Increasing investment for commercial energy efficiency

March 2018

Policy recommendations

1. **Set a target for the UK's building stock to be nearly zero carbon by 2050,** including by extending the EPC C by 2035 target set out in the CGS to commercial buildings
2. **Establish a new zero carbon buildings target to be enforced by 2020**, aligned with the UK's mandatory carbon budgets and giving developers a clear trajectory and plenty of warning of any policy changes. This should be followed by a truly Net Zero Carbon Buildings standard from 2030, incorporating regulated, unregulated and embodied energy
3. **Tighten performance standards like MEES over time and ensure a credible threat of enforcement** with a clear roadmap for increasing ambition
4. **Consider introducing fiscal incentives** to level the playing field between energy efficiency improvements and core growth investments, such as removing VAT for energy efficient products and services, or making low cost finance available to banks to support energy efficiency loan products
5. **Facilitate the growth of the energy services market** by supporting intermediary frameworks, sharing public sector learnings and providing guarantees on contractual risk
6. **Mandate greater energy efficiency across all government owned buildings and support local government and public bodies** in investing in energy efficiency measures through standardised contracts and templates
7. **Improve energy efficiency measurement and disclosure requirements for business** in line with building efficiency standards, ensuring this continues to be reported in Annual Reports and remain part of cross-border initiatives that can improve access to data
8. **Provide guidance on energy efficient refurbishment** for businesses considering refitting offices, making use of that trigger point to incentivise retrofitting. Offer additional support to SMEs
9. **Increase standardisation and accreditation around energy efficiency** to improve investor confidence and facilitate a market of securitised products, including through endorsing and extending the Each Home Counts Quality Mark

This policy paper considers how to increase energy efficiency investment in the commercial buildings market to support the delivery of the Clean Growth Strategy. The first section sets out background on the importance of tackling commercial energy efficiency and why investment to date has been limited. The second section offers eight solutions to driving a more robust market, highlighting several case studies.

This paper is accompanied by a separate policy paper, *Increasing investment for domestic energy efficiency* and sits alongside a new report, *Towards the new normal: increasing investment in the UK's green infrastructure.*

BACKGROUND

Reducing energy demand through greater efficiency can help the UK meet its legally binding climate targets,[1] limit increases in energy bills, tackle fuel poverty, and drive economic growth, job creation and business investment in skills.[2,3] Better quality commercial spaces can support greater productivity for those who work within them[4] and developing policies to support better efficiency for businesses and the public sector would save £570m per year.[5,6]

£6bn

investment potential in UK building and industrial retrofit to 2020

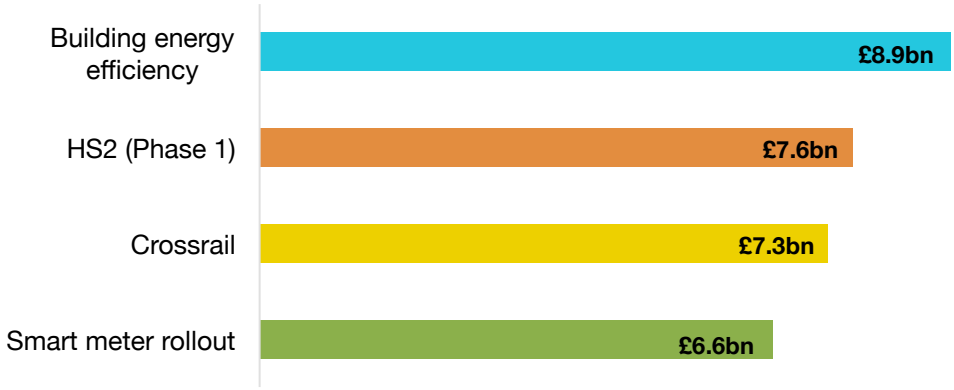
Increasing energy efficiency in commercial buildings should be a priority: there are about 1.8m non-domestic buildings in the UK accounting for 12% of greenhouse gas emissions.[7] The UK's building and industrial retrofit investment potential was valued at £3-6bn between 2014 and 2020[8] while energy efficiency accounted for nearly half of total low carbon and renewable energy (LCRE) turnover in 2016 at £20.7bn and over two-thirds of LCRE employment at 141,500 full time jobs.[9]

Increasing investment in energy efficiency has proven challenging to date. Approaches differ according to whether the property is domestic, commercial or industrial and each has unique challenges (see accompanying policy paper on domestic energy efficiency). An eightfold increase in current levels of energy efficiency investment is needed by 2040 to keep Europe on track to meet its Paris Agreement obligations.[10] This is in spite of the fact **that investments in energy efficiency perform as well as, or better than, other forms of infrastructure investments** in terms of tax revenues and jobs created in addition to the overall impact on GDP and balance of trade.[11]

The greatest reason for not investing (where investments haven't already been made or planned) is that within companies, competing investment demands often mean energy efficiency projects are further down the priority list than core business growth investments.[12] A lack of skills in delivering energy efficiency installations, as highlighted by the Each Home Counts Review,[13] has resulted in an erosion of consumer confidence in the market. Systems and insulation are being installed badly and companies are struggling with new technology, such as intelligent building management systems.[14] Other major reasons include a lack of resources or uncertainty over the benefits.

[1] The UK's building stock is responsible for 19% of total UK domestic greenhouse gas emissions. To meet the UK's legally binding climate commitments cost effectively, these emissions must be reduced by 20% from 2016 levels, by 2030. Committee on Climate Change (June 2017) *Meeting Carbon Budgets: Closing the Policy Gap*
[2] UKGBC (June 2014) *A Housing Stock Fit for the Future: Making home energy efficiency a national infrastructure priority*
[3] Imperial College London (April 2016) *Managing Heat System Decarbonisation*
[4] UKGBC (February 2017) *Building Places That Work for Everyone*
[5] The Association for Decentralised Energy (September 2015) *Less Waste, More Growth*
[6] For more on policies to support energy efficiency, see Aldersgate Group (July 2017) *Energy efficiency in the UK's buildings: key priorities for the new government*
[7] BEIS (November 2016) *Heat in Buildings: The Future of Heat - Non-domestic buildings Consultation*
[8] Bloomberg New Energy Finance (October 2014) *Energy Efficiency Trends Vol. 8*
[9] https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2016
[10] E3G (March 2016) *Energy efficiency as infrastructure: Leaping the investment gap*
[11] E3G (March 2016) *Energy efficiency as infrastructure*
[12] POST Note (February 2017) *Future of energy efficiency policy*

UK infrastructure investments: expected return on investment



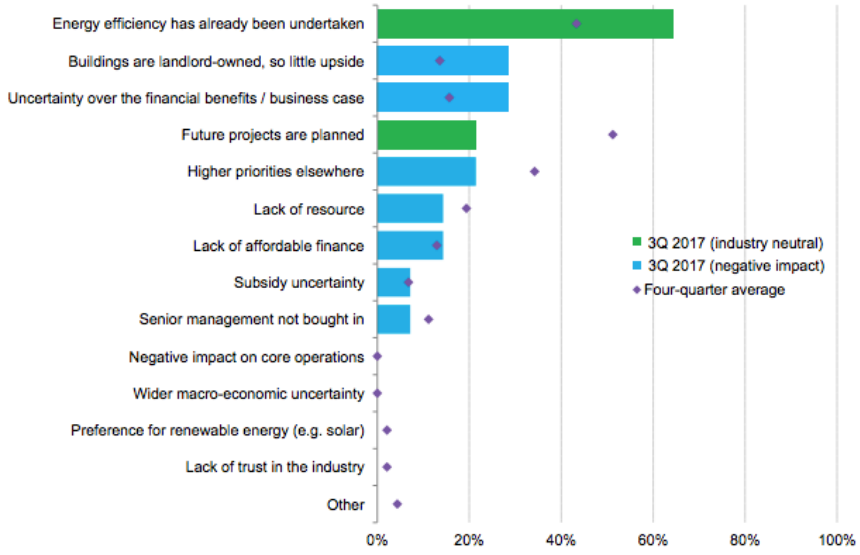
Source: Frontier Economics, reproduced from E3G (March 2016) *Energy efficiency as infrastructure: Leaping the investment gap,* using average March 2016 GBP-EUR exchange rate

Generally, projects tend not to happen unless the payback period is under three years. The UK median payback period is 5.32 years for building fabric measures and 5.24 years for lighting.[15] However, the Government's Business Energy Efficiency Survey found that it would be possible to reduce energy consumption by 39% and save £1.2bn a year through replacing all current equipment with more efficient equipment and improving energy management, with almost half of the reduction achieved by measures with a private investment payback of three years or less.[16] It would be worth focussing on these low hanging fruit as a priority.

Where investments are made, commercial energy efficiency measures can be financed on a company's own balance sheet with costs recouped through bill savings – representing nearly 80% of current investments,[17] through third party finance like a bank loans or direct investment via energy service markets, or through a combination approach.

[13] *Each Home Counts Review* (November 2016)
[14] Building.co.uk (21 June 2013) 'CPD 13: Intelligent Building Management Systems'
[15] From https://deep.eefig.eu/ data
[16] BEIS (November 2016) *Building Energy Efficiency Survey (BEES)*
[17] BNEF (January 2018) *Energy Efficiency Trends Vol. 21*

Consumer reasons for lack of efficiency uptake, 3Q 2017 versus four-quarter average



Source: BNEF (January 2018) *Energy Efficiency Trends Vol.21*

HOW TO DRIVE THE MARKET

There are several market drivers for energy efficiency, including smart regulation, greater access to information and leading by example. Government can also take measures to support successful investment models, such as the energy services market and low interest loans.

1. Set clear targets that the market can work towards

Given the volume of emissions deriving from the UK's building stock, almost all buildings must be nearly zero carbon by 2050 to meet the Climate Change Act target of at least an 80% reduction in emissions (compared to 1990 levels), which will require significant amounts of retrofitting. **Government must provide a clear roadmap towards this target, giving industry clear and enforceable targets** that are linked to existing commitments, such as the carbon budgets.

The aspiration set out in the Clean Growth Strategy to upgrade as many homes as possible to EPC C by 2035 should be extended to commercial buildings. This will drive a sustainable industry for energy services through retrofit and energy management. A clear vision will allow the construction industry to plan, driving innovation and skills development to reduce future compliance costs.[18]

A new zero carbon buildings target is also needed, aligned with the UK's mandatory carbon budgets and giving developers a clear trajectory for improvements. This should be based on the 2016 Zero Carbon Homes metrics that were developed by industry, are well known and use established technology. This should be announced promptly with an enforcement date of 2020 allowing industry plenty of time to respond. A truly Net Zero Carbon Buildings standard should be introduced from 2030, incorporating regulated, unregulated and embodied energy.

[18] BuroHappold (December 2017) *Help or hindrance? Environmental regulations and competitiveness*

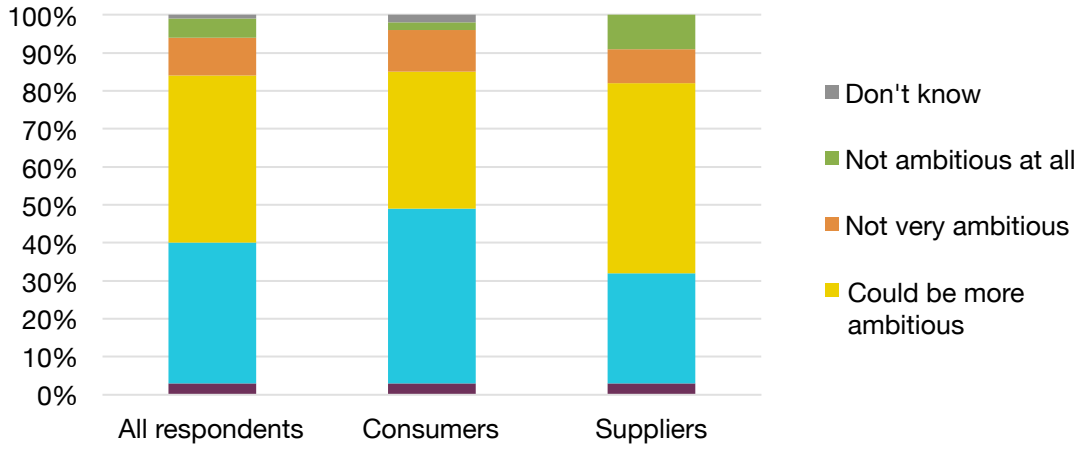
The planning horizon for new build and major refurbishment is over five years and businesses need certainty about government policy to justify investment with longer pay off periods. Stop-start policy changes, such as the cancellation of the 2016 Zero Carbon Homes target and the sudden reduction of the Energy Company Obligation (ECO), were unhelpful and undermined business confidence in government decisions well beyond the sectors that were directly affected. Regulations must therefore be clear, stable and well enforced.

2. Strengthen regulation and performance standards

Government can play a crucial role in driving the market by introducing smart, outcomes-focused regulations. Publication of the Clean Growth Strategy was extremely welcome and sets a useful tone of government ambition to spur private sector action, but greater policy detail on delivery must now be released to strengthen the market signals, including on the future of minimum standards for energy efficiency in commercial buildings. **21% of suppliers cite policy uncertainty as their main concern for the energy efficiency industry and 60% believe current energy efficiency policy to be ineffective.**[19]

Introducing stringent standards for new buildings that are updated regularly and gradually tighten could drive new product innovation and create jobs in the supply chain.[20] A recent BuroHappold report commissioned by the Aldersgate Group found that the London Plan has raised the standard of building design and made London a leader in district heating and energy efficiency design, driving R&D in product development and design consultancy.[21]

The Clean Growth Strategy sets a target to improve energy efficiency in commercial buildings by at least 20% by 2030. Do you think this target is:



Source: BNEF (January 2018) *Energy Efficiency Trends Vol.21*

[19] BNEF (January 2018) *Energy Efficiency Trends Vol. 21*
[20] Willis Tower Watson (April 2017) *Real estate climate risk report 2017*
[21] BuroHappold (December 2017) *Help or hindrance? Environmental regulations and competitiveness*

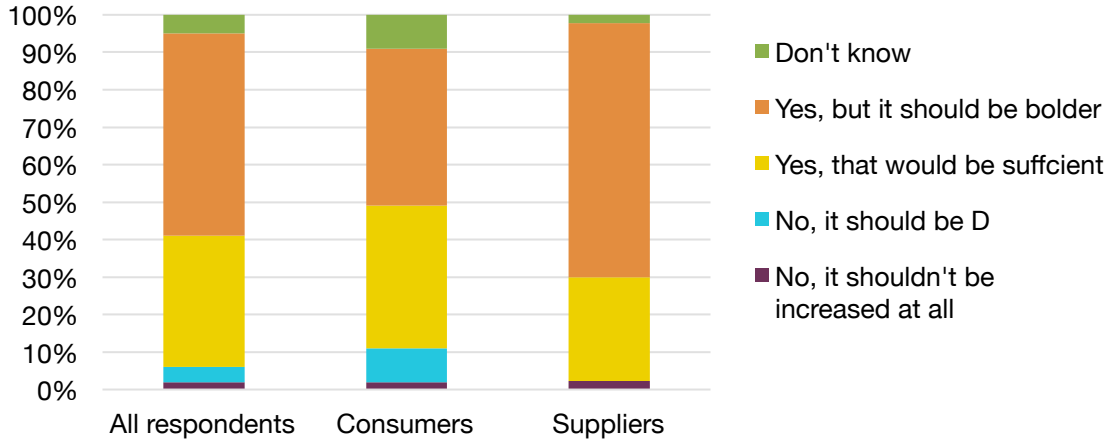
The regulatory framework is already fairly effective, including the Minimum Energy Efficiency Standards (MEES) which make it unlawful for landlords to grant a new lease to properties that have an EPC rating below E from 1st April 2018, the Climate Change Levy which incentivises non-domestic energy users to reduce energy use and Energy Savings Opportunity Scheme (ESOS) which requires qualifying companies to assess and report potential actions to improve energy performance.

However, **regulations must be enforced more strictly**. There is no requirement to implement opportunities arising from ESOS and while the industry expects MEES to be tightened over time starting in 2020, a clear roadmap for increasing standards is needed to drive further improvements. As of December 2017 over 120,000 non-domestic properties were still non-compliant with MEES.[22]

A credible threat of enforcement is critical to give regulations teeth: over 40% of consumer and supplier respondents to the Bloomberg New Energy Finance energy efficiency survey saw enforcement on MEES as 'inconsistent and patchy' while another third saw it as 'ineffective and a major cause of concern'.[23] The same survey found that over 50% of respondents thought the EPC band C target should apply to commercial buildings and should even be bolder (see table below).

Government should also protect and enhance existing performance driving standards derived from the European Union, such as the Energy Performance of Buildings Directive which requires measures to improve knowledge of the energy performance of buildings and requires all new buildings to be nearly zero energy by 2020.[24]

The Clean Growth Strategy sets an ambition for "as many homes as possible to have EPC rating of C by 2035." Should this also apply to commercial buildings?



Source: BNEF (January 2018) *Energy Efficiency Trends Vol.21*

[22] WSP (2018) *What are EPCs and the minimum energy efficiency standards?*
[23] BNEF (January 2018) *Energy Efficiency Trends Vol. 21*
[24] CCC (October 2016) *Meeting carbon budgets: Implications of Brexit for UK climate policy*

ING energy efficient building financing

Better standards can help inform market-led solutions. In the Netherlands, ING bank has committed to only offer new financing for office buildings that earn an A, B or C in 'green' energy labelling after 2017. Non-sustainable buildings will not be eligible for funding unless the owners have a sustainability plan in place. The plans are in line with Dutch legislation that from 2023 buildings must be a C or higher to be rented as office space and the government plans to increase this to an A by 2030.[25] ING has developed tools to help customers improve building efficiency, including an app and a payback calculator tool.

3. Level the playing field

Government should consider introducing fiscal incentives which level the playing field for energy efficiency improvements against business core growth investments, such as tax breaks for energy efficiency equipment and installation. At the European level, State Aid rules place constraints on government support for energy efficiency. Only 30-50% of eligible costs for energy efficiency can receive State Aid, compared to 100% for energy infrastructure. Revising State Aid treatment of energy efficiency to match the treatment of wider energy infrastructure can support investment.[26] Outside of the EU, the UK can adjust VAT rates for energy efficient products and services. Low cost loans may also help to improve the economics of investment (see 8, below).

£750m

Estimated value of the UK energy services market in 2014/15

4. Support the energy services market

Energy service contracts involve the outsourcing of energy-related services to a third party or contractor – commonly an energy service company (ESCO). Typically, ESCOs invest in energy efficient equipment upfront and guarantee a specified level of energy or cost savings to clients over a period of several years. The client pays a set fee for this service, similar to a Power Purchase Agreement (PPA). **The UK energy services market was estimated at around £400m – £750m in 2014/15.**[27] With robust demand driven by regulation, this could grow significantly in the future. The Green Investment Bank (GIB – now Green Investment Group) made some progress, particularly working with the NHS and local authorities on energy efficient street lighting. It seeded a number of funds to invest in the sector to stimulate aggregation of small transactions but struggled to identify 'investment ready' projects.[28]

[25] ING press release (1 December 2016) 'ING will only finance 'green' office buildings in the Netherlands after 2017'
[26] E3G (March 2016) *Energy efficiency as infrastructure*
[27] C. Nolden & S. Sorrell (December 2016) 'The UK market for energy service contracts in 2014–2015'
[28] NERA Consulting (August 2015) *UK Green Investment Bank – Examining the Case for Continued Intervention*

The now privatised Green Investment Group (GIG) is now offering a 'pay-as-you-save' Energy Services Agreement through the Energy Solutions programme, enabling businesses to benefit from investments with no impact on their balance sheets, removing the barrier of upfront cost and therefore overcoming the common choice for businesses between core operational investment and investing in energy savings. Energy Solutions will design, fund and deliver an integrated programme of energy upgrades, taking on key risks and expenditures.[29] Returns are derived from saving on energy bills over a period of years.

By moving from selling products to selling services, ESCOs may incentivise contractors to minimise lifecycle costs of the relevant equipment, to select the appropriate size and quality of equipment, to improve energy efficiency and/or to extend product life with the aim of maximising profit margins. **As such, a shift to energy service contracts may provide an effective means of reducing both end use and embodied energy demand**, delivering increased resource efficiency more broadly.

The development of energy service models also allows external large investors, like institutional investors, to take part in the market by aggregating multiple projects through ESCOs and investing at scale – this means of aggregation will particularly help tackle the highly diffuse SME market.

A 2016 study found that the fastest growing market for energy services was in the public sector, thanks to the introduction of public procurement frameworks such as the Carbon and Energy Fund in the NHS and the RE:FIT initiative, set up by the Greater London Authority.[30] These frameworks act as specialised intermediaries between client and ESCOs, facilitating contracts, lowering transaction costs by providing templates, reducing procurement times and extending the contracting model to smaller sites such as primary schools, with case studies and knowledge-sharing opportunities. **Government can support the introduction of similar intermediary frameworks through sharing public sector learnings with the private sector.**

Government can also support uptake of and familiarity with energy service agreements by offering short-term guarantees on contractual risks, such as one of the parties ceasing to trade or changing energy requirements.[31]

[29] Green Investment Group (29 November 2017) 'Green Investment Group launches Energy Solutions Offering' http://bit.ly/2kdWXYH [accessed 30 November 2017]
[30] C. Nolden & S. Sorrell (December 2016) 'The UK market for energy service contracts in 2014–2015'
[31] For more detail see: Aldersgate Group (March 2017) *Towards the new normal: increasing investment in the UK's green infrastructure,* chapter six

5. Lead by example

The government owns 14 million square metres of property in the UK.[32] **Mandating greater energy efficiency across all government owned buildings would create a significant pipeline of investment** which would draw through cost savings, drive investment in skills in the supply chain and encourage the private sector to follow suit. Procurement managers often have no interest in buying energy efficient items as they may not pay for energy use or manage it[33] so energy service contracts could be well suited to this market.

Annual budgeting cycles in the public sector often do not align with the long-term return on investment from energy efficiency projects. Although the business case may be understood, public sector organisations like the NHS Trusts and local authorities often lack the confidence in budgets for years ahead to enter such arrangements.[34] **Central government can support public bodies and local government procurement of energy efficiency measures by providing standardised contracts and templates**, encouraging more public procurement frameworks for energy service agreements. This can help to remove the upfront cost barrier and align spending more neatly with the annual cycle whilst delivering savings for the public sector.

NHS Tayside energy efficiency upgrade

Aviva Investors provided £15.4m of funding for a programme of energy efficiency measures for NHS Tayside, including the construction of an energy centre at Ninewells Hospital and Medical School in Dundee. The energy centre will provide 90% of the power and 100% of the heat for Ninewells, and LED lighting and insulation will be installed at two other hospitals. Aviva Investors made the investment through its REaLM infrastructure funds on behalf of clients including the UK Green Investment Group.

A 25-year performance contract was signed with Vital Energi, which was procured under the Carbon Energy Fund (CEF) framework. Vital will be responsible for the design, construction, installation and on-going operation and maintenance of the technology for the duration of that agreement.[35]

[32] Central Government Property and Land, 24/6/2016 Building Data, available from https://data.gov.uk/dataset/epims
[33] POST Note (December 2016) *The Future of Energy Efficiency Policy*
[34] http://bit.ly/2G6BaJC
[35] Green Investment Group press release (9 December 2015) 'NHS Tayside secures funding for multi-million pound energy efficiency programme'

6. Improve available information

More accessible, higher quality information and transparency can help to lower investment risk.[36] Large commercial banks and investors are finding that energy efficiency investments are too complex relative to the size of a deal. The complexity results in high transaction costs, which limits the attractiveness of the investment.

The Energy Efficiency Financial Institutions Group (EEFIG)'s De-risking Energy Efficiency Platform (DEEP) is a pan-EU open-source database containing detailed information and analysis of over 10,000 industrial and buildings related energy efficiency projects. DEEP will help project developers, financiers and investors better assess the risks and benefits of energy efficiency investments across Europe. **The UK should seek to remain part of cross-border initiatives that can improve access to data.**

Within large businesses, better information on energy performance is also helpful to inform strategy and identify investment priorities. John Lewis found that a clear and established process for measuring and reporting energy consumption enables benchmarking across their estate, highlighting assets which are under or over-performing and helps them identify reasons why.[37] Including this information in Annual Reports can be instrumental in raising the salience of energy efficiency investments at the Board level and drive top-down action.[38]

"There is an economy of scale in the provision of finance. What we used to say when I worked at JP Morgan was the amount of time and energy required to do a billion dollar transaction was the same as for $100 million was the same as $10 million."
Peter Sweatman, rapporteur to EEFIG[39]

Improving measurement and disclosure requirements in line with building efficiency standards for large corporations would help to build up a relevant basis for investment decisions, within organisations and for third party investors. Ensuring ongoing reporting of energy performance and savings opportunities in Annual Reports will be important to bolstering the market.

Government should provide guidance on energy efficient refurbishment for businesses considering refitting offices, making use of that 'trigger point' to incentivise retrofitting.[40]

This guidance should also highlight practical implications, including unintended consequences and how to overcome them.[41] Support is especially helpful for SMEs who lack capacity and expertise. The Carbon Trust Green Business Fund is a £7m fund which provides energy efficiency support for SMEs through energy assessments, training workshops, equipment procurement support and up to £5,000 capital contribution towards energy saving equipment purchase.

[36] See accompanying Aldersgate Group report *Towards the new normal: increasing investment in the UK's green infrastructure*
[37] Willis Tower Watson (April 2017) *Real Estate Climate Risk*
[38] IEA (November 2011) *The boardroom perspective: how does energy efficiency policy influence decision making in industry?*
[39] BusinessGreen (5 July 2017) 'Energy efficiency is a 'win-win' for investors - So why is progress so slow?'
[40] Trigger points are planned or expected improvements to a property
[41] Willis Tower Watson (April 2017) *Real Estate Climate Risk*

London Energy Efficiency Fund (LEEF)

LEEF lends to public or private sector borrowers for energy efficient projects and is run by Amber Infrastructure Group. It was set up in 2011 with £100m from the European Regional Development Fund and the Mayor's London Green Fund, with match funding from RBS and Arup as technical advisors. The loans can also support CHP, District Heating and renewable energy generation.

Finance is provided predominantly through loans for up to 10 years and interest rates from 1.65% per annum. The fund encourages project sponsors to consider how best to achieve economies of scale, for example by grouping buildings or eligible parts of broader refurbishment projects together. Projects supported by LEEF should aim to deliver energy savings (kWh) of at least 20% and/or which save a tonne of CO_2 for every £5,000 of investment. There is no set payback period required. LEEF works closely alongside the RE:FIT programme and its projects procured using guaranteed Energy Performance contract.

It invested over £65m in energy efficiency measures throughout the city during its initial funding cycle and has enabled £470m of projects throughout London, improving energy efficiency in over 76 public and private buildings. Savings are recycled from initial investments back into the pot to ensure investment in energy efficiency continues. This has already triggered the next investment cycle, which will run to August 2018.

"These types of projects don't usually fit the risk or lending profile that the banks would normally give money to, plus the fact that they are a relatively small amount each time. LEEF is helping to fill that funding gap." - Leo Bedford, Director of LEEF[42]

7. Standardisation & certification

Standardisation and accreditation can help to scale up available capital by lowering risk and transaction costs. The Investor Confidence Project (ICP) initiative seeks to unlock access to finance by standardizing how energy efficiency projects are developed, documented and measured.[43] It runs a Credential System which combines the use of six ICP-developed Protocols, existing industry certifications, and third party verification to create Investor Ready Energy Efficiency™ (IREE) projects that provide investors and building owners with confidence in project engineering, performance and returns. This reduces due diligence costs thanks to third-party review of each project before certification and enables aggregation into high performance portfolios through a standardised approach, providing an opportunity for institutional investors to become involved in the market. At the consumer end, voluntary building certification programmes can command a price premium, motivating developers and building owners to invest in energy efficiency. In London, BREEAM certified offices command a 26% higher transaction price. [44]

[42] Clean Energy News (24 Feb 2016) 'London energy efficiency fund closes after more than £65 million is committed'
[43] http://www.eeperformance.org/
[44] RICS (March 2012) *Supply, demand and the value of green buildings*

Quality standards for skills and installation, such as those suggested in the Each Home Counts Review will be important in overcoming the skills challenge and lack of confidence highlighted above. **The EHC Quality Mark should be endorsed by government and could also be gradually expanded to apply to technology** as well as installers to further increase confidence.

8. Supporting energy efficiency loan products

Loans for energy efficiency improvements can be repaid through energy savings (with installers appropriately certified to limit liability). The GIB provided a £6.8m green loan to Barking and Dagenham Council in London in December 2016, to finance the installation of 14,790 low-energy LED streetlights, saving the council a projected £21m and 1,500 tonnes of greenhouse gases per year. This was the fifth green loan the GIB made to local a authority, with similar arrangements for Glasgow City Council, Southend-on-Sea Borough Council, Stirling Council and Kent County Council.[45]

There may be uncertainty as to where liabilities lie with energy efficiency project lending. Loans are linked to installing a piece of kit on a specific site, rather than on overall business performance of the borrowing company. If the installed product does not deliver expected energy savings does responsibility sit with the business, the installer or the product manufacturer? Uncertainty makes it harder for lenders to recover their money, which disincentivises loans. **Government should consider making low cost finance available for banks to issue low interest energy efficiency loans,** such as green commercial mortgages or 'help to green' loans as a push to provide loans. Adopting a robust EHC Quality Mark as discussed above may also overcome issues around liability.

Salix Finance

Salix Finance Ltd. provides interest-free government funding to the public sector for energy efficiency measures. It is publicly funded by BEIS, DfE, Scottish Government and the Welsh Government and has delivered over 14,000 projects, to a value of £462.9m, generating annual financial savings of £116.2m and carbon savings of 613,793 tonnes.

Loans are interest free, with repayments covered by energy savings. There are different conditions for different clients – for example, local authorities in England must meet the requirement of a five-year payback at a cost of £120 per tonne of CO_2 over the lifetime of the project. A separate fund for Academies, MATs and Sixth Form Colleges requires projects to pay for themselves within eight years through annual energy savings. Projects must be additional. The Salix Recycling Fund takes savings achieved through the fund and returns them to the fund, allowing the money to be reinvested.[46]

[45] Green Investment Group press release (22 December 2016) 'London borough aims to halve electricity used by streetlights with Green Loan'
[46] https://www.salixfinance.co.uk/