally and nationally relevant expertise and can act as delivery partners for local authorities and other bodies delivering energy efficiency stimulus on the ground<sup>89</sup>. With growing awareness of the importance of investing in social capital to underpin a resilient recovery<sup>90</sup>, involvement of the UK's grassroots' expertise to support the energy efficiency of homes can make a significant contribution.

**Community energy groups should therefore also be engaged in the Government's response, taking a forward-looking perspective on enhancing social acceptance, regional resilience and energy security.** The not-for-profit projects they deliver can allow money to be reinvested in the local community – six community-run solar projects in England and Wales mobilised £195,000 for local coronavirus support efforts in April 2020<sup>91</sup>. Community energy schemes have faced significant challenges in recent years, with the sector negatively impacted by reductions in subsidy support and unclear government strategy<sup>92</sup>. Simple measures such as Social Investment Tax Relief, a low or zero-interest loan facility, a smart export guarantee and a renewed Feed-in Tariff for community energy projects could see rapid impact and make the most of the vibrant social capital community energy groups represent<sup>93</sup>.

**The financial sector stands ready to support stimulus deployment. The Green Finance Institute's Coalition for the Energy Efficiency of Buildings, comprising 45 member organisations, is the key platform for government-finance industry dialogue on deploying energy efficiency stimulus<sup>94</sup>.** It is developing a range of demonstrators of financial innovation designed to mobilising private capital into upgrading our homes for net zero, spanning data and analytics, lease agreements, savings and investment products, individual lending products, third-party financing and guaranteed lending<sup>95</sup>.

### 3.2 Leveraging the energy efficiency policy pipeline

**£9.2 billion worth of commitments to energy efficiency investment made in the government's 2019 election manifesto<sup>96</sup> need to be treated as instrumental to an energy efficiency stimulus package, financially and programmatically.**

The commitments, restated in the recently launched consultation on Future support for low carbon heat<sup>97</sup>, amount to £9.2 billion between now and 2030 and comprise:

- £3.8 billion over ten years to 2030 for a Social Housing Decarbonisation Fund: supporting the goal for all social housing to achieve EPC C by 2030;
- £2.5 billion over five years to 2025 for Home Upgrade Grants: support for deep renovation for low income households living in highly inefficient homes;

<sup>88</sup> (L&Q, 2018)

<sup>89</sup> (Age UK, 2012)

<sup>90</sup> (Onward, 2020)

<sup>91</sup> (Keating, 2020)

<sup>92</sup> (Community Energy England, Community Energy Wales & Scottish Power Energy Networks, 2019)

<sup>93</sup> (Community Energy England, 2020)

<sup>94</sup> Green Finance Institute's Coalition for the Energy Efficiency of Buildings paper on stimulus: forthcoming

<sup>95</sup> (GFI, 2020)

<sup>96</sup> (The Conservative and Unionist Party, 2019)

<sup>97</sup> (BEIS, 2020d)

→ £2.9 billion over five years to 2025 for a Public Sector Decarbonisation Scheme: support for the capital cost of upgrading the energy efficiency of schools and hospitals.

**For rapid stimulus, these schemes should be launched immediately. For reliability, they must require stringent end-to-end quality assurance and performance conditions to be met<sup>98</sup>. Programme design can be adjusted, in collaboration with local supply chains, over time. They can deploy investment on the ground quickly and reliably by building on the delivery network already in place.**

**First, the Social Housing Decarbonisation Fund (SHDF) can build on registered social landlords' (RSLs') already front-runner status in managing high quality housing and energy efficiency improvement works at scale.** Delivery of the Decent Homes Standard in England – a major component of which is energy performance – has been successful and is routinely exceeded by RSLs, whose own standards and expectations for their housing stock are high.

**The SHDF can latch onto the social housing sector's planned maintenance and repair activities – which among the housing association subset amounted to £11.9 billion of investment since 2010 in England alone<sup>99</sup> – to ensure swift and effective deployment of funds.** With one eye on the longer-term, the SHDF can be designed to leverage development of the social housing sector's skills base – such as by training provision for furloughed workers – and quality supply chains, for example by supporting the trend for the sector's contractors to branch out into privately-owned housing renovation works. This could be achieved by a complementary government-backed loan guarantee for large-scale, ambitious social housing renovation projects that encompass neighbouring private homes, to accelerate the growth of its supply chains.

**Second, the Home Upgrades Grant (HUG) can initially be deployed for instant impact in areas of local authority leadership on energy efficiency and heat, prioritising where the need amongst low income households is greatest, schemes are already on the go and broadly aligned with the HUG's eventual objectives.** In other areas local energy plans are frequently well-developed enough to be shovel-ready – experts on these at the University of Edinburgh's Heat and the City research group<sup>100</sup> should be engaged to identify these systematically. However, most lack the funds to procure contractors, a situation made more difficult by the current crisis, and one that energy efficiency stimulus could help resolve. To further facilitate swift deployment, the HUG must be free for households to access, guarantee assistance for those eligible and be designed to complement, but not rely on or wait for, other schemes such as ECO. To ensure it is reliably invested and delivers value for money, it must provide additionality to Minimum Energy Efficiency Standard requirements for private-rented properties, ensure the right upgrades are chosen for every home – backed by high quality advice and workmanship – and be robustly governed, evaluated and monitored.

**Considering the longer term, the HUG can be leveraged alongside the SHDF and ECO to build out capacity and capability for delivery across the country.** Specifically, it could: apply the model of local authority led area-based schemes and local heat and energy efficiency planning in Scotland to other parts of the country; facilitate the leadership and coordination provided by larger, more experienced local authorities and independent energy agencies to neighbouring areas; and build on the network of Regional Energy Hubs established by BEIS. By focusing on leading authorities and communities during an energy efficiency stimulus phase, the HUG can help lay the

<sup>98</sup> (MIMA, 2020)

<sup>99</sup> (NHF, 2019)

<sup>100</sup> <https://heatandthecity.org.uk>

foundation for a decentralised network of leadership clusters that can coordinate the delivery of a national programme of energy efficiency and heat infrastructure investment that requires only light-touch central governance.

**Third, the Public Sector Decarbonisation Scheme (PSDS) can achieve immediate impact by funding schools' and hospitals' existing energy efficiency plans through tried and tested delivery architecture.** The Scheme can be delivered reliably by using the network of supply chain and project delivery partners clustered around the successful Public Sector Energy Efficiency Loans scheme<sup>101</sup>, led by Salix Finance, which supported 400 clients in 2018/19<sup>102</sup>. The industry is currently exploring an initiative to retrofit schools across the country during lockdown – one of many public sector building types (leisure centres, libraries, universities) that could be improved with PSDS and Salix support right away.

### 3.3 Building the energy efficiency policy pipeline

**Major policy gaps remain in the realms of stimulating demand for energy efficiency and heat decarbonisation amongst able-to-pay owner-occupiers and landlords. These need to be urgently addressed to ensure that energy efficiency stimulus can lead to a net zero outcome and crucially lever in private finance.**

The policies highlighted so far can together underpin energy efficiency stimulus focused on social housing, low income households and public sector buildings, helping to meet fuel poverty and public estate targets. They will drive the development of the supply chain essential to achieving decarbonisation across the UK's entire building stock, encompassing all owner-occupied and private-rented homes, and commercial buildings. For able-to-pay homeowners, new regulatory, fiscal and information measures, requiring stringent quality and performance conditions to be met, are needed to stimulate demand for the long-term – without which their financial contribution, facilitated by the financial sector, cannot be unlocked. This needs to be backed by innovation investment in the sector on a compressed timescale. To help get all homes to EPC C by 2030, this means:

- **Clarity on the long-term Minimum Energy Efficiency Standard (MEES) requirements for the rented sectors** is urgently needed to motivate landlords and the supply chain to plan and invest.
- **New MEES for owner occupied homes, applicable at point of sale and major renovation** – modelled on Scotland's proposals<sup>103</sup> – would provide the clearest signal to homeowners that they need to upgrade their homes. This can be complemented by plans for regulation to phase out the use of fossil heating systems, beginning in off-gas grid homes.
- **A programme of fiscal incentives, worth an average of £0.5 billion per year for energy efficiency – designed to unlock at least £5 of private investment for every £1 of public spending and pump-priming the nascent market for low carbon home finance products.** Much more is needed for low carbon heat. Incentives can include a renewed Landlords Energy Saving Allowance, Stamp Duty and Council Tax-linked incentives, and partial subsidies (as is currently being proposed by the Government for low carbon heat<sup>104</sup>) that reward owners of efficient, low carbon and resilient homes.

<sup>101</sup> (BEIS, 2018b)

<sup>102</sup> (Salix, 2019)

<sup>103</sup> (Scottish Government, 2019b)

<sup>104</sup> (BEIS, 2020d)

- **A standardised methodology and data framework for Building Renovation Passports**<sup>105</sup> is needed from Government, building on its long-awaited review of Energy Performance Certificates<sup>106</sup>, and on the digital infrastructure of TrustMark's data warehouse and property hub<sup>107</sup> – critical to enabling informed homeowner choice and investor confidence by helping to assure renovation choices, quality and energy performance.
- **Compressing and boosting innovation investment and timescales in the sector**, for instance by challenging and supporting the participants in the Industrial Strategy's Construction Sector Deal<sup>108</sup> to halve the energy use of new buildings and halve the cost of renovating to that performance by 2025 instead of 2030, and accelerating the demonstration of metered energy savings<sup>109</sup> to facilitate their commercial rollout alongside renovation programmes.

Many aspects of these measures can contribute stimulating demand to help short-term post-pandemic recovery – and evolve to become part of the longer-term regulatory and fiscal landscape. These include:

- **Making stimulus support conditional on supply chains having end-to-end quality assurance processes in place**, and incentivising projects to monitor and verify real energy performance post-renovation – to shore up value-for-money, consumer and investor confidence.
- **Publishing the long-awaited proposals for the long-term MEES trajectory for the private-rented sector**, which will encourage forward-thinking landlords to plan and invest before they are later adopted and implemented.
- **Reinstating the Landlords Energy Saving Allowance** to reward private sector landlords who renovate their homes beyond what the current MEES requires, facilitating the catch-up of rental properties that had to comply as of April 2020 – later helping landlords stay ahead of subsequent MEES requirements.
- **Restoring the 5% rate of VAT on energy saving products** and their installation for all households.
- **Introducing a Stamp Duty rebate on the purchase of efficient homes** that have, or are renovated to achieve, an EPC rating of C or better, helping to get the housing market moving again – later evolving into a revenue-neutral model that embeds housing price signals across the full spectrum of EPC ratings.
- **Offering low or no-interest loans, or government-guaranteed private sector lending, for energy efficient renovation and low carbon heating systems**, later backed by the Shared Prosperity Fund and potentially a new, independent national infrastructure bank.
- **Bringing forward the two-year £100 million Clean Heat Grant scheme to now**, alongside and as an alternative to the Renewable Heat Incentive – as the RHI to be made conditional on installing basic energy efficiency measures – to stimulate the market for heat pumps as part of the recovery and lay a better foundation for the longer-term Heat and Buildings Strategy, expected later this year.

<sup>105</sup> (BPIE, 2018)

<sup>106</sup> (BEIS, 2018a)

<sup>107</sup> (TrustMark, 2020)

<sup>108</sup> (BEIS, 2018c)

<sup>109</sup> (BEIS, 2019e)

## 4 Rebuilding for Resilience: turning stimulus into recovery

**The stimulus package needs an exit strategy that ensures the economic activity boosted can be sustained and continues to deliver long-term objectives – statutory targets for net zero and fuel poverty, levelling up jobs, infrastructure and resilience, increased household spending and GDP – after stimulus is withdrawn.**

The previous sections focused on the immediate routes for swift and reliable economic stimulus from energy efficiency investment and outlined their contribution to longer-term goals. To conclude this briefing, this section sets the stimulus measures from the preceding section, along with other proposals, into a two-year timeframe and places them in the context of current efforts to stabilise the economy and the longer-term economic recovery they can help support: *'Rebuilding for Resilience'*.

Other initiatives can complement the route to impact of energy efficiency stimulus through existing and planned policy – both immediately and in the medium term – in a way that supports longer-term statutory goals for net zero and fuel poverty while continuing to deliver on jobs, resilience, increased household spending and GDP.

The EEIG's envisioned stimulus package for the next two years, placed in its stabilisation and recovery contexts, is outlined in the central column of Table 4.

Table 4: turning energy efficiency stimulus into recovery

REALM	STABILISATION (NOW) →	→ STIMULUS (NEXT TWO YEARS FROM NOW) →	→ RECOVERING AND RESILIENT ECONOMY THAT DELIVERS LONG-TERM GOALS (BEGINNING LATE 2022)
<b>Social housing</b>	Measures in place to protect tenants include £500 million hardship fund for Council Tax relief, increases to Universal Credit, Housing Benefit and Local Housing Allowance rates, and three-month notice period	£3.8 billion Social Housing Decarbonisation Fund brought forward by one year, funding EPC C renovation activity in social housing with £300 million over the next two years and leveraging in a further £300 million from RSLs.	Social housing gets on track for net zero. Energy costs reduce, higher living standards for tenants and lower rent arrears for landlords
<b>Local governance and services delivery</b>	£3.2 billion of support to local authorities to manage COVID-19 pressures across all the services they deliver	At least £410 million of funding over next two years, provided from £2.5 billion Home Upgrade Grants scheme, enables leading local authorities and their partners to support low income households via existing, shovel-ready and aligned heat and energy efficiency schemes, conditional on supporting delivery capacity in the communities around them	Local governments are prepared for scale-up of Home Upgrade Grants scheme – expected to reach over £1.1 billion in 2024/25. Scheme extended at that level to 2030 to meet fuel poverty targets. Levelled-up local capacity supports delivery of energy efficiency, heat decarbonisation and other elements of the net zero transition, beyond the households Home Upgrade Grants will support, in every part of the country.

REALM	STABILISATION (NOW) →	→ STIMULUS (NEXT TWO YEARS FROM NOW) →	→ RECOVERING AND RESILIENT ECONOMY THAT DELIVERS LONG-TERM GOALS (BEGINNING LATE 2022)
<b>Public sector estate and contractors</b>	Cabinet Office guidance for public sector payments to suppliers for Contingent Workers aligned with Coronavirus Job Retention Scheme	A proportion of Contingent Workers can be reassigned to support the deployment of the Public Sector Decarbonisation Scheme – worth £810 million over the next two years – with Salix Finance’s delivery network. Salix Finance loans enable public sector organisations to go further.	Development of high-quality supply chain that extends into commercial real estate sector. Taxpayers’ money expended on energy costs brought under control, freeing up resource for frontline services. Public sector procurement, energy and carbon performance inspires by example.
<b>Households and housing market</b>	<p>Support for households from Coronavirus Job Retention Scheme, Self-employment Income Support Scheme, increased access and level of benefits, additional Council Tax relief.</p> <p>Three-month notice period for tenants, suspension of housing possession action, increases to Housing Benefit and Universal Credit, guidance to mortgage lenders for 3 month payment holidays, emergency funding for rough sleepers and homeless people</p>	MEES proposals and Landlords Energy Saving Allowance introduced for private-rented sector, stimulating investment towards EPC C. Stamp Duty rebate on purchase of efficient homes also supports housing market. Low, no-interest or government-guaranteed loans scheme for home renovation incorporating energy efficiency and low carbon heat. £100m Clean Heat Grant Scheme brought forward to now, offered as an alternative to RHI. 5% VAT on energy saving products restored for all households.	Stimulus lays ground for longer-term structural incentives (e.g. revenue-neutral Stamp Duty variation linked to EPC; Council Tax reduction linked to EPC) and long-term regulation (MEES trajectory for all tenures at point of sale, rental and major renovation) that pump-prime demand for energy efficiency and heat improvements over the long-term. £500 million needed per year for structural incentives, designed to lever in 5x private financial contribution, to meet EPC C by 2030 and to be on track for net zero, also laying necessary foundations for upcoming Heat and Buildings Strategy to build on long-term.
<b>Skills base / workforce</b>	Furloughed employees supported by Coronavirus Job Retention Scheme; laid off employees with increased benefits; others unable to work through Self-employment Income Support Scheme	Furloughed and other workers unable to return to construction sites are offered training for low carbon skills, Quality Mark accreditation and on-site productivity. Returning workers supported with advanced on-site productivity training, helping to protect safety at work.	Skills and productivity gap for net zero construction and renovation closes. To meet EPC C by 2030 for all housing, energy efficiency renovation alone supports at least 150,000 average annual FTEs to 2030.
<b>Research and innovation</b>	Support for innovative start-up SMEs raising private equity through Coronavirus Future Fund; accelerated and additional support from Innovate UK grants and loans for R&D-intensive SMEs	Compressed and additional innovation investment in the sector, by diffusing products and techniques for enhanced productivity on construction and renovation sites, and challenging and supporting participants in the Industrial Strategy’s Construction Sector Deal to halve the energy use of new buildings and halve the cost of renovating to that performance by 2025 instead of 2030.	Innovation in technologies and techniques drives down cost of net zero construction and renovations across the supply chain, enabling them to be deployed at scale sooner, opening up competitive advantage for trade opportunities in related materials, products and services.

REALM	STABILISATION (NOW) →	→ STIMULUS (NEXT TWO YEARS FROM NOW) →	→ RECOVERING AND RESILIENT ECONOMY THAT DELIVERS LONG-TERM GOALS (BEGINNING LATE 2022)
<b>Business support / role of banks</b>	Government-guaranteed Coronavirus Business Interruption Loan Scheme for SMEs and large businesses, and small Bounce Back Loan Scheme provided through accredited lenders	Banks deliver subsidised low, no-interest and/or government guaranteed loan scheme for home energy efficiency and low carbon heat renovation. Introduction of a loan guarantee mechanism for large-scale, quality neighbourhood renovation projects anchored to social housing, dovetailing with Social Housing Decarbonisation Fund.	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. Development of supply chain capable of delivering investable high quality energy performance renovation at scale beyond social housing.

The EEG's stimulus proposals above that relate directly to investments in buildings are summarised in Table 5.

ELEMENT OF STIMULUS PACKAGE	DETAIL	NEW AND ADDITIONAL UK GOVERNMENT INVESTMENT/ REVENUE FOREGONE/COST	PRIVATE AND OTHER INVESTMENT
<b>Social Housing Decarbonisation Fund</b>	Brought forward by one year to this year	£300m	£300m
<b>Home Upgrades Grant</b>	Launched this year	£410m	£100m
<b>Public Sector Decarbonisation Fund</b>	Launched this year	£810m	£200m
<b>Clean Heat Grant</b>	Launched this year	£100m	£150m
<b>Landlords Energy Saving Allowance</b>	Reintroduced, average worth equivalent to 20% of renovation cost for EPC C	£100m	£500m
<b>Stamp Duty Rebate</b>	Introduced at £800 for homes at or renovated to achieve EPC C or better	£600m	£1,200m
<b>Low, zero-interest and/or government guaranteed loans</b>	Additional £600m from loans assumed to be used in conjunction across other private housing schemes	£100m	£400m
<b>5% VAT available to all households</b>	Assumed to apply to 75% of the additional investment, across all housing schemes	£360m	£540m
<b>Total, of which</b>		<b>£2,780m</b>	<b>£3,390m</b>
...direct investment in homes		£810m	£3,190m
...incentives for homes		£1,160m	-
...investment in public sector		£810m	£200m

Table 5: indicative estimates of public and private investment and expenditure of proposed stimulus package; totals over 2020-2022 period

**Direct investment in homes from public and private sources in the proposed stimulus package amounts to £4 billion over two years, or £2 billion per year, capable of supporting 500,000 renovations across every part of the country. This would support 34,000 full-time equivalent jobs across the supply chain over the two-year period, while one million households would save a quarter of their rising energy costs.** Nearly £1.6 billion of this annual investment would come from households themselves, driven by almost £0.6 billion of government incentives. For homes, the overall public/private distribution of investment and costs is 38% to 62%. The Public Sector Decarbonisation Scheme could drive over £0.5 billion of investment per year in public buildings and support 8,500 jobs.

**While meeting key stimulus criteria – contributing to the levelling up of opportunity, infrastructure and resilience, boosting consumer spending and delivering swiftly and reliably – the proposed package would put the UK on a solid footing for a net zero compatible economic recovery.** For instance, the Stamp Duty rebate can evolve into a revenue-neutral instrument, further embedding energy and carbon performance into property values while helping the housing market's recovery. The other, 'softer' measures introduced in Table 4 as part of the stimulus package – to address skills, innovation, retail and institutional finance while supporting furloughed workers, small businesses and other innovators through the next two years – deliver structural preparations for the net zero transition and enable a shift in the balance of investment from the Government towards households and the supply chain over time. This is what we mean by 'Rebuilding for Resilience'.



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