



E3G

BRIEFING PAPER JULY 2018

SILVER BUCKSHOTS?

OPPORTUNITIES FOR CLOSING THE GAP
BETWEEN AMBITION FOR, AND POLICY AND
INVESTMENT TO DRIVE, UK RESIDENTIAL
ENERGY EFFICIENCY RENOVATION

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Summary

Given the central importance of energy efficiency in meeting the UK's climate targets, the Clean Growth Strategy's ambition for home energy renovation – for all homes to achieve an Energy Performance Certificate rating of C by 2035 – is a good start. However, policy and investment to achieve it is still severely lacking. While it varies considerably within the UK, the annual gap that needs to be filled by a combination of public and private investment to 2035 is £4.5bn.

Thought and practice on how to effectively drive greater demand for energy efficient renovation – including by harnessing the large market for housing repair and maintenance – is well established and needs to be acted on in the UK. Case studies from peer countries France, Germany, the Netherlands – and Scotland owing to its own unique approach – demonstrate different combinations of policies that appear to be more effective at raising renovation rates and unlocking more private investment.

All have clear, actionable plans and goals for renovation and are achieving higher renovation rates; all have policy mechanisms explicitly designed to lever in private investment, and attractive, specialised finance deals that can be combined with widely available capital subsidies on offer; all have set high energy performance standards that if achieved, unlock higher levels of support while needing higher investment from homeowners; and all case studies have national communication campaigns combined with locally relevant renovation advice. Taking into account that the UK has a long track record of energy efficiency policy experience and capability, these case studies show there is no good reason why achieving far greater energy efficiency ambition should be beyond the UK's reach – but it will require a greater and smarter commitment of public capital investment to achieve.

Now is an important time to capitalise on momentum for greater ambition. Numerous relevant policy steps are being taken by Government following the Clean Growth Strategy's publication last October. In March, the retail finance sector, through the Green Finance Taskforce, made strong recommendations to Government for enabling it to mainstream home energy improvements. Crucially, the National Infrastructure Commission has a unique opportunity to make big picture recommendations for greater energy efficiency investment – taking lessons such as those above into account – as part of its National Infrastructure Assessment on July 10.

It must inspire Government to follow up with a more coherent and ambitious approach that treats energy efficiency as a national infrastructure priority and weaves in the steps it is already taking, including those in response to the Green Finance Taskforce's work. This encompasses, (1) confirming energy efficiency as a national infrastructure priority, with clear governance arrangements, targets, a long-term action plan and funding, as in Scotland; (2) additional public capital investment of £1bn per year to 2035 – much of it supporting low income households – that can help unlock £3.5bn of private investment, closing the £4.5bn gap; (3) adequate incentives for 'able to pay' homeowners and landlords, such as lower Stamp Duty for more energy efficient homes and 0% interest loans; (4) robust regulation, strengthening over time towards an EPC rating of C, that requires some homeowners to take action and inspires others to plan and invest for the future; (5) 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; and (6) strong advice provision and quality assurance and safety standards.

Introduction

Energy efficiency needs to be at the heart of the UK's renewal of its energy infrastructure to ensure that that meeting climate targets is doable, cost-effective, affordable, as well as bringing tangible benefits – bill savings, comfort, health, jobs – to every part of the country.

The aspiration in the Clean Growth Strategy to get as many homes as possible – “where practical, cost-effective and affordable” – to an Energy Performance Certificate rating of C by 2035 is, in the Committee on Climate Change's view, consistent with meeting carbon budgets at least cost. However, the CCC also highlights how there is no firm plan to achieve this aspiration¹. Nonetheless, it is useful in providing a first step, framing and conversation-starter for firming up plans through the introduction of long-term, stable and consistent drivers of demand for residential energy renovation.

For these reasons, there is now an urgent need to commit to ambitious policy, investment and delivery to make sure the Clean Growth Strategy's aspiration is met. This briefing highlights the significant scale of the investment gap and nature of the policy and delivery gaps. It does so by comparing the devolved nations of the UK, before introducing in-depth case studies of how broadly comparable European countries – France, Germany, Netherlands – as well as Scotland, owing to its devolved approach and deep relevance to UK policy makers, are publicly investing and unlocking significant private investment in residential energy renovation by advancing coherent policy packages.

Possible solutions to closing the gap between ambition and investment are not far-fetched – in the example of Scotland, they can be really close to home – nor are the levels of public investment needed without precedent in the UK. The National Infrastructure Commission has consulted on the ambition and timeline for energy efficiency, and on the combination of policies to deliver. Its National Infrastructure Assessment, expected this July, will make independent, big picture recommendations on energy efficiency within the context of the UK's strategic infrastructure investment needs. The Government will need to adopt this framing to ensure that energy efficiency policy, programmes, investment and delivery are coordinated, stable and of the highest quality for the long term – essential for meeting the Clean Growth Strategy's ambition.

¹ CCC (2018) *An independent assessment of the UK's Clean Growth Strategy: From ambition to action*

Setting the scene: investment and delivery across the UK and the devolved nations

Investment in home energy performance required to get all homes up to an Energy Performance Certificate (EPC) rating of C (on an A to G scale) by 2035 – the Clean Growth Strategy’s ambition – is **estimated by Frontier Economics to average £5.2bn per year**². Their *Affordable Warmth, Clean Growth* report proposes a coherent, cost-effective and consumer-focused infrastructure plan to transform the UK’s housing stock to EPC C, consisting of a governance architecture, subsidies for low income households, regulation, incentives and finance mechanisms designed to unlock maximum private investment by harnessing trigger points and the wider repair and maintenance market. The £5.2bn per year needed **breaks down into £1.7bn public (mostly geared towards low income households) and £3.5bn private investment (including that by social housing providers)**³.

Figure 1 shows that UK-wide public investment amounted to £0.7bn in 2017/18, leaving a **gap of up to £4.5bn from public and private sources** to achieve the £5.2bn per year needed. To get to £1.7bn per year from public sources, **current public investment needs to increase by a factor of nearly 2.5, or an additional £1bn per year** from the level seen in 2017/18. This would represent a level of public investment approximately the same as that seen in the years from 2009/10 to 2013/14. Crucially however, to close the £4.5bn gap, public investment needs to be deployed in a policy environment and in a way that is geared towards unlocking **private investment – averaging an extra £3.5bn a year** – from owner-occupiers who aren’t on the lowest incomes and from landlords.

² Frontier Economics (2017) *Affordable Warmth, Clean Growth: Action Plan for a comprehensive Buildings Energy Infrastructure Programme*

³ It is important to note that these estimates have been calculated on the basis of energy performance retrofit on its own. Where broader renovation incorporates energy efficiency improvement, additional investment to include the latter should be estimated on a marginal cost basis.

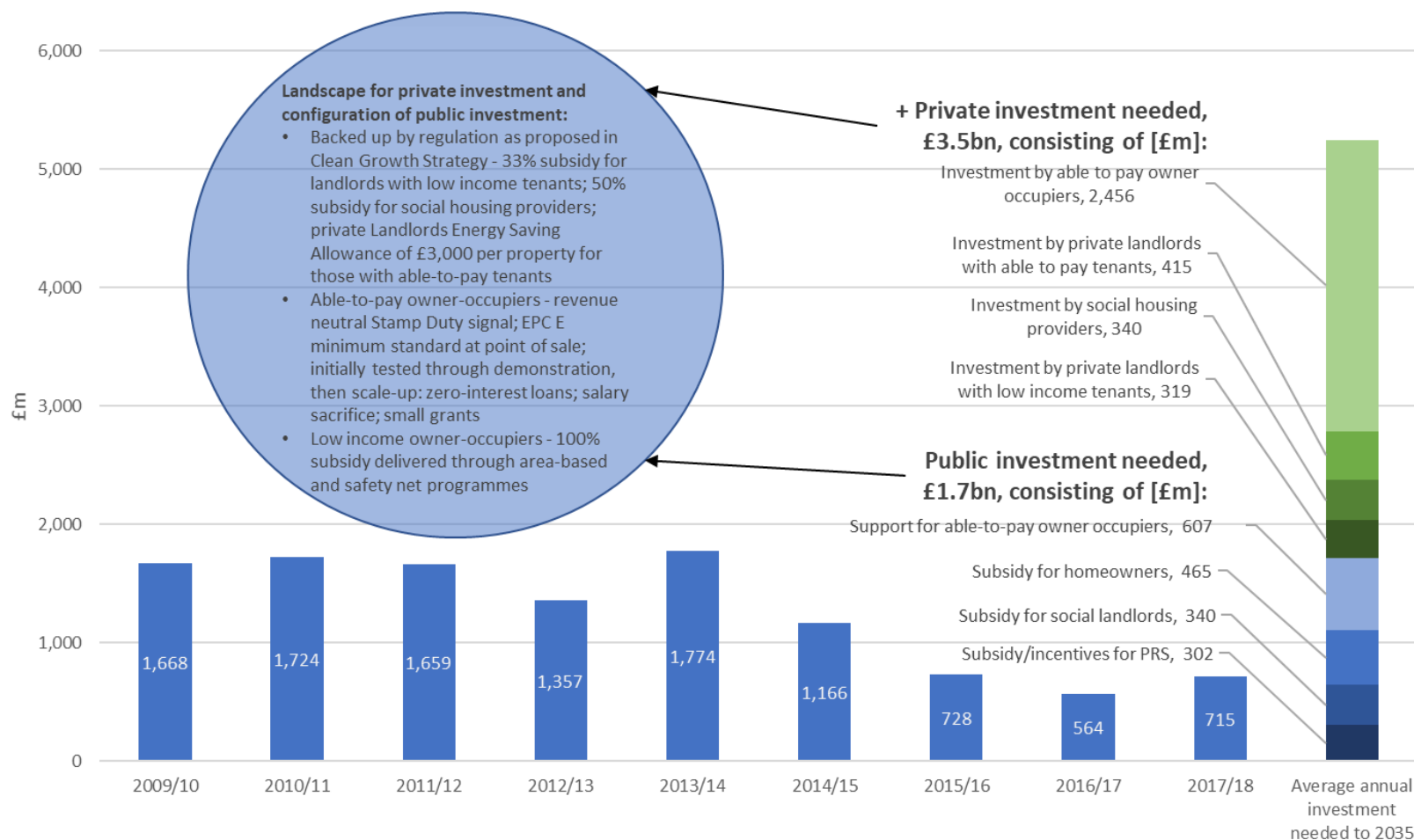


Figure 1: UK-wide government and supplier obligation investment in home energy performance; Affordable Warmth, Clean Growth proposals

The UK-wide picture conceals considerable variation between the devolved nations. Average annual per capita investment in renovation needed to meet EPC C standards by 2035 ranges from £23 in Northern Ireland to £30 in Wales. However, average annual per capita public investment varies enormously: in 2017 it was £35 in Scotland, £23 in Northern Ireland, £17 in Wales and £8 in England. For more detail on the policy and investment landscapes in the devolved nations, see the Appendix.

The size of the repair and maintenance market provides context for the £5.2bn annual investment in home energy performance required – shown in Figure 2. The UK market for repair and maintenance of owner-occupied housing was worth £18bn in 2016. According to the Office for National Statistics, the market for all private housing (that is, including the private-rented sector) was nearly £20bn in that year. Including social housing providers' investment in their existing housing stock brings the total to £27.6bn in 2016⁴. Ultimately, harnessing this market by incorporating energy performance into renovation decisions and investments wherever possible is the best opportunity to drive investment at the scale and speed required and reduces the additional investment cost⁵.



Figure 2: UK-wide public investment in home energy performance, what is needed to 2035, and size of total UK repair and maintenance market 2016

Figure 3 provides a breakdown of this market and highlights the areas a) which are likely to be contributing to home energy performance improvement (such as replacement windows as part of joinery) or b) present a clear opportunity to improve homes' energy performance (such as conversions and extensions, whereby the rest of the property could be improved at the same time). Although there are no accurate data, circumstantial evidence suggests that public investment in home energy performance does not currently unlock much private investment. In a 2014 survey, 21% of respondents reported they had improved the energy efficiency of their home in the previous five years⁶ – corresponding almost exactly with the number of households who had received support for doing so from the principal government energy efficiency programmes in those five years⁷. It is thus highly probable that **energy efficiency take-up and private investment – owing to the fact these programmes typically fully funded home energy improvements – is currently very low⁸ outside of Government programmes.**

⁴ ONS (December 2017) *Output in the construction industry*

⁵ For example by incorporating external wall insulation works when scaffolding is up to renew roofs.

⁶ Representative sample of adult household decision makers of 2,241; Kingfisher (2014) *European Home Report 2014*

⁷ These programmes were the Energy Company Obligation (ECO) and its predecessors the Carbon Emissions Reduction Target (CERT) and the Community Energy Saving Programme (CESP). Working on the assumption derived from ECO statistics that CERT and CESP delivered on average 1.2 major measures to each household serviced. ACE (2014) *ECO and the Green Deal: progress to date; the immediate outlook; and what needs to happen*

⁸ Aside from efficient boilers and double-glazing for which there are established markets.

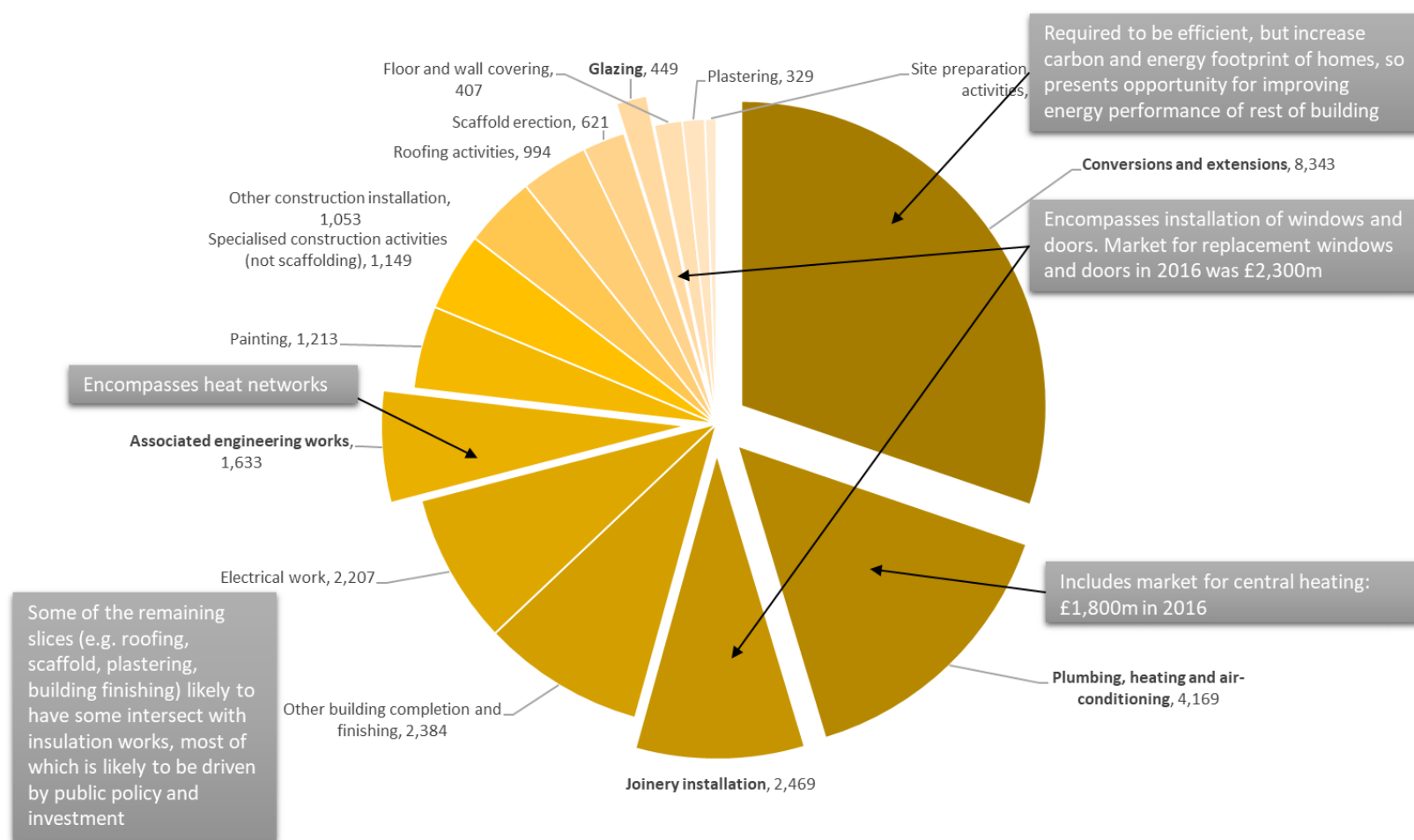


Figure 3: Breakdown of the UK housing repair and maintenance market, 2016 turnover [£m]

However, the **extent of opportunity, let alone need, that exists for delivery of measures outside of the current scope of Government programmes is likely to be very large**. According to the latest Houzz UK survey⁹, three quarters of home-owners renovated in 2014 and/or

⁹ Houzz (2015) *Overview of UK Renovation Self-Building and Decorating in 2014*

planned to do so in 2015. 74% renovated interiors (e.g. kitchens, bathrooms); 61% of those who renovated in 2014 tackled ‘systems’ (principally HVAC); 58% renovated the exterior (roofs, exterior walls); and 23% built extensions. All are potentially suitable trigger points for incorporating energy performance into renovations. To bring more private investment into home energy performance, public policy and investment needs to be designed and deployed to complement and harness these existing investment flows and opportunities. A number of recent UK policy initiatives have produced valuable lessons:

- > In addition to a high interest rate, Green Deal finance in part failed to achieve significant take-up owing to the decision not to implement a regulatory requirement for homeowners to improve their whole property’s energy performance when constructing an extension or conversion, arguably due to adverse press coverage in the Daily Mail (who dubbed it a “Conservatory Tax” on their frontpage). This regulatory lever, planned by the Government at the time, was predicted to drive energy performance upgrades in 200,000 homes building extensions per year¹⁰, and has in recent polling found to be supported by 80% of Conservative voters¹¹. As such, it was always recognised that **more than finance is needed** to unlock energy efficiency investment, but the absence of readily available finance had previously been a barrier to proposing such regulation, suggesting a symbiotic relationship between these two policies. It is critical that a range of regulatory drivers are in place for the long term for all tenures, to complement other nudges and finance mechanisms.
- > Time-limited offers such as the Green Deal Home Improvement Fund – which contributed £4,000 to the cost of solid wall insulation – were very effective at creating demand, but relatively costly. Short term spikes in demand are likely to have been matched by distortions of demand afterwards, with consumers delaying decisions to improve their homes in the hope of such an offer becoming available again. **If particularly generous short-term offers are to be made, they require an exit strategy compatible with longer-term plans to build the market** to meet the ambition. This could involve tapering of such offers over time.
- > The **stop-start nature of supplier obligations, and the raft of sudden changes** to the Energy Company Obligation in 2014 in particular, have proven **difficult for the supply chain to translate into consistent offers to consumers**, and build consumer trust in delivery partners and advice providers. This has undoubtedly rubbed off on the market for energy efficiency outside of Government programmes and can only be overcome by not repeating this mistake.
- > The **supply chain and delivery partners need to be incentivised to invest in their capabilities and abilities and plan for the long-term**. The results from the Green Deal Communities programme, which supported local authorities in promoting Green Deal take-up, were disappointing and enhanced local take-up has not persisted. The extremely short time-scales for local authorities to apply for, and spend, the funding available played a significant role in this failure. A significant, if anecdotal, downside to this experience is a perception amongst some government and industry stakeholders that local authorities are not effective at

¹⁰ CLG (2012) *Proposed changes to Part L of the Building Regulations 2012/13 in England: Consultation stage impact assessment*

¹¹ Bright Blue (2017) *Green conservatives? Understanding what conservatives think about the environment*

delivery. Many clearly are effective, and have repeatedly been able to secure and deploy energy efficiency funding effectively.

Lessons such as these – a long-term approach, consistency, building confidence for the supply chain to invest in consumer engagement, delivery capability and capacity, offering finance and incentives alongside regulatory drivers of demand – need to be applied together in a strategic and coherent policy programme.

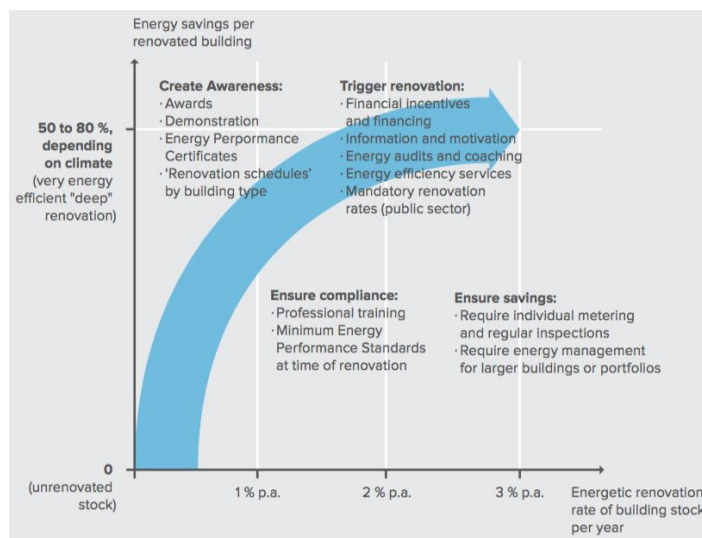


Figure 4: The interactions of policy instruments for energy efficiency in building operation and renovation

The German Federal Environment Ministry funded research project ‘bigEE’ – led by the Wuppertal Institut with the International Energy Agency, UNEP and partners in China, India and South Africa – formalised now well-established principles of policy combinations and interactions between demonstration, minimum standards, information, finance and incentives which are designed to improve energy efficiency in existing buildings – as illustrated in Figure 4¹².

It is this packaged approach of interactions between policy instruments that informed the recommendations for a Buildings Energy Infrastructure Programme from the *Affordable Warmth, Clean Growth* report, as well as what was explored to develop the residential energy renovation policy case studies of France, Germany, Netherlands and Scotland.

Introduction to the case studies

Each of the four case studies are centred around households and homeowners, principally in existing housing. They highlight the policy landscape from the perspective of those who would seek to renovate their homes in a way that improves energy performance. Their main focus is on energy efficiency, and to a lesser degree on low carbon heat – where the latter is closely linked in policy terms to the former. Each country diagram shows the main policy instruments in circles and the way they interact with each other and the supply and demand for home energy renovation. Orange circles pertain to framework instruments, red to regulation, blue to finance and green to incentives. Clicking on the diagram takes the reader to an interactive presentation that digs deeper into individual policy instruments and builds the policy landscape up piece by piece. This briefing provides a high-level overview of each country that can also serve as an introduction to each presentation.

¹² Wuppertal Institut (2014) *How policies need to interact in packages*

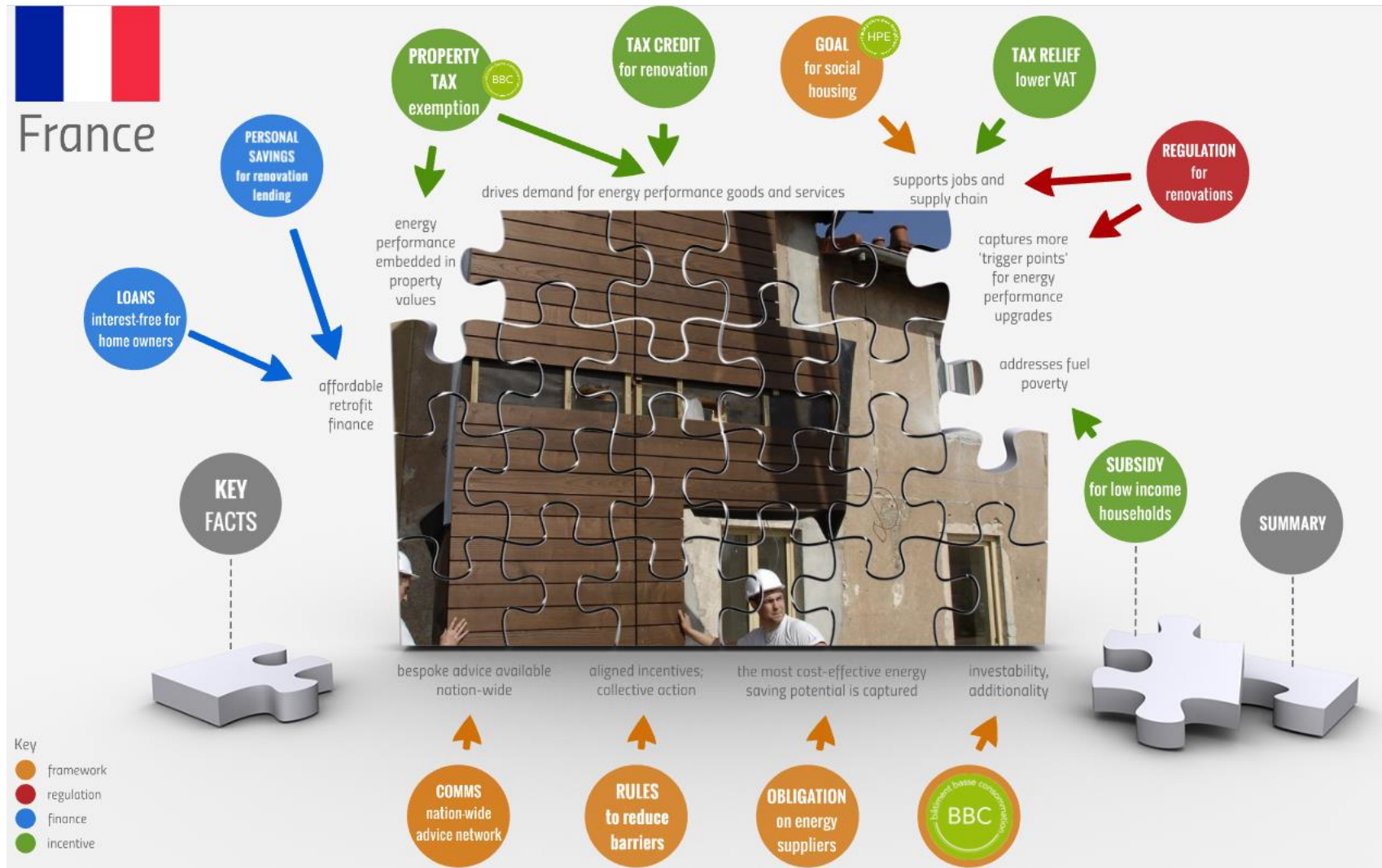


Figure 5: **Overview of the residential energy renovation policy landscape in France**; click to view slideshow, including its sources

Of central importance in France's policy landscape are its **'eco-renovation' tax credits** available for private housing. These can be combined with **subsidies available for low income private households**, as well as with **0% interest loans** available via retail banks. The government reimburses the banks for interest foregone via tax credits, while requiring that 10% of deposits in France's sustainability ISA (offered by retail banks) are lent for energy performance renovations. In addition, there is a **reduced rate of VAT** for professionally installed energy performance upgrades which is extended to any necessary ancillary works (such as rewiring or replumbing). Work in the private-rented and mixed tenure sectors is further facilitated by a range of **rules to help overcome 'split incentives'**. A nationally coordinated network of **450 renovation service points** guides homeowners and landlords with locally salient advice. At the heart of energy performance renovation in the social-rented sector is a **combination of low interest government loans and property tax rebates** to drive upgrades of social housing portfolios – further by government support for housing authorities to use as much European Regional Development funding as is permissible for this purpose.

There are **high energy performance benchmarks** which can unlock property tax exemptions for private households and are a prerequisite for low interest loans for social housing providers. The adoption of low cost energy efficiency improvements, and some of the subsidies for fuel poor households, are driven by energy suppliers France's long-running energy supplier obligation.

France's goal is for 500,000 deep residential renovations per year from 2017, approximately 1.5% of the housing stock. However, the stated long-term aim is for all homes to be renovated to a low energy building standard by 2050, meaning the average annual renovation rate between now and then will need to double.

Out of a total of 3.5m private housing renovations in 2014, 2m involved energy performance improvements. Of these, 290,000 undertook deeper renovations to a good or very good energy performance standard. In social housing in 2014, 100,000 properties underwent deeper renovations, bringing the total to 390,000 - not far off the goal of 500,000 per year from 2017. Focusing on private households, in 2016, the government issued €1.6bn worth of 'eco renovation' tax credits to private households, with an associated total renovation investment of €5.8bn. In the same year, the 0% interest loan had a lifetime cost of €40m and saw €400m of private investment. France's fuel poverty programme invested €600m in low income households, who contributed €550m themselves. On the assumption that all of these works took advantage of the tax credit, €1 of public expenditure and investment unlocked at least €2.30 in private investment.

Figure 6 illustrates these relationships, along with the multiple layers of interaction with other policy levers in France's case study. The large light blue square represents the envelope of investment in residential energy performance upgrades. Green rectangles represent investment and expenditure by government, whereby: green outside of envelope represents cost to government (e.g. loan interest rate subsidy, energy audits, tax revenue foregone); and green within envelope represents government contribution to investment (e.g. tax credits). Blue rectangles within the envelope represent identifiable investment contributions by building owners.



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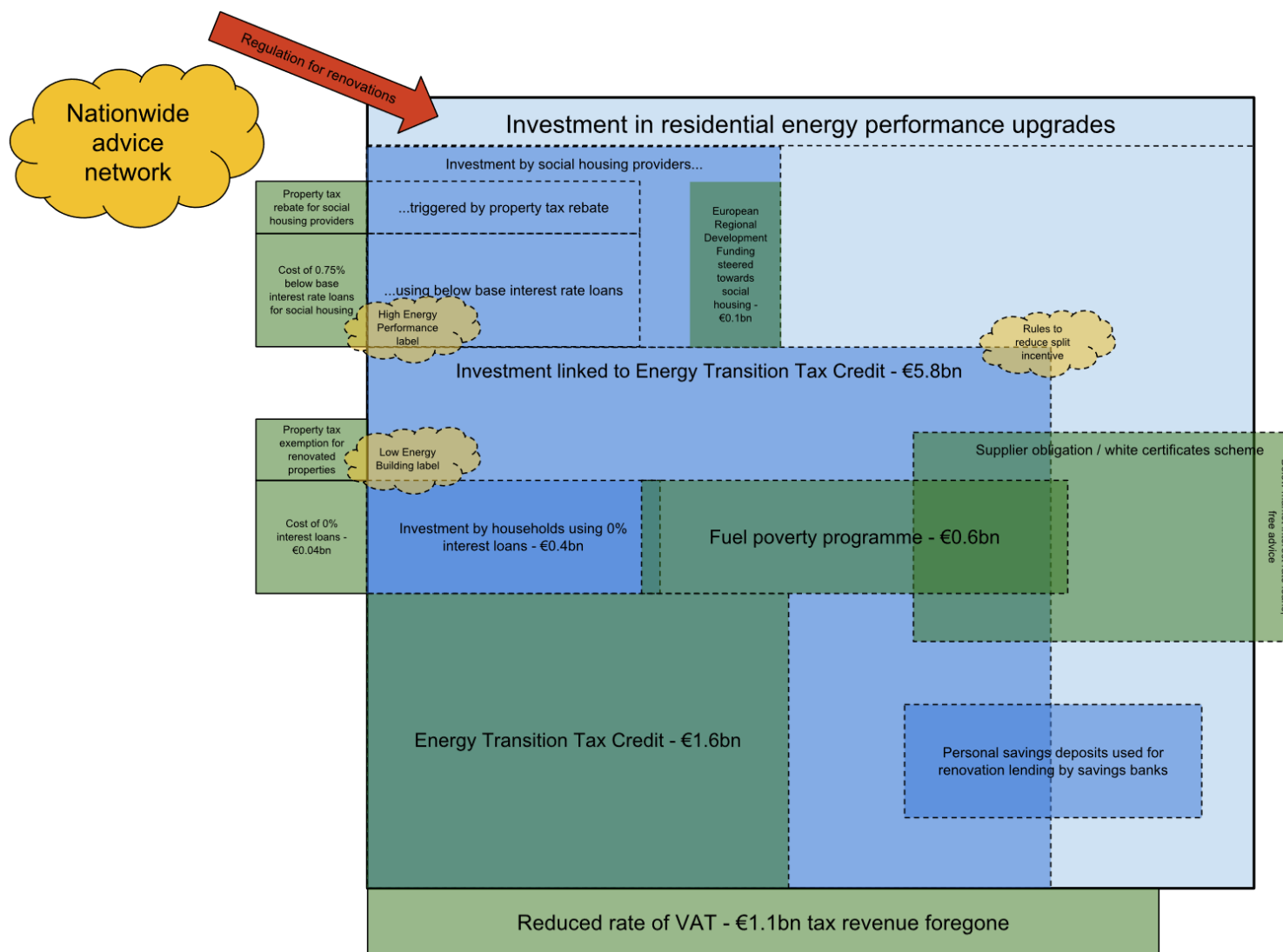


Figure 6: Map of public and private investment in residential energy performance in France

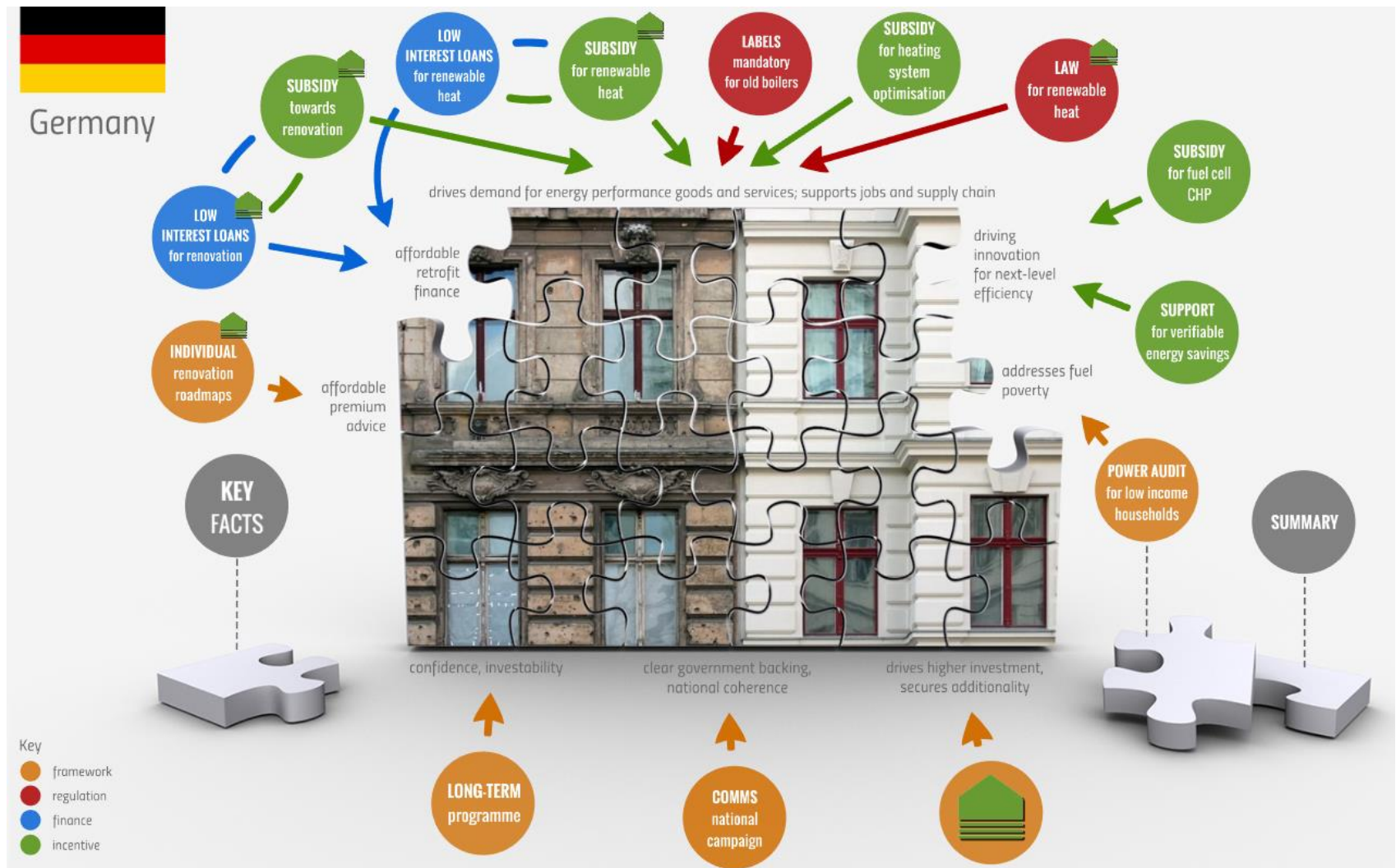


Figure 7: **Overview of the residential energy renovation policy landscape in Germany**; [click to view slideshow, including its sources](#)

At the heart of Germany's policy landscape are the **combinable low interest loans (currently 0.75%) and incentives (subsidies of up to €30,000)** towards low energy renovation and low carbon heat, provided by and via the KfW infrastructure bank. A key component is the series of KfW *Effizienzhaus* **high energy performance benchmarks** for renovation and new construction, the achievement of which is linked to higher subsidy contributions to renovation costs (which also requires building owners to invest more). **Subsidised premium home energy advice** that can provide building owners with personalised renovation roadmaps helps them navigate the often challenging path towards deep energy renovation. A mandatory **energy labelling scheme for existing heating systems** is in place, alongside **subsidies for optimising heating system efficiency** (through pumps, system balancing and thermostatic radiator valves). A programme that **helps low income households reduce their electricity outgoings**, and a suite of programmes that **foster the adoption of new technologies (e.g. building fuel cells) and business models (e.g. energy saving feed-in tariffs)** for energy efficiency and low carbon heat, complete the picture.

A striking feature of the policy landscape is that individual levers generally do not distinguish between owner-occupied, social-rented or private-rented sectors, focusing instead on building owners, owner associations or those (e.g. energy service companies) contracted to manage buildings. Moreover, it is notable that policy instruments supporting low carbon heat do not generally distinguish between the residential and non-residential buildings sectors.

The aim in Germany is to see approximately 800,000 residential renovations (2% of the stock) per year by 2020.

KfW's energy renovation programmes supported 276,000 renovations in 2016, at a lifetime investment cost to the federal government of €1.7bn. This broke down into €1.45bn for loan interest rate subsidy and a debt write-off incentive, and €0.25bn for standalone capital subsidy. Building owners invested €8.4bn, bringing the total invested and expended in energy renovation linked to KfW support to €10.1bn, an average of €36,000 per property. €1.6bn of this total was VAT revenue, nearly equalling the lifetime public investment. In addition, in 2016, this investment drove €6.6bn net turnover upstream in the supply chain and required 115,000 full-time equivalent workers. This work resulted in 0.62MtCO₂e annual emissions savings and 1.7TWh final energy savings, worth €144m to households in 2017 prices – an average of €523 per household. €1 of public investment (capital subsidy and debt write-off) and expenditure (loan interest rate subsidy) via KfW saw €6 invested in energy renovation.

Figure 8 diagrammatically illustrates the relationships between Germany's policy levers and investment in residential energy performance improvements, including the effect of KfW's programmes in 2016 as described above.



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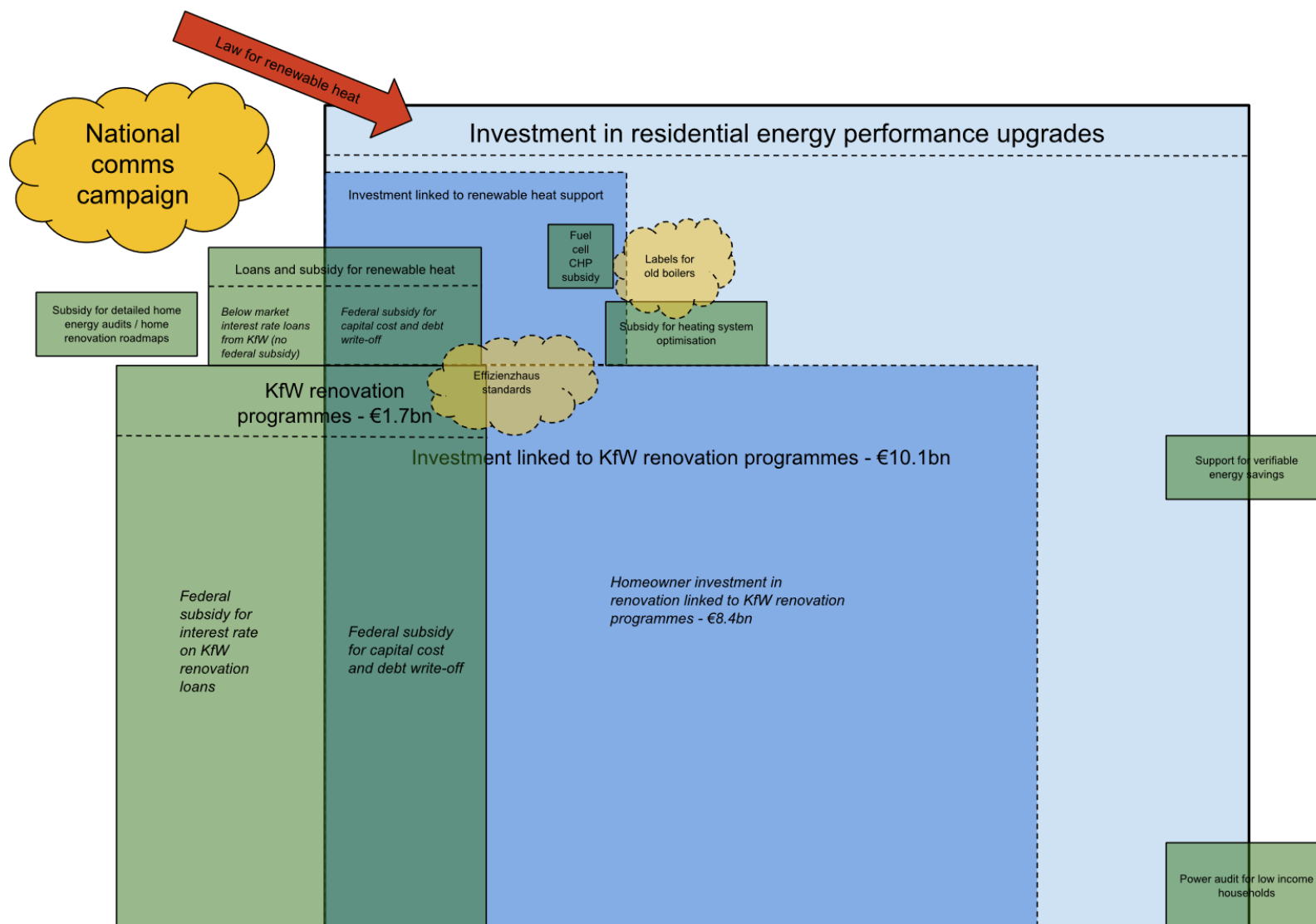


Figure 8: Map of public and private investment in residential energy performance in Germany



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Figure 9: **Overview of the residential energy renovation policy landscape in the Netherlands;** click to view slideshow, including its sources

In the realm of climate and energy policy, the Dutch **government establishes covenants with various sectors**. With respect to energy performance renovation in the residential sector, this is manifested in a **high energy tax** that households pay – making energy saving investments considerably more attractive – on the understanding that the government lowers income tax and provides other tax relief in return, as well as supporting households to undertake energy saving renovations. The **combination of low cost finance and subsidy** is key. A national **revolving energy savings fund** involving government and retail bank capital has been established, offering below market interest rates on loans of up to €9,500 per rental property and up to €25,000 for owner occupiers. In addition, the government has put in place **rules enabling homeowners to borrow more on their mortgage** than they otherwise could where they purchase, or renovate to achieve, an energy efficient property. Alongside this, there are **capital subsidies** on offer annually for owner occupiers – first come first serve – for energy efficiency measures and low carbon heat.

The government has also established covenants with the social and private-rented sectors – whereby in exchange for improving their properties to certain energy performance standards by certain dates, the government provides **subsidies for social housing renovation**, and **permits landlords to charge tenants more for more efficient homes** based on clearly defined rent valuation rules that take energy performance into account.

Moreover, there is a **‘net zero energy’ standard for retrofit**, which if achieved, unlocks more additional mortgage borrowing, more capital subsidy and entitles landlords to charge more rent beyond what is permitted by rent valuation. A lowered rate of VAT on the labour cost of installing insulation and efficient glazing supplements the above, and a **multimedia national communications campaign** targeted not only at homeowners and tenants but also the supply chain has multi-year funding. It is worth noting that the backdrop to energy performance renovation in the Netherlands is a strategy to stop using its gas network (the most extensive in Europe) for heat: from July 2018, no newly constructed buildings are permitted to connect to the network, and an initial fund of €30m has been established to disconnect buildings in Groningen.

The Netherlands’ goal is, by 2020, to see 300,000 properties renovated each year to improve their Energy Performance Certificate by two bands – a nearly 4% renovation rate.

Available data for the Netherlands are insufficient for a comprehensive picture, but the combination of capital subsidies for energy efficiency and low carbon heat in the owner-occupied sector with the revolving loan fund see €1 of public investment and expenditure result in €3.30 invested in home energy performance improvements. No data could be found for the take-up of additional mortgage borrowing. Subsidies for the social-rented sector are matched by social housing providers.

Figure 10 illustrates the relationships between government programmes and residential energy performance investment.



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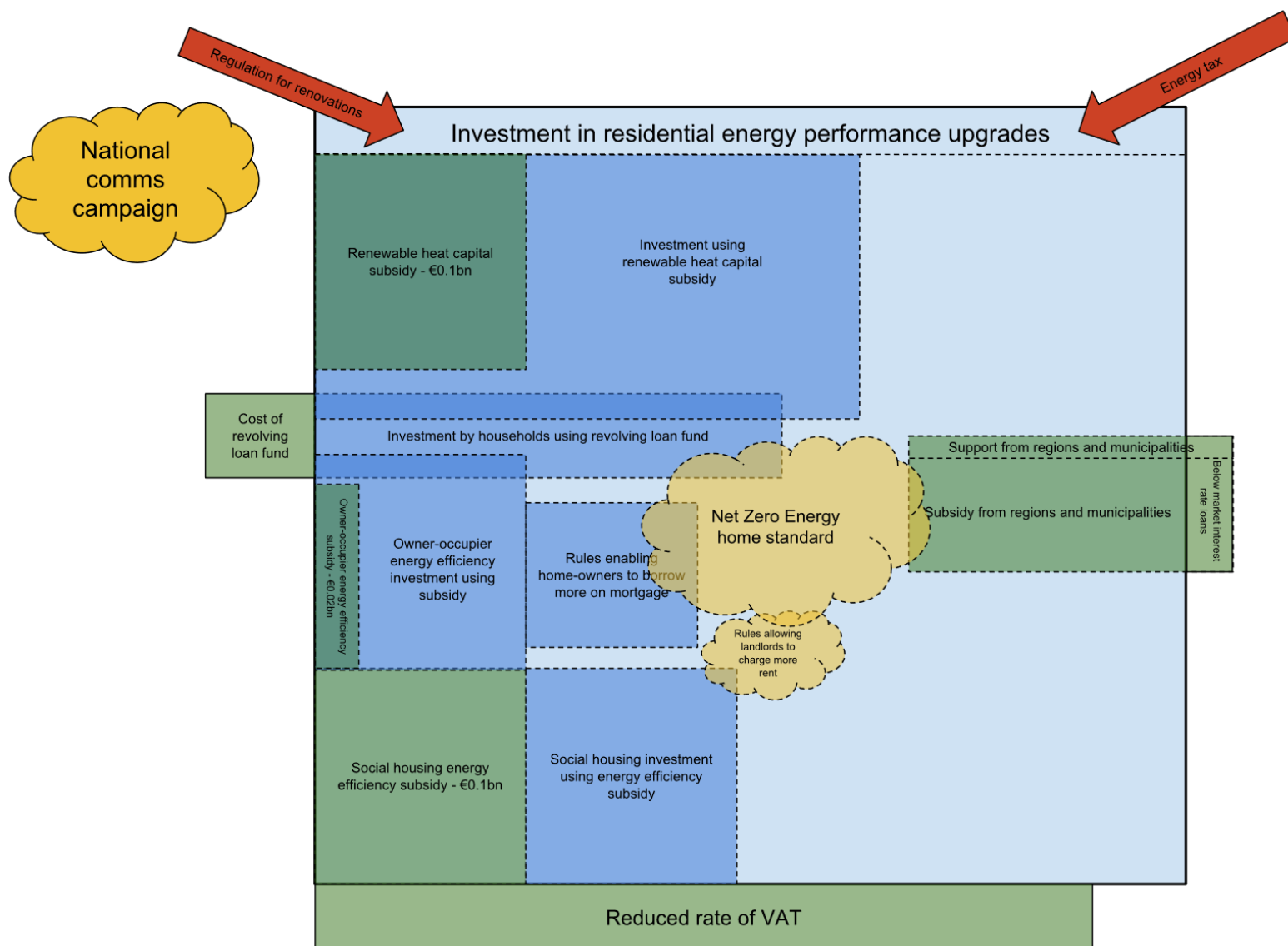


Figure 10: Map of public and private investment in residential energy performance in the Netherlands

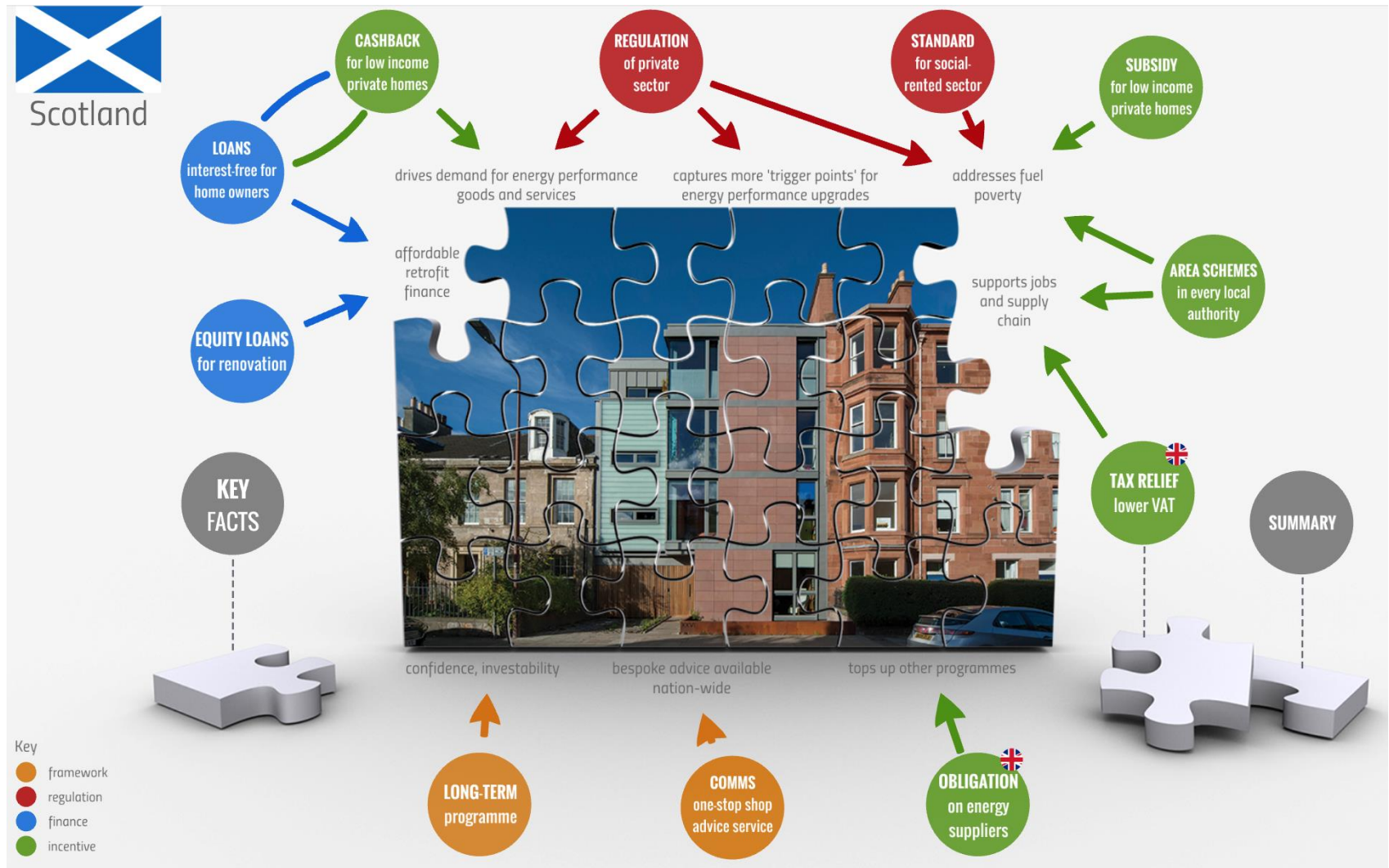


Figure 11: **Overview of the residential energy renovation policy landscape in Scotland**; [click to view slideshow, including its sources](#)

Scotland has a sophisticated policy landscape that exists alongside, and interacts with, British policy levers – under the recently launched umbrella of the Energy Efficient Scotland (EES) route-map. EES is the combined result of a long track record in devolved energy efficiency and fuel poverty policy, a coordinated set of continuing pilot schemes, an ongoing consultative process and evaluation framework. It outlines a **20-year programme for all homes to achieve an EPC of C by 2040** – with rented housing and fuel poor households to achieve this standard at earlier dates – and decarbonise their heat supply.

Local authorities are at the heart of delivery: responsible for **area-based renovation schemes** (funded by government) in deprived areas in every municipality; expected to establish **local heat and energy efficiency strategies**; and to branch out into supporting better off households and businesses to undertake renovation – with Scottish government financial and technical support. Funding for area-based schemes, along with funding from the Britain-wide energy supplier obligation, can be combined with **0% interest loans that support energy efficiency, low carbon heat and renewables**. A **cashback incentive linked to the loan offer** has been in operation to encourage take-up. **Equity loans** are being piloted in three municipalities. For low income private households who do not stand to gain from area-based schemes, a **nationwide fuel poverty scheme** – offering fully or heavily subsidised energy efficiency measures – is available that also checks households' benefits entitlements. Professionally installed energy saving measures benefit from a UK-wide **reduced rate of VAT**.

Mandatory minimum energy performance standards play a growing part: private-rented properties must achieve EPC E by 2022, with EPC D by 2025, and – subject to consultation – EPC C by 2030. It is proposed that social-rented properties must achieve EPC D prior to rental (with the date yet to be agreed). In addition, it is proposed that a requirement of EPC C from 2030 be considered for owner-occupied homes. To tie it all together from a consumer perspective, the nationwide Home Energy Scotland advice service is delivered via **local one-stop shops**, usually provided by regional energy agencies.

Achieving the EPC C goal by 2040 requires an average of 65,000 homes to be renovated each year, a renovation rate of 2.7% (or 4% of the stock rated below C).

Approximately 50,000 homes were renovated in 2015/16 in connection with Scottish programmes and Energy Company Obligation - a renovation rate of around 2%. This saw an approximate public investment of £3,400 per property – with the private contribution not yet established for this case study owing to a lack of readily available data. Public investment is set to remain at around this level, so the renovation rate is likely to either remain stable or increase.

Although the ratio of public to private investment is difficult to establish, the relationships between programmes and investment are clear and illustrated in Figure 12.



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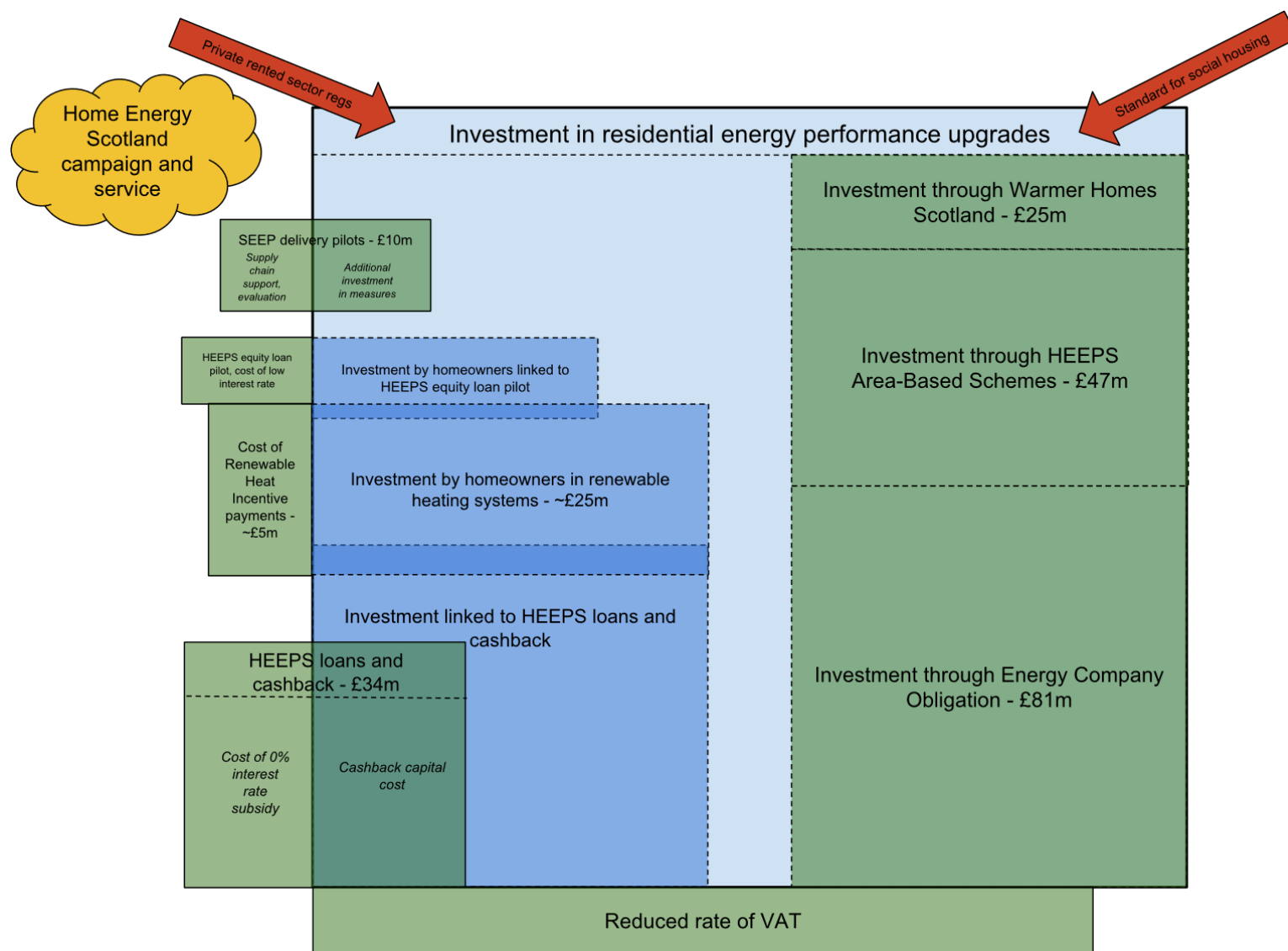


Figure 12: Map of public and private investment in residential energy performance in Scotland



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Conclusions and recommendations

The table below provides a high-level overview of the country case studies' renovation policy landscapes in comparison to the UK.

	Long-term strategy	Renovation target/goal/aspiration	Recent achievement	Specialised finance	Minimum energy standards beyond Energy Performance of Buildings directive	Tax incentives	Subsidy	Supplier obligation	Fuel poverty	High energy standards linked to better incentives	Advice
France	Energy Transition Law for Green Growth; Housing Renovation Plan	500,000 deep renovations by 2017 (1.5% renovation rate); average of 3% renovation rate to 2050	390,000 deep renovations out of 2.1m involving energy measures in 2014	0% interest loans; 10% of deposits placed in sustainability ISAs to be lent for energy renovation	-	Reduced rate of VAT; property tax exemptions	Eco-renovation tax credit	White Certificates Scheme, focused on most cost-effective measures and fuel poverty	Habiter Mieux subsidies; White Certificates Scheme	High Energy Performance and Low Energy Building standards	National network of 450 local renovation service information points under single communications umbrella
Germany	Energiekonzept; Aktionsplan Energieeffizienz; energy efficiency green paper	2% renovation rate by 2020: 800,000 homes per year	276,000 homes renovated under KfW programmes	0.75% interest loans fixed for 10 years for energy efficiency; 1.46% fixed for 10 years for low carbon heat	State governments granted authority to require minimum share of low carbon heat in existing buildings	-	10-30% for energy efficiency measures, depending on depth of renovation; up to €6,750 for low carbon heating systems; 30% for heating system optimisation	-	Electricity saving audits and measures for low income households	KfW Effizienzhaus	Federal online, billboard and print media campaign for homes and businesses; subsidised individual home renovation roadmaps
Netherlands	Covenant arrangements	300,000 two-EPC Band renovations per year by 2020: 3.9% renovation rate. 80% of private-rented to achieve EPC C by 2020; all social housing to achieve average EPC B by 2020	unknown	1.9%-2.7% interest fixed for 7-15 years from revolving loan fund; rules allowing extra mortgage borrowing for efficient homes/renovation	-	High energy tax; reduced rate of VAT	20% subsidy approx. for energy efficiency measures and low carbon heat for private households; 50% subsidy for energy efficiency in social housing	-	-	Net Zero Energy Buildings	Energie besparen doe je nu: multimedia national communications campaign targeted not only at homeowners and tenants but also the supply chain with multi-year funding
Scotland	Energy Efficient Scotland	2.7% renovation rate: 65,000 homes per year	50,000 homes renovated in 2014	0% interest loans; equity loans	private rented EPC E and D; proposals for C; consideration of owner-occupied housing regulation	UK-wide reduced rate of VAT	Cashback of up to 25% of measure costs allied to 0% interest loans	Britain-wide Energy Company Obligation	Area-based schemes; Warmer Homes Scotland; Energy Company Obligation	-	Local/regional one-stop shops under national Home Energy Scotland communications umbrella
UK	Clean Growth Strategy	EPC C by 2035: implies up to 1.1m homes per year; 4% renovation rate	150,000 homes renovated with Energy Company Obligation support in Britain in 2017	Green Deal on-bill repayment loans: 9.5% over 12-25 years	England and Wales private rented EPC E	Reduced rate of VAT	-	Energy Company Obligation focused on fuel poverty	-	-	Energy Saving Advice Service: freephone number, email and online information

There are numerous commonalities across the case study countries that set them apart from the UK:

<i>Case studies</i>	<i>UK</i>
Clear, actionable plans and goals for renovation	Clean Growth Strategy sets aspiration, but policy detail is currently lacking
Relatively high renovation rates achieved	UK-wide renovation rate appears to be low compared to Clean Growth Strategy aspiration and relative to the other countries
All appear to have mechanisms that lever in private investment (even though is sometimes challenging to quantify)	The UK currently does not
Attractive, specialised finance deals that can be combined with capital subsidies on offer	Green Deal finance is least attractive deal
Capital subsidies across energy efficiency and low carbon heat technologies	Energy Company Obligation is only form of capital subsidy available – and only for eligible households
High performance standards that, if achieved through renovation, unlock higher levels of support (while needing higher investment from homeowners)	UK does not have support programme-linked renovation standards like KfW's Effizienzhaus or the Dutch Net Zero Energy Building standard
National communications campaigns combined with locally relevant renovation advice	The Energy Saving Advice Service is light touch compared to the other countries' advice and communications platforms

The UK's particular strengths presently exist through:

- > The Clean Growth Strategy's high level of ambition
- > The long-running track record of delivery through supplier obligations
- > Private-rented sector mandatory minimum standards regulation
- > Financial innovation, including through the Green Deal finance repayment mechanism
- > A highly granular understanding of, and approach to tackling, fuel poverty

In its current form however, the renovation policy landscape in the UK does not demonstrate nearly as much coherence as can be seen in the case study countries. To some extent, however, recent and forthcoming developments are likely to move things in the right direction:

- > The promise to extend support at a level equivalent to current Energy Company Obligation funding until 2028
- > The process of implementing the *Each Home Counts* quality assurance recommendations
- > The pending outcomes of the call for evidence on building a market for energy efficiency
- > Evidence-gathering for a framework to decarbonise heat in buildings
- > The Prime Minister's recent announcement on new-build standards and bringing down the cost of high-performance renovation in connection with the *Transforming Construction* Industrial Strategy Challenge Fund

These are good elements to build on, but above all what is missing and urgently needed is coherence in a new, more ambitious policy and investment landscape that weaves in these different strands of policy. The National Infrastructure Commission is taking the big picture view on infrastructure, including energy efficiency and low carbon heat, in its forthcoming National Infrastructure Assessment.

There are six key tests the Assessment's energy efficiency recommendations needs to meet¹³:

- 1) A need for **clear governance** combined with practical and achievable targets – principally all low income homes to EPC C by 2030 and all other homes by 2035 – as in Scotland designating energy efficiency as a national infrastructure priority to be driven by a comprehensive programme with a dedicated delivery agency.
- 2) **Additional public capital investment** of £1bn per year to 2035, bringing the total public investment to £1.7bn, deployed to support low income households and leverage a further £3.5bn of private investment from landlords and those more able to pay.
- 3) **Adequate incentives for the 'able to pay market'** to thrive and unlock the £3.5bn of private investment needed – starting right away with a demonstration programme to test and refine a Stamp Duty incentive and zero interest loans as recommended by the Green Finance Taskforce.
- 4) **Using regulation to help frame individual choices** and drive private investment. To maximise the chance of reaching the Government's targets, regulation can play a major role in reducing costs for consumers and driving individual choices, market development and private investment, whilst minimising the need for public investment. This means tightening rented sector regulation over time and exploring the introduction of a mandatory minimum EPC rating for owner-occupied homes at point of sale.
- 5) **A long-term delivery programme** similar to the ones guiding energy efficiency investment in other countries, in particular Scotland – which places local authorities at the heart of delivery through area-based renovation schemes, local heat and energy efficiency strategy development, local jobs and supply chains, localised advice services, and the development of an integrated approach to energy efficiency and heat, residential and non-residential sectors, fuel poor households and those more able to pay.
- 6) **Nationally framed and locally salient renovation advice provision, alongside full adoption of the of independent Each Home Counts review's recommendations** to ensure the highest quality and safety standards.

The National Infrastructure Commission now has a considerable opportunity – too good to miss – to inspire Government to develop and adopt a more coherent and ambitious approach by recommending an energy efficiency infrastructure investment programme. Given the scale and urgency of the challenge, the Government now needs to take concrete steps towards more coherence and concrete ambition, incorporating the steps it is already taking, at Budget 2018.

¹³ These are based on the recommendations of the Frontier Economics report for the Energy Efficiency Infrastructure Group (2017) *Affordable Warmth, Clean Growth: Action Plan for a comprehensive Buildings Energy Infrastructure Programme*

Appendix: policy and investment track record and needs in the UK's four nations

Public investment in home energy efficiency improvements has been cut by 58% in England since 2012. Wales, Northern Ireland and Scotland now spend respectively two, three and four times as much per citizen on home energy efficiency programmes than is spent in England (*source: E3G analysis of UK and Devolved Administration data*).

Country	Population	In 2012		In 2017		Change since 2012
		Public investment in energy efficiency	Per head of population	Public investment in energy efficiency	Per head of population	
England	55.6m	£1,022m	£18	£425m	£8	-58%
N. Ireland	1.9m	£52m	£27	£44m	£23	-16%
Scotland	5.5m	£190m	£35	£192m	£35	+1%
Wales	3.1m	£93m	£30	£54m	£17	-42%

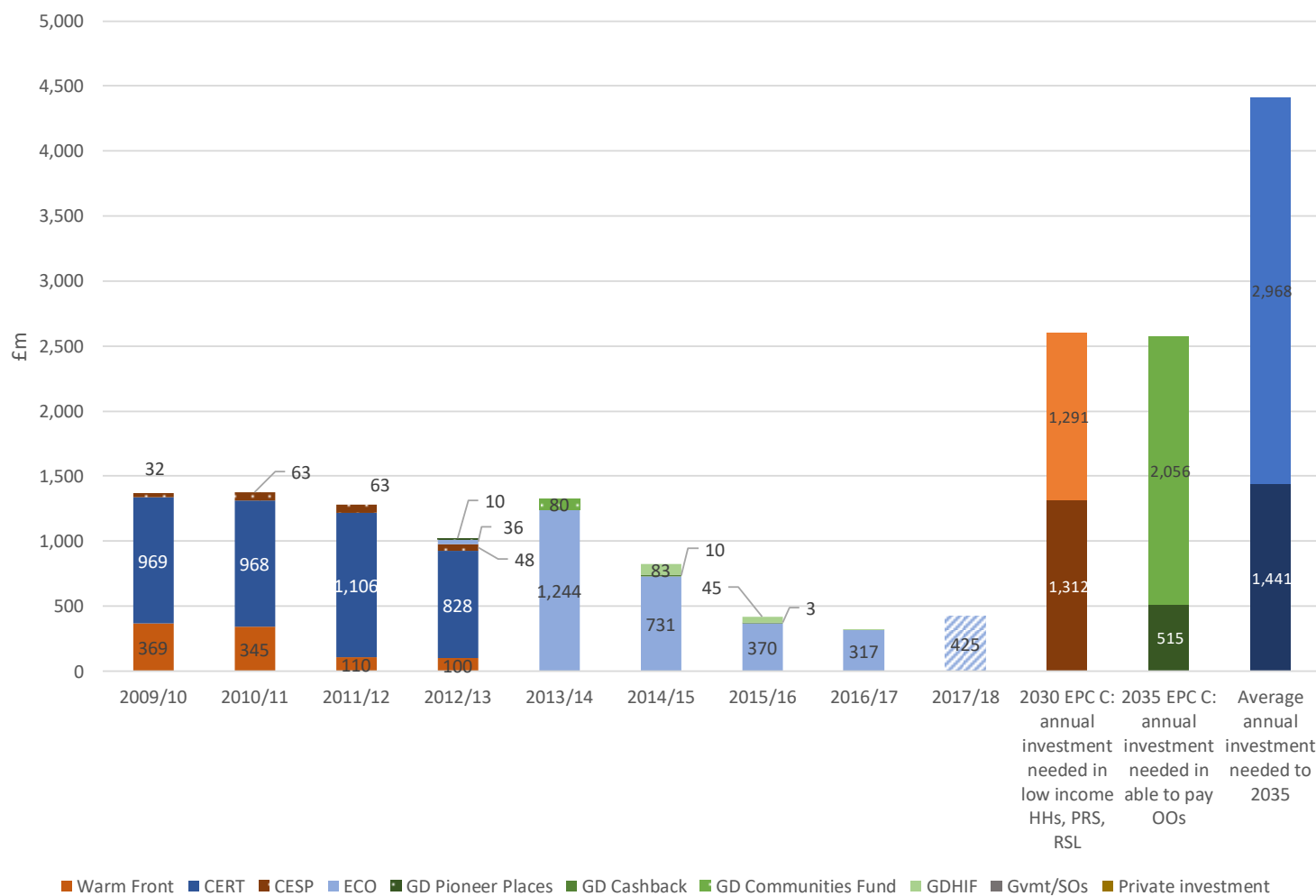
Year	Share of homes of cavity wall construction that are insulated		Share of homes of solid wall (or other non cavity wall) construction that are insulated		Share of total homes that have insulated walls		Share of homes (with lofts) that are properly insulated (200mm of loft insulation or more)	
	England	Scotland	England	Scotland	England	Scotland	England	Scotland
2012	58%	66%	5%	11%	45%	51%	39%	53%
2016	69%	72%	10%	15%	49%	58%	42%	65%

Scotland is not spending four times more than England because its housing stock is less efficient. The latest available housing survey data for the two countries shows that homes in Scotland have considerably higher levels of insulation (*sources: English Housing Surveys and Scottish House Condition Surveys, 2012-13 and 2016-17*).

This difference is also reflected in the distribution of Energy Performance Certificate ratings, ranging from an A-rating being the best, to a G-rating being the worst (*sources: English Housing Surveys and Scottish House Condition Surveys, 2012-13 and 2016-17*).

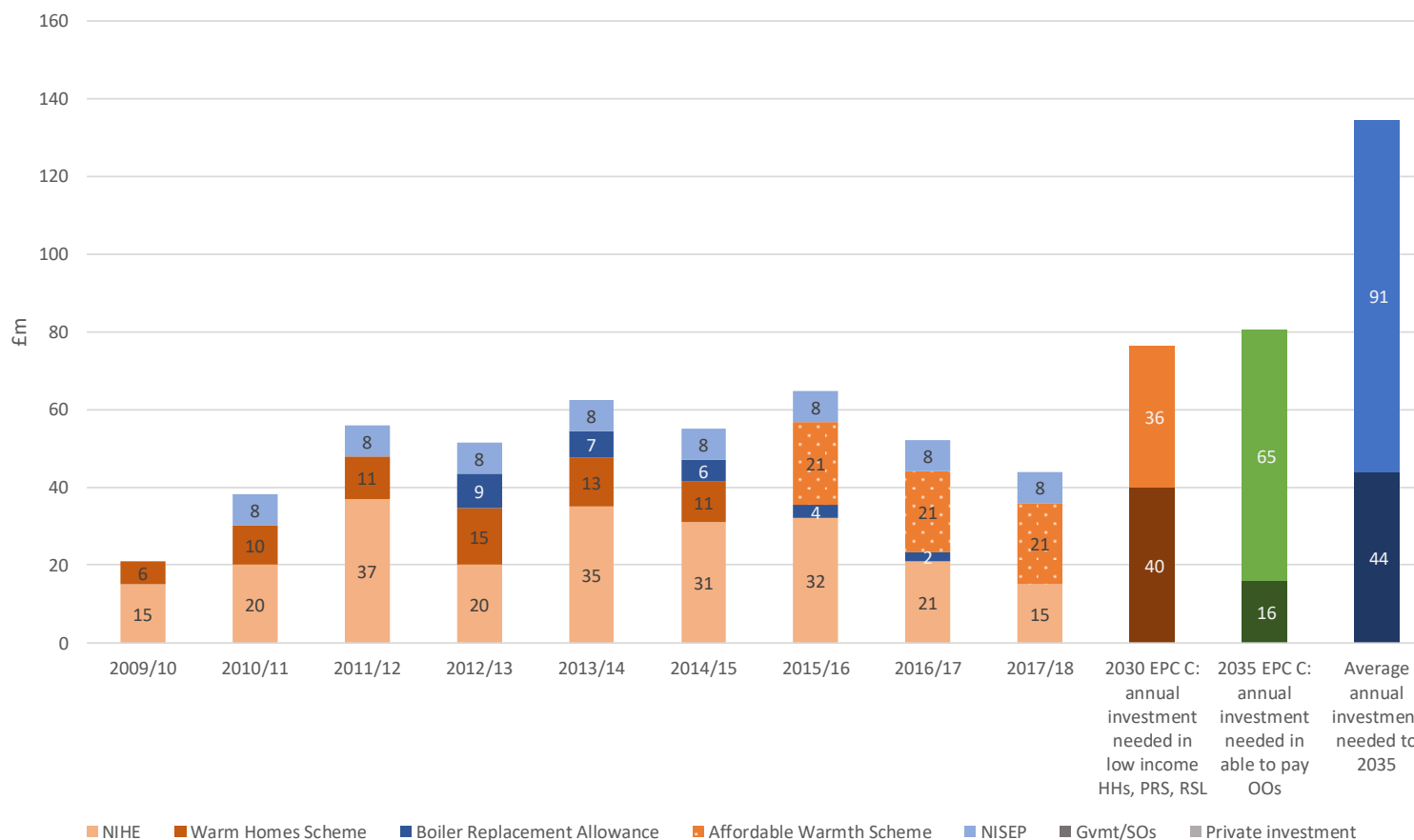
2016	Number of homes		Percentage of homes	
	England	Scotland	England	Scotland
Poorly insulated (rated E, F or G)	4,888,000	422,000	21%	18%
Well insulated (rated A, B or C)	7,049,000	963,000	30%	39%
'Middling' homes	11,796,000	1,068,000	49%	43%

England



Public investment in the low income and rented sectors to 2030 needs to treble on 2017/18 level – from £425m to £1,305m – £900m a year short. This needs to achieve an approximately matched investment from landlords, leading to £2.6bn annual investment overall to 2030. Public investment in able to pay owner occupier sector needs to go from zero to £520m per year and be configured to lever in £2.1bn investment annually from homeowners – leading to £2.6bn annual investment overall to 2035.

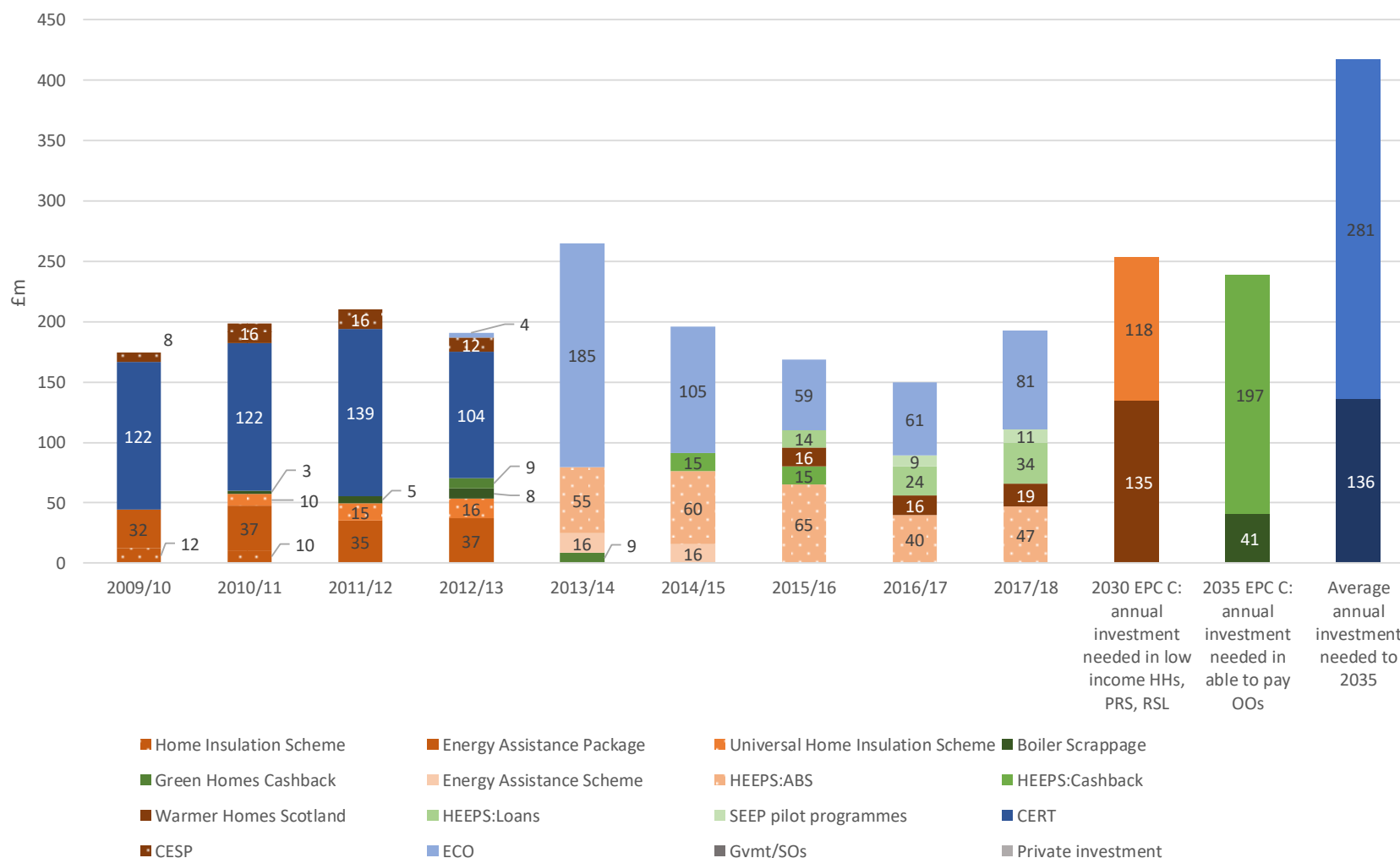
Northern Ireland



In Northern Ireland, annual public investment in home energy performance is approximately at the right level with respect to low income households and rented housing. With fuel poverty at 40%, programmes are rightly and strongly focused on low income households. There is a need to ensure landlords' contributions overall match public investment in low income households' energy performance.

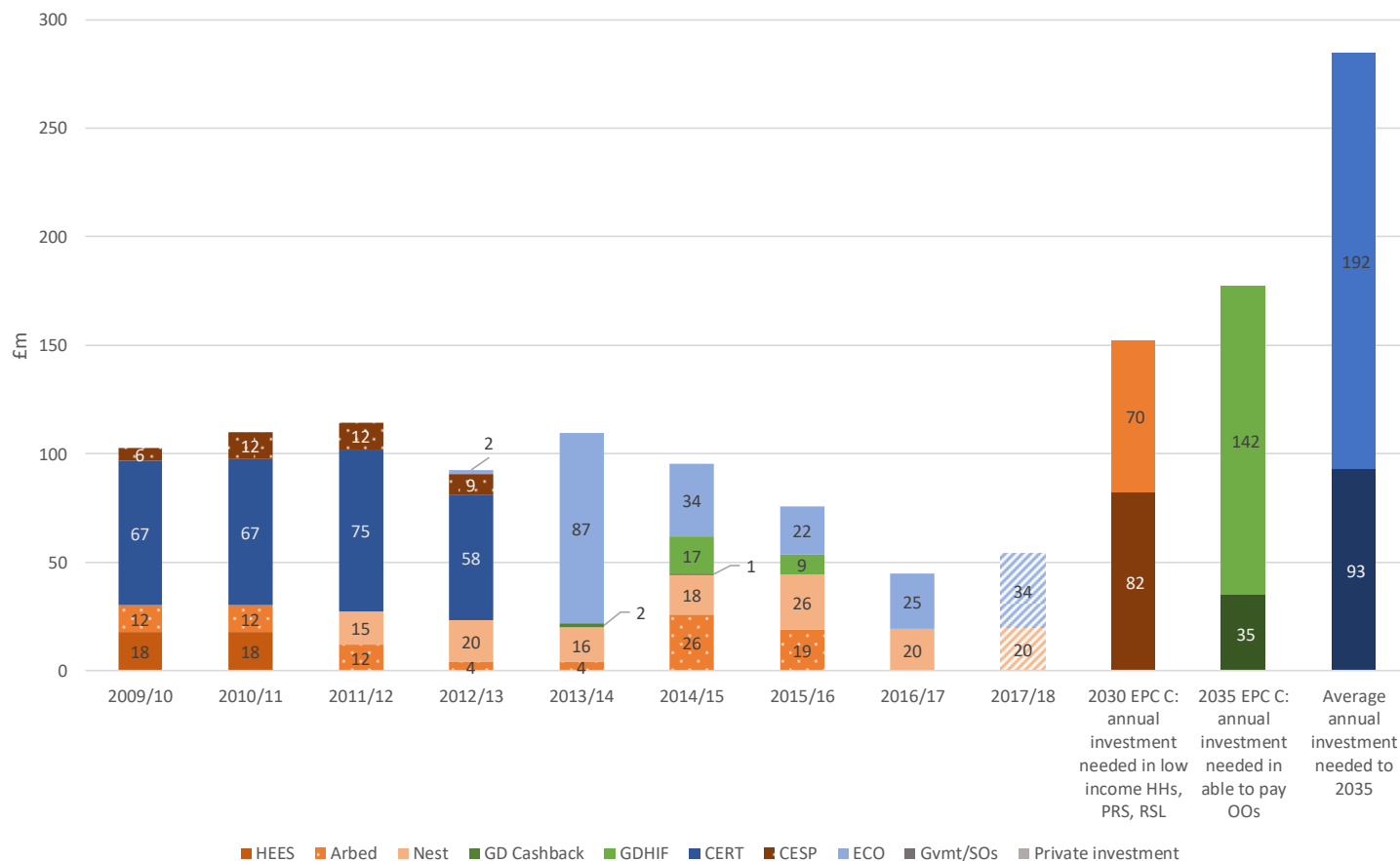
A framework and funds geared towards unlocking investment from able-to-pay households are needed. A small share of the £8m per year NISEP funding went towards able-to-pay household schemes, and NISEP ends after March 2018. Funding needs to go from zero to £16 per year with a leverage ratio of 1 in 5.

Scotland



In Scotland, annual public investment in home and non-residential energy performance is at a significant level, and is set to be so for years to 2020/21 (£125m per year public investment committed). See case study introduced earlier for more detail.

Wales



In Wales, annual public investment in the energy performance of low income homes and the rental sectors to 2030 needs to increase by 50% on 2017/18. This represents a shortfall of £28m per year, provided overall public investment of £82m per year can lever in £70m from social and private landlords. A particular priority is to continually renew area-based investment programmes – that is, continue the Arbed programme. This is likely to be challenging as it has relied a lot on the European Regional Development Fund.

There is little to no investment in supporting able-to-pay households to 2035. A framework and funds geared towards unlocking investment from able-to-pay households are needed.



About E3G

E3G is an independent climate change think tank operating to accelerate the global transition to a low carbon economy. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere. In 2017, E3G was ranked the number one environmental think tank in the UK, third in Europe and fifth in the world.

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