Centre for Ageing Better

Home improvement policies

A compendium of home improvement initiatives from 1950 to 2023

Dr Jenny Preece, Professor David Robinson, Professor Kenneth Gibb, Dr Gareth Young, Arno Schmickler.

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Contents

1 Introduction

One in seven people in the UK, including millions of older people, are living in an unsafe home that damages their health, putting huge and unnecessary pressure on the NHS and social care services.

For many people, living in an unsafe home that is cold, damp or contains dangerous hazards will be life limiting - and for some it will even kill them. These homes need to be made safer so that more people can live independently, healthily and happily throughout their lives and as they grow older.

At the Centre for Ageing Better, we are calling for a national strategy to make homes safe and a local network of Good Home Hubs to deliver the improvements. This document presents a compendium of previous and current policy interventions designed to improve housing quality which has informed our policy development and will hopefully inform others working to the same agenda.

The report was generated through an extensive review of existing evidence and carried out at three points in time. Firstly, the vast majority of this document was written by Dr Jenny Preece, Professor David Robinson, Professor Kenneth Gibb and Dr Gareth Young at the UK Collaborative Centre for Housing Evidence following an extensive evidence review for the Good Home Inquiry (published in May 2021 as an appendix to *Past, present and future: Housing policy and poor-quality homes*). The centre is a consortium of 14 institutions that brings together a multidisciplinary partnership between academia, housing policy and practice. Secondly, an update of the evidence and interventions was completed by consultant Arno Schmickler in February 2023. Finally, minor updates to statistics were made by the Centre for Ageing Better in September 2023.

The policies, programmes and interventions are organised under a series of key themes:

- Housing repair and improvement (private sector)
- Housing repair and improvement (social sector)
- Adaptations
- Falls prevention and safety
- Area-based initiatives
- Energy efficiency
- Digital connectivity

This compendium represents a key source of evidence for the recommendations in the Good Home Inquiry and the subsequent development of our Good Home Hubs model. This report also acts as a useful accompaniment to our report *Lost Opportunities: A decade of declining national investment in repairing our homes* (2023) which provides an overview of national spend on home improvement initiatives from 2010.

2 Key considerations

A review of previous practices and past initiatives presents a series of key considerations critical to the development and delivery of an effective response to the problem of poor housing quality.

Targeting and focus – there are different ways of targeting action on housing improvement. A key distinction is between programmes focusing on individuals or households and area-based programmes targeting places in particular need of an intervention. Each have relative strengths and weaknesses in relation to practicalities of delivery, coverage, and cost. For example, individually targeted initiatives can prove more cost-effective but the imperfect nature of targeting can mean that individuals who would benefit from assistance may be missed. Area-based programmes can provide a solution to the problems associated with the variable willingness and ability of residents to support or contribute to an intervention.

Financing improvements – different funding mechanisms are required for different groups. For example, 'pay as you save' schemes (in which occupants pay back the cost of improvements through the savings they have generated) are more suited to 'better-off' homeowners, whilst poorer homeowners may need grants to be able to undertake improvements. Privately rented properties need different mechanisms due to the split incentives between landlords and tenants. Research suggests that attracting private finance to develop affordable loan products for home improvements has been difficult to achieve. Developing a range of loan products for private sector housing repair may require greater investment in 'not-for-profit' intermediary lending agencies to order to secure attractive interest rates.

Delivery and outcomes – Trust in the organisations delivering programmes to improve the quality of housing is essential to engaging residents. There are particular institutions that people trust to give them impartial advice on measures, particularly third sector organisations. Local authorities have also been highlighted as not only highly knowledgeable, but also being viewed as a trusted body. HIAs and handyperson services have also been viewed as safe, trusted organisations for householders to work with. They have a high degree of local knowledge and are able to connect to other organisations and services. It is hard to assess the cost effectiveness of improvement measures delivered by these and other agencies, and the quality of many prior evaluations is relatively low in relation to understanding the costs and benefits attributable to interventions. It will therefore be crucial for any new programmes to be piloted and evaluated – including for cost-effectiveness.

Finally, it is important to recognise that housing quality is an ongoing challenge; homes require continual maintenance and improvement. There therefore needs to be ongoing investment. Short-lived initiatives are not going to tackle the underlying causes of under-investment – low incomes, lack of savings, lack of awareness of problems, and difficulties organising solutions.

Behavioural insights – Improvements are often viewed as one-off, stand-alone decisions, when in reality they are situated within everyday domestic life. The reasons a household may or may not decide to undertake home improvements are rooted within the conditions of home life, rather than merely reflecting a rational economic choice. It is therefore important to understand the everyday practices of life in the home, norms of comfort, and associated aspirations. It is also important to situate decisions about the home within a wide series of decisions relating to quality of life for the individual, household and wider family.

Longer-term solutions – Interventions that were designed primarily to follow short-term political cycles resulted in start-stop solutions that sent confusing market signals. The hiatus in policy-making combined with funding interventions that had almost no lead in time and short application and implementation timescales meant that industry was not in a position to prepare. Short term interventions also cause issues in relation to training need and supply-chain readiness. For example, the push for heat pumps which resulted in a lack of qualified installers as well as supply shortages.

3 Housing repair and improvement (private sector)

3.1 Improvement and repair grants in private sector housing

Aims	• To improve poor housing conditions in the private sector
Population of interest	• Initial focused on Housing Action Areas and General Improvement Areas (neighbourhoods with high concentrations of deprivation and poor housing conditions) – from 1980s extended to pre-1919 housing outside these areas • From 1990, targeted low-income households
Form	Intervention
Funding	State – capital grants
Costs	• Amounts of capital grant varied across the programme. Whilst recipients covered up to 50% of the repair cost at one point, there was no means test
Implementation	
Timeframe	1949-2003 (in various forms – powers revoked in 2003 by RRO)
Key outputs / outcomes	• 1949-2000 more than 4.5m grants provided in England and Wales, but declining significance since 1980s • 1969 Housing Act substantially increased levels of grant, included new forms of repair, and relaxed conditions for recipients to continue living in the dwelling • Grant contributions were 50% of approved costs, increasing to 75% in 1971 in certain economic development areas • Take-up averaged 75,000 granter per year in the late 1970s, compared to 130,000 in the 1969-74 period • 1974 – Repair Grant – intended to assist with repair rather than improvement • 1982 – extended to pre-1919 dwellings and increased to cover 90% of costs – rapid increase in applications to local authorities. In 1979 only 500 repair grants were provided across England and Wales, but this increased to 33,000 in 1982, peaking at 135,000 in 1984 • Mid-1980s – local authorities added enveloping to policies to tackle private sector housing (improving external elements of whole blocks or terraces) – in most cases owners or landlords were not required to contribute to the schemes • 1985 – grant was made available as a right (subject to a means test) for all works necessary to make a dwelling fit for human habitation • 1989 Housing Act – Repairs Grant dropped. Introduction of mandatory means tested house renovation grants based on a fitness standard • 1990 – new small grant for minor works assistance for older people • Replaced in 1996 by home repair assistance (maximum value of £2000) available to those in receipt of certain benefits and older people • 1996 Housing Grants, Construction and Regeneration Act – shift from mandatory to discretionary grants

	• DOE Circular 17/96 – emphasis on homeowner responsibility in private sector renewal activity • The means test targeted resources on those on low incomes, in many cases alleviating the need for any contributions to works (1994/5, 59% of renovation grants covered 100% of the cost of works) – older people likely to benefit because the means test did not take account of housing equity • Rationing tactics employed in the 1990s to cope with demand for statutory rights to grant aid could not be continued indefinitely, and in 1996 government legislated to remove the right to grant aid to remedy unfitness, revering to the earlier discretionary approach
Programme mechanisms	• Belief that minimum repairs (e.g. patch repairs to remedy unfitness) were poor value for money, so grant aid was typically provided to resolve the underlying problem (e.g. full roof replacement) – as a result, mandatory grant levels reached £10,000 in England and £18,000 in Wales in 1993 – far higher than the estimate of £3000. An upper limit was introduced, and local authorities were required to meet a higher proportion of grant costs from their own resources • Growing opposition to housing clearance led to further revisions to grant provision in 1974 to provide more assistance to low-income owner occupiers (e.g. 75% grant rate) • Hope that improving whole areas, e.g. through enveloping, would encourage owners to invest in internal works • But, looking back at a sample of properties that had received grant aid over 15 year period – evidence of rapid deterioration of conditions, lack of subsequent maintenance. Grant aid may be dealing with symptoms rather than the underlying causes of under-investment – low incomes and savings, lack of awareness, difficulties organising solutions • Grants were seen as part of a package of measures to support owner occupation – government drew back from this position from mid-1980s, arguing that owners must carry the primary responsibility for keeping their property in good repair • Decline in grant resources led initiatives to be developed by local authorities, e.g. HIAs – generating significant additional investment, improving quality of work, and increasing the proportion of spending devoted to essential repair works • Whilst there are powers to compel repairs, enforcement action is limited by complexity and – with owners particularly – about the acceptability of compulsory action • In Scotland, 1995-1997 resources devoted to private sector grants fell by two thirds after ring fencing removed from budgets
Barriers / learning	• Reverting to a discretionary approach form 1996 turned repair grants into a lottery, where a small number of recipients, selected somewhat randomly from the population of those living in poor housing, received relatively large grants – a much larger group of householders with similar problems received nothing • To cater for demand, local authorities suspended or abandoned planned renewal strategies focused on particular neighbourhoods, and when restrictions were re-introduced many had a backlog of applications entitled to a higher grant rate, which then dominated provision for many years • Concern in London over private landlords using grant aid to renovate PRS housing and then sell them to more affluent owner occupiers • Most applications came from dwellings that were not in the worst condition, and a proportion of applicants had incomes that suggested they may have been able to afford the work in the absence of grant • Grants were not targeted at cities with the highest levels of older privately owned housing

Barriers / learning (CTD)	• Older homeowners and private landlords were under represented amongst applicants, but their dwellings were most likely to be in poor condition • The 1982-84 regime of 90% grants without any income-related eligibility criteria in areas of pre-1919 housing led to a shift in expectations, that local authority grant may be available for all future major repair work in older privately owned homes – therefore could have been a major disincentive to undertaking further work, rather than an incentive as planned • Need less intensive services, e.g. advice and information on maintenance, home repair surgeries, home surveys, help with basic DIY, handyperson services, tool schemes • Tax incentives may encourage homeowners to invest, e.g. setting the cost of works done or interest on loans against tax obligations
Key references	• (Leather, 2000a, 2000b; Stewart et al., 2006)

3.2 Regulatory Reform (Housing Assistance) Order 2002

Aims	• Local authorities' powers to provide renovation grants and home repair assistance revoked and replaced with a new system • Created a general power to provide assistance in any form to any person for the purposes of repairing, improving, adapting and rebuilding residential premises
Population of interest	• Privately owned housing in need of repair or adaptation
Form	Legal
Funding	State; private partnerships
Costs	• Authorities have the power to carry out means testing and charge for labour or materials, to set the conditions under which financial assistance should be repaid and over what term • Expenditure on grant averaged around £250m per year 2001-2004 – compares to an estimated cost of addressing non-decent homes in the private sector of £41bn
Implementation	State
Timeframe	2002
Key outputs / outcomes	• Housing Grants, Construction and Regeneration Act (1996) gave local authorities powers to give grants or loans to help private sector owners or landlords repair or renovate their homes – the Act still governs mandatory DFGs in England and Wales • Powers were revoked under RRO 1 year after it came into force • Assistance provided under the RRO is discretionary • Authorities have a general power to give financial assistance for home repair, improvement and adaptation, but must have regard to fairness, give priority to the most vulnerable households, ensure that loan applicants are fairly advised, and take account of people's ability to contribute (including to equity release loans)

Programme mechanisms	• 1996 Act controls were seen as inhibiting local authorities' ability to address local needs • Belief that widespread grants as part of area renewal work would discourage homeowners with resources from carrying out the work themselves • Together with provisions in the Housing Act 2004, focused on an 'enabling' approach by local authorities, and introduced the notion of leverage and loan finance to reduce dependency on grant aid • The aim of loan provisions was to stretch resources further, but also to ensure that owners were made aware of the financial responsibilities of homeownership and reassert the message that – in most cases – owners are responsible for repair and maintenance • Area-based activity seen as giving way to client-based programmes • Concentration on vulnerable households shifts focus of private sector renewal policies from the condition of housing stock per se, onto the households most in need of assistance and living in the worst conditions • Reassertion of importance of preventative action (dominant in 1980s), that providing advice and encouraging owners to act earlier may avert a more expensive solution later
Barriers / learning	• Developments towards the PRS and preventative approaches have been disappointing; main focus has been in the area of energy efficiency • Many local authorities were unable to reach agreement with local lenders over the availability of loan finance – key to securing enhanced programmes of repairs and maintenance in the private sector is to mobilise private finance and ensure low-cost loan products are available and underpinned by grant aid for those in need • Limitations of small numbers of staff working on private sector housing renewal activity – may be a low priority politically in some areas
Key references	(Department for Communities and Local Government, 2007; Groves and Sankey, 2005; Stewart et al., 2006; Wilson, 2017)

3.3 Home Cash Plan

Aims	• To provide people with reliable individual advice on options • Enabling people on benefits to draw small amounts from the value of their home • Giving people the confidence to investigate these options
Population of interest	• Equity release pilots targeting older homeowners in receipt of Pension Credit
Form	Intervention
Funding	Equity release
Costs	• Low-income homeowners could draw an initial minimum of £5,000 • Further sums of £2,000 could be drawn on demand, up to a total of £30,000, without an additional fee • Any property considered mortgageable could be offered as security
Implementation	Multiple (Joseph Rowntree Foundation; Just Retirement Solutions – a financial advice firm; pilot local authorities)
Timeframe	2010-2011

Key outputs / outcomes	• Local authorities and partners brought the scheme to the attention of potential recipients • Just Retirement Solutions provided financial advice • After 18 months, there were 20 enquiries • A sound solution was found for ten, of which nine pursued that option • Six pursued equity release (two used the Home Cash Plan, and four others another equity release product)
Programme mechanisms	• Collaboration between private sector and local authorities, without legal agreements
Barriers / learning	• Major deterrents to older people drawing on the value of their home through equity release include: reluctance to reduce the amount they would leave their family; complexity; needing to borrow considerably more than they needed; concern over reducing means tested benefits • Set up fee was substantial in comparison to the initial drawing – only became less significant if subsequent drawings were made • The response to the pilots was limited by: the poor reputation of equity release; lack of contact with those who may benefit from the scheme; legal and policy constraints on initiating contact with those who might be helped; and underestimating how long it would take for people to make a decision. • A product offering smaller and more flexible drawdowns can be commercially viable for lenders, and may broaden appeal of equity release • Local authorities have an important role to play in helping people to think positively about drawing on the value of their home in later life as a way of achieving greater quality of life
Key references	(Terry and Gibson, 2012)

3.4 Home Improvement Loan (Parity Trust)

Aims	• To meet the needs of homeowners to finance essential repairs and adaptations to properties following decline in local authority grants (post-Regulatory Reform Order 2002) • To offer an alternative to borrowing from a bank or building society, and at a lower cost than many credit providers
Population of interest	• Homeowners
Form	Intervention
Funding	Multiple (Parity Trust received capital funding from the Single Regeneration Budget and revenue funding from Portsmouth Housing Association, the Big Lottery Fund, Lloyds TSB and the Portsmouth and South East Hants Partnership, and £100,000 raised through shareholders). Recyclable loan fund, with repaid monies being on-lent to future customers
Costs	• Local authorities contributed 75% of capital loaned, Parity Trust 25% • Customers charged competitive interest rate • A range of repayment options for customers, including interest only loans with capital repaid at the end of the loan, and typical capital repayment loans (repaying capital and interest)

Implementation	Multiple (private; state; third sector)
Timeframe	2006-2011
Key outputs / outcomes	• £5.13m in secured loans and mortgages since 2006 • 1411 face-to-face financial reviews • £1.85m in recycled funds • Over 500 jobs allocated to local contactors • 827 beneficiaries • 140 loans have supported independent living • 76% of homes approved had at least one occupier aged 60+ • 320 applicants may have struggled to access finance elsewhere due to income levels • 26 Disabled Facilities Grant top-ups, reportedly extending independent living for older people by around 4 years • Typical work completed through the scheme included: roof, windows/doors, damp/heating, general repairs, adaptations, DFG top-ups, major works. More than half of completed works were in repairs to roof, windows/doors, and damp/heating
Programme mechanisms	• The first Community Development Finance Institution of its kind
Barriers / learning	• Identified a gap in the market for older borrowers whose interest-only mortgages were coming to an end but did not have the ability to repay
Key references	(Higgs, 2017)

3.5 Loans and equity release for housing improvements

Aims	• To assess the suitability and potential take-up of loan and equity release packages developed to support vulnerable private sector households maintain and improve their homes
Population of interest	• Low-income homeowners
Form	Intervention
Funding	Varied
Costs	• Survey of local authorities suggested cost of providing loans (engaging and supporting clients) was £500 to £3000 per loan • The cost of providing housing advice and a decent homes survey was estimated at £1000 per loan, and the cost of independent financial advice £500 per loan
Implementation	Mixed public – private partnerships
Timeframe	2003>

Key outputs / outcomes	• Limited data available on take-up (2007) but suggests conversion of 2-3% per year among vulnerable homeowners targeted for awareness raising • This would translate to 4-6,000 loans per year nationally, which private lenders noted would be insufficient to lever in private finance • For local authorities, developing a service for this small group would be inefficient due to the high administrative cost
Programme mechanisms	• Long history of interventionist grant policy for home repairs – concern over culture of dependency on grants • Based on need to encourage owners to invest more in basic repair work and tackle larger jobs – to borrow against equity tied up in their houses • Regional partnerships may have most potential for levering in private finance because of economies of scale, accelerated development, and promote common standards and approaches • Home Improvement Agencies play a key role in engagement, advice, guidance, and project management
Barriers / learning	• The threshold at which wholesale lenders will seriously consider engagement with the market was estimated at 2-3,000 loans per year, assuming an average loan of £15,000 at the regional level • Many lenders are unwilling to lend under £25,000 because the loan then becomes subject to the provisions of the Consumer Credit Act, which increases the administrative costs of setting up the loan and raises the prospect of the loan becoming void in some circumstances • Historically, it has been more straightforward for local authorities to offer nationally prescribed grants with established objectives, than a range of largely untested options locally • Given low disposable incomes, for the most vulnerable owner occupiers, no service loans represent the only real choice, bringing in the importance of equity alone in delivering sufficient funds to enable repairs • Interest free secured loan – most attractive as no monthly payment and lowest overall cost for individuals • Property Appreciation Loan • Shared appreciation mortgages – a loan with some of all interest charges discounted in return for giving up a share of future equity growth. However, providers may not be attracted to lower value dwellings in poor condition • Rolled up interest schemes – minimises accumulation of interest charges by allowing clients to draw down small sums for specific purposes – market for small loans <£2000 for repair and maintenance work • Commercial lenders reluctant to provide small sums, and relatively high costs with small secured loans, e.g. set up costs >£500 • Rochdale Council – subsidised repair and improvement loan set up costs by providing loans itself, then recycles funds by selling loans to a commercial lender • Nottingham Home Improvement Trust – low-cost packages covering legal fees and financial advice, administered by HIAs • Insurance schemes for emergency repairs – but less success in developing this market for routine and cyclical maintenance • The point at which dwellings are bought and sold provides the opportunity to scrutinise dwelling condition – including by lenders • Vulnerable owner occupiers require intensive support in relation to loans – HIAs reported handling smaller caseloads as a result

Barriers / learning (CTD)	• Key issue emerging in research with residents in a local authority area was that of choice – what an owner would choose to spend 'housing' funds on, compared to what a local authority might strategically wish this expenditure to fund, e.g. repairing the outside of the building – loss of grants to some extent means loss of local authority control over local private sector housing conditions • Barriers to repair for low income homeowners were primarily financial – not only in terms of the cost of repair, but also unforeseen costs and redecoration
Key references	(Leather, 2000a, 2000b; Stewart et al., 2006)

4 Housing repair and improvement (social sector)

4.1 Decent Homes

Aims	• To improve the condition of homes for social housing tenants and vulnerable households in private sector accommodation in England • A 'decency' standard was set and in certain cases funding was enabled to achieve improvements. The Programme recognised improvements might be achieved from wider neighbourhood renewal. • The Programme also aimed to improve housing management standards and increase tenant involvement in local housing decisions.
Population of interest	• Social housing providers • Social housing tenants • Vulnerable households in the private sector
Form	Regulation

Funding	• The Department's primary means of securing value for money from Decent Homes funding was to scrutinise the options appraisals prepared by local authorities and assess any bids for funding required to facilitate stock transfers or the setting up of an ALMO.
	• Local authorities with sufficient resources (including from the then newly-introduced Major Repairs Allowance) could implement the programme and retain the day-to-day management of their housing stock. Where additional resources were required LAs could:
	  * Establish an ALMO
	  * Use a PFI
	  * Transfer stock to an RSL
	• Allocation of funding was scrutinised regularly, drawing on advice from the Building Research Establishment, using existing Regulatory Framework of Audit Commission inspections and RSL registration with the housing regulator to ensure social landlords in receipt of funding were well placed and would deliver.

Costs	• Approximately £22bn to DCLG
Implementation	State
Timeframe	2000
Key outputs / outcomes	• Improved housing conditions for over a million households, reducing the percentage of non-decent homes to 14.5% as at April 2009. • RSLs have reduced the percentage of their non-decent homes to eight per cent from a maximum of 21 per cent. • Tenants were involved in local delivery, with many having a significant influence over their housing service. • Improvements to the function of housing associations, including better management of housing services, asset management process and job creation. • Improvements to purchasing efficiency and economics by using procurement consortia (estimated savings at £160m in 2009 with potential savings of up to £590m).

Programme mechanisms	• DCLG (at the time) were responsible for ensuring targets were met through setting policy and exercising oversight. • The responsibility for delivery of the Programme in the social housing sector was with RSLs and local authorities. • RSLs were expected to make their homes decent from their own resources, and local authorities were expected to use existing funds, including the Major Repairs Allowance). • The Decent Homes Standard aimed to make homes warm, wind- and weather-tight and with reasonably modern facilities.
Barriers / learning	• More could have been done to promote value for money through devolved delivery by preparing an estimate of making homes decent by 2010 before announcing the policy to do so. Initial estimates only considered local authority stock. • More could have been done in terms of guidance to providers on estimating costs of provision and investment and better monitoring processes, reporting and use of information as well as reviewing the programme earlier to determine value for money and good practice. • Some criticisms of DHS are that the standards were too low, or too narrowly focused on the property itself and more attention could have been paid to energy efficiency measures and environmental works. • Concerns also raised around ability to maintain or enhance the DHS for their properties in the medium to long term following on from pressures to public expenditure post global financial crash. • DHS did not adequately address the upkeep of common areas and parts, which often carry high upkeep costs and exceeded the funding available. • DHS did not extend beyond the property, omitting other aspects that are vital to long-term neighbourhood sustainability such as enhancements to local environments and facilities, reductions in anti-social behaviour, and diversification of stock and tenure.
Key references	(Bennington et al., 2010; National Audit Office, 2010)

5 Adaptions

5.1 Disabled Facilities Grant

Aims	• To pay for essential home adaptations to give disabled people better freedom of movement into and around their homes, and provide access to essential facilities within the home (Adams and Hodges, 2018)
Population of interest	• Individuals (homeowners or tenants) with disabilities who require an adaptation to the home in order to meet their needs
Form	Legal
Funding	Mandatory Local Authority grant (under certain conditions) funded by national allocation (currently to the Better Care Fund) and local authority contributions. National funding for DFG has increased from £220m per year from 2013 to £468m in 2018/19, but local contributions have decreased, especially following the introduction of austerity measures from 2010
Costs	• The maximum grant in England is £30,000 and in Wales £36,000 • Local authorities can provide discretionary top-up grants or loans where the cost of carrying out works exceed the grant (through 'housing renewal assistance') • It is means tested for adults, with income and savings taken into account in assessing eligibility (outgoings or the value of the home is not considered) • Most DFGs are less than £5000, 34% are between £5001-£15,000, and 8% between £15001-£30,000 • For homeowners, a grant repayment charge may be placed on the property recoup some of the cost when the property is sold, but this is dependent on the policy of each local authority. Foundations report that there is evidence of greater take-up of this option, for adaptations costing over £5,000
Implementation	Mixed (local housing authorities, social care, landlords, HIAs)
Timeframe	1989> (became part of the Better Care Fund – a pooled health and social care budget in 2014)
Key outputs / outcomes	• DFGs are provided by local authorities to fund adaptations to the home for those with disabilities • National data does not record timescales for the completion of DFG work, or the type of work carried out. Evidence from a survey of local authorities suggests that major adaptations can take from 5 to 23 months (18 months on average), depending on the complexity of the work • The most common adaptations facilitate access to the bathroom, bedroom, living room and kitchen, as well as in and out of the home. Most adaptations are to bathrooms and for stair lifts or ramps • On average, DFG helps around 40,000 people with adaptations to their homes • Around 70% of DFGs are awarded for adaptations to the homes of people over 60 • Most grants go to owner occupiers, but social housing tenants receive 1/3 of all DFGs • Powell et al (2017) concluded that small home adaptations can improve outcomes and quality of life for those in later life, are cost effective in preventing injuries when combined with other repairs, and delivered in a timely manner, in line with the goals of occupants. However, delays in installing adaptations can reduce their effectiveness

Key outputs / outcomes	• Local authorities have highlighted the need to better quantify outcomes and benefits, e.g. savings to the NHS, but this evidence is not widely or consistently available • Of those who are assessed as needing an adaptation, it is estimated that about one third drop out of the process, usually due to financial reasons • In-depth studies suggest that while there may be challenges associated with accessing and the processing of adaptations, once installations had taken place recipients reported positive outcomes in relation to mobility, the completion of daily tasks, reduced falls, ease of movement around the home, and mental health
Programme mechanisms	• A DFG must be provided if certain conditions are met (e.g. the person must intend to live in the property as their only or main home for at least 5 years, and the grant must be requested for a specific purpose that is necessary and appropriate to meet the needs of the occupant) • Minor aids and adaptations to aid daily living or assist with nursing, under £1000, are not chargeable • DFG usually works through a 2-part process, with assessment by social care services and then a grant application to housing; this can be a complex and lengthy journey for applicants • Although local authorities are supposed to make decisions on DFG applications within six months, it cannot process an application without an occupational therapy report to confirm the adaptations are necessary and appropriate. Guidance suggests that urgent cases should complete this stage in five working days, and 20 working days for non-urgent cases. However, in practice delays are common • There are different ways in which work may be provided under the DFG. A local authority may refer an applicant to an HIA – nearly half of DFGs are delivered through HIAs, and they will usually manage contractors to ensure the work is carried out appropriately • It could be argued that one of the ways in which the DFG functions is to avoid triggering demand. With little proactive analysis of local needs, and minimal advertising of the programme, individuals who may otherwise utilised the fund are deterred. Research has noted that there is a belief that stretching out budgets by building delays into processes will protect local authorities from greater demand. However, it also leaves potentially eligible households in inappropriate housing.
Barriers / learning	• Whilst local authorities are required to provide good quality information and advice about home adaptations and repairs in the Care Act 2014, current provision is patchy and there is no minimum standard against which provision is assessed • Research suggests more people do not know about the DFG, and that people outside the social rented sector, who are more isolated, are the least likely to find out about it; this suggests that information needs to be better targeted at those who need help, e.g. by GP referrals • Whilst in other areas of health a consistent standard of care is sought nationally, and NICE guidelines are in place with particular targets, in adaptations provision is highly localised and varied • Local authorities sometimes refuse to consider DFG applications from social tenants, saying the landlord should pay, but DFG is supposed to be tenure-neutral • However, most evidence suggests that tenure inequality in the delivery of DFGs favours social housing tenants, with a higher proportion of grants going to social housing providers when disabled people are increasingly living in the PRS • For tenants in the PRS, it can be difficult to obtain a landlord's permission for adaptations and a certificate to confirm that they will remain living in the property for 5 years, given the common nature of short-term tenancies. These are seen as major problems • Previous research has shown that whilst there has been an increase in national funding for home adaptations, this has not resulted in a significant change in improvements to local provision

Barriers / learning	• The preventative benefits of adaptations, including cost savings to other policy areas, may therefore be lost due to the time individuals have to wait for help • Local authorities have considerable discretion in defining grants for home adaptations, and some have introduced fast-track processes for some adaptations, and non-means tested grants for smaller work. This can speed up adaptations with a positive impact for occupiers. Given that around 58% of grants are less than £5,000, there seems considerable scope for streamlined delivery • For some adaptations, trusted assessors could make 'prescriptions' for work, reserving the capacity of Occupational Therapists for more complex cases. Face-to-face assessments for minor adaptations are still common, and given evidence that Occupational Therapist time can account for up to 80% of the total cost of the work, there is scope for efficiencies here • This suggests a highly variable picture of local provision, with long waits in some areas, and underspent budgets in others. Reworking the allocation formula may help to resolve some of these issues, but this would require better local authority level data about needs, service delivery, and the outcomes achieved (including the impact on health and social care spending) • Good practice has been highlighted to include: proactive awareness raising and 'one-stop-shops'; accessible information; fast track services for different types of work; and involvement of the user in selecting the right type of adaptation for their needs (which will contribute to its use and success) • Mackintosh and Leather (2016) also note that the majority of older and disabled people will not be eligible for a DFG and therefore there is a need to provide non-statutory advice and support to enable independent living. This suggests it is important to consider one-stop shops
Key references	(Adams and Hodges, 2018; Age UK, 2020; Curtis and Beecham, 2018; Foundations, 2010; Hodgson et al., 2018; Mackintosh et al., 2018; Mackintosh and Leather, 2016; Powell et al., 2017)2018; Mackintosh and Leather, 2016; Powell et al., 2017

5.2 Handyperson services

Aims	• HIAs are not-for-profit organisations run by local authorities, housing associations and charities to support older people to remain living independently in their own homes
Population of interest	• The provide a range of services including advice on housing condition and improvement, energy efficiency, housing options, and advice on benefits, finances, grants and loans
Form	Intervention
Funding	Changes to the use of Supporting People funding enabled the commissioning of handyperson services on longer contracts – services may be provided by HIAs, but also other organisations such as Age Concern and Help the Aged. Whilst there has been funding for handyperson service pilots, from 2011 funding was allocated to local authorities as part of Area Based Grant funding, and therefore is subject to local decisions on its use. The largest funding source for HIA handyperson services is social services
Costs	• HIAs with a handyperson service reported costs of around £30-40,000 per handyperson employed, with an average cost per job completed of £70-90. Differences in costs reflected rural and urban locations, with higher costs in cities

Costs (CTD)	• National evaluation of the DCLG handyperson programme pilots noted that delivery is often very simple and low-cost. Conservative modelling suggested that the benefits achieved by the handyperson programme outweighed the costs by 13%, in addition to non-quantifiable benefits such as improved quality of life and wellbeing • In the national pilots, the average cost per client in 2010/11 was £67
Implementation	Multiple
Timeframe	1980s>
Key outputs / outcomes	• National evaluation of the DCLG handyperson programme pilots showed that services were assisting large number of older, disabled and vulnerable people to live independently, in greater comfort and security. Services were also rated highly by users and were seen as reliable and trustworthy • Key areas of action include small repairs and minor adaptations, home security measures, hospital discharge schemes, and energy efficiency checks and measures • Most clients of HIA handyperson services are older homeowners. The proportion of work carried out in the PRS is lower than the percentage of older people living in that tenure, and it may be that the service needs to be clearly targeted at preventative outcomes for individuals in the PRS • HIAs with a handyperson service completed an average of 1019 jobs each over a year, comprising around 105,000 individual households in which services have been delivered
Programme mechanisms	• Many HIAs run their own handyperson services for small home improvements, minor repairs and adaptations, and energy efficiency measures. Most people self-refer to the service, with occupational therapists the next most common route • Stakeholders and research have noted that local handypersons services are an effective way to provide low-cost help with minor repairs and adaptations, that they offer value for money, are preventative, and tailored to individuals' needs • Research suggests that help with small odd jobs and essential repairs are viewed key services by older people • Providing older people with independent information and practical help was a key driver in the creation of HIAs in the 1980s, and access to information is frequently highlighted as a barrier to individuals adapting and improving their homes today. Despite the continuing need of this provision, HIAs have been reducing due to loss of funding • Serves the preventative agenda – the national evaluation of the DCLG pilots notes that a fulltime handyperson can make up to 1,200 visits per year, informally checking on large numbers of older people living alone, who may be reluctant to contact other services. Such a visit can be the first step in identifying risks and unmet needs
Barriers / learning	• Existing research has demonstrated the important role of HIAs, and they should be available in every local area • Handyperson services should be designed to meet local needs, which may vary across the country; this avoids duplication of other local programmes, which a standardised approach may risk • Person-centred focus is key • Providing a handyperson service with the capability to assess needs as well as carry out work (e.g. via a HIA) can free up occupational therapists to concentrate on the more complex cases
Key references	(Croucher et al., 2012; Foundations, 2009, 2010)

5.3 Home Improvement Agencies

Aims	• HIAs are not-for-profit organisations run by local authorities, housing associations and charities to support older people to remain living independently in their own homes • They contribute to the vision for an integrated health and care system which promotes wellbeing at home, and provide preventative services to reduce, delay or remove the need for institutional moves
Population of interest	• Older, disabled and vulnerable people in any tenure - typical focus on homeowners • The provide a range of services including advice on housing condition and improvement, energy efficiency, housing options, and advice on benefits, finances, grants and loans
Form	Intervention
Funding	One of the main sources of funding for HIAs is the Disabled Facilities Grant, but this is now a part of the Better Care Fund, which is administered by Clinical Commissioning Groups
Costs	• There is limited information available, but a survey of HIAs
Implementation	Multiple (providers are a mix of local authority services, housing associations, charitable trusts, industrial and provident societies and PLCs)
Timeframe	1980s>
Key outputs / outcomes	• HIAs operate in around 80% of local authority areas in England • They typically offer holistic, caseworker-led support, major and minor adaptations, handyperson services, hospital discharge services, home safety audits, falls prevention services, repairs and maintenance, information and advice, and housing options services • In 2015 they dealt with over 250,000 enquiries and completed 160,000 handyperson jobs • HIAs project managed half of all DFG-funded home adaptations
Programme mechanisms	• Providing older people with independent information and practical help was a key driver in the creation of HIAs in the 1980s, and access to information is frequently highlighted as a barrier to individuals adapting and improving their homes today. Despite the continuing need of this provision, HIAs have been reducing due to loss of funding • Budget pressures have impacted on HIA services, and the sector has become more focused on the delivery of DFG-funded adaptations • While HIAs are sometimes viewed as a mechanism for processing DFGs, Foundations reports that the need for adaptations usually occurs at the same time as other needs that require housing-related action. The integrated and holistic approach of HIAs is therefore advantageous in considering a wider range of action to improve housing for residents • The Care Act 2014 requires local authorities to prevent or delay the need for care, and to provide information and advice – HIAs are an important way in which these obligations can be met locally
Barriers / learning	• Existing research has demonstrated the important role of HIAs, and they should be available in every local area • Some adaptations equipment can be recovered and reused, and HIAs have helped to improve the availability of second hand equipment

Barriers / learning (CTD)	• Opportunities for HIAs to open up new markets, building on their areas of expertise, helping to keep people healthily at home. The customer base for HIAs might broaden, e.g. into delivery of preventative services to a larger population of self-funded individuals. This will require a scaling up of activity. Most older and disabled people do not benefit from DFG as they either do not need the service or are ineligible for statutory assistance due to savings or income levels – whilst most providers offer a service to self-funders, they are a small minority of those assisted by HIAs. This suggests strong potential for HIAs to develop services for self-funders and meet the Care Act's drive for early, preventative action • Need for stronger partnerships with health and wellbeing boards, who will assume the role for commissioning DFG services; will need clear information on the role / potential of HIAs
Key references	(Adams and Hodges, 2018; Age UK, 2020; Foundations, 2010, 2016)

6 Falls prevention and safety

6.1 Housing Health and Safety Rating System (HHSRS)

Aims	• HHSRS replaced a pass or fail Housing Fitness Standard (in place since 1990)
Population of interest	• Applies to all housing (including social sector) but in practice most work is carried out in relation to the PRS
Form	Legal
Funding	Local government
Costs	Not reported
Implementation	State
Timeframe	2006>
Key outputs / outcomes	• A risk based assessment tool, used by environmental health officers to assess the likelihood and severity of hazards • Judgements are made with reference to those who – mostly based on age – would be most vulnerable to the hazard, even if people in those age groups are not actually living in the property at the time • Few if any national statistics on accidents in the home • Local interventions, e.g. Wirral Health Homes – targeted 1000 properties, offered a free home safety check and advice to point out hazards in the home. 2010-2013, 836 surveys and 966 referrals to partners
Programme mechanisms	• More nuanced judgement to replace the Fitness Standard, which it was felt did not distinguish between defective dwellings and genuine health and safety hazards – although HHSRS also involves subjective judgements • Enforced by serving improvement notices, prohibition orders (both of which can be suspended, e.g. where a hazard exists but the occupant is not vulnerable to it) • Hazard awareness notice may be a response to a less serious hazard, to draw attention to the desirability of remedial action • Local authorities can take emergency remedial action • Requires conditions to be extremely poor before it can be implemented, and relies on conditions being brought to the attention of the local authority – either by the tenant, or a third party

Barriers / learning	• Survey with 142 professionals found that 94% of those who expressed a view felt that the protections offered by current laws are undermined by lack of enforcement – all respondents noted local authority reluctance to enforce housing standards, and differing practices between authorities • Dilemma of legal intervention – may lead to rent increase and the loss of a tenant's home. Weak consumer rights in PRS • Research by the CIEH found that 97% of environmental health professionals working in housing wanted to see an update to HHSRS, with 53% reporting that they encountered hazards not addressed by the rating system • Private landlord associations may offer 'soft' regulation, e.g. through advice and training, and expelling members who do not comply with requirements • Could require regular training in HHSRS as part of CPD • Worked examples in HHSRS guidance are worst cases – lack of borderline worked examples to assist with scoring
Key references	(Adcock and Wilson, 2016; Ambrose, 2015; Carr et al., 2017; Stewart, 2013)

6.2 Falls prevention programmes

Aims	• In an environmental assessment, the home environment is assessed and recommendations for safety are made • Home modifications seek to change the home environment to improve people's safety and independence • Study in New South Wales sought to determine the prevalence and determinants of uptake of home modifications and exercise in the older population living in households with private phones • Fall prevention RCT in Australia – included a home hazard assessment and recommendations
Population of interest	• Older people living in their own homes in the community
Form	Intervention
Funding	N/A
Costs	• Studies of the economic effectiveness of home modifications for community-dwelling older people report mixed impacts – three studies suggest negative cost-effectiveness, whilst four reported a positive effect • There have been no cost effectiveness studies on single-factor home modifications, therefore it is not possible to compare the cost effectiveness of different dimensions of modification
Implementation	State
Timeframe	Multiple

Key outputs / outcomes	• Systematic reviews suggest that multifactorial interventions, which include home modification, can reduce the likelihood of falls and injury, reduce fear of falling, and improve the confidence of those at risk of falls in community dwelling older populations • Reviews of RCTs suggest that environmental assessment and modification significantly reduces the number of falls that people experience and the number of people who fall • In a study of older community-dwelling population in NSW, 26% of the older population reported undertaking home modifications in order to prevent falls. The proportion increased with increasing age, from 17% in those aged 65-74 undertaking modifications, to 48% of those aged over 85. The most common modification was installing handrails. Removing mats and rugs, and replacing steps with ramps was reported by 5%. Other modifications were rarely reports • The strongest factors associated with having made home modifications were increasing age group, problems undertaking usual activities, having certain comorbidities, and fair/poor health. A high perceived likelihood of falling and high fear of falling were also associated with uptake of modifications. Respondents who received advice from a physiotherapist or occupational therapist, or other health professional, were more likely to have undertaken modifications than those who saw fall prevention in the media. Less than 1% of the older population reported speaking to an occupational therapist about home modifications to prevent falls, but of these, 72% undertook modifications • Home hazard assessment in Australia – RCT. In the intervention arm, 277 recommendations were made, of which 49% had been completed at 6 month follow up. The most likely recommendations to be implements were installing grab rails in the short and toilet, non-slip bath mats, bed sticks, and stair rails. Participants were least likely to implement recommendations such as using over toilet frames and shower chairs, altering floors, and removing clutter • Cross-national research highlights the importance of considering the person-environment 'fit' rather than environmental barriers alone, as the relationship between the occupant and their home environment was a stronger predictor of falls in older people than the number of environmental barriers alone • A home assessment with an occupational therapist, in which individuals over 70 with a history of falling discussed hazards and possible solutions, found that fall rates in the following 12 months were approximately half that of a control group
Programme mechanisms	• Cochrane review – home safety assessment and modification interventions were effective in reducing fall rates and risk of falling. They were most effective in people at higher risk of falling. Home safety interventions appear to be more effective when delivered by an occupational therapist • Advice from a physiotherapist or occupational therapist was strongly associated with uptake of modifications in NSW. Frailer individuals were also more likely to accept modifications • RCT evidence suggests the biggest impact in fall reduction or prevention were interventions carried out with high risk groups, delivered by occupational therapists, and of high intensity (a comprehensive, functional assessment of participants in their home environment, with follow-up, rather than an environmental screening checklist with no functional observation) – suggests that active participation of the householder is important, to address how the environment is used by older people. By contrast, objective assessment and modification of purely environmental fall risk hazards is unlikely to be effective

Programme mechanisms (CTD)	• Many older people are reluctant to make modifications to their home – factors that facilitate compliance are a belief that modifications will reduce risk of falls, a perception that falls are not an inevitable part of ageing, and a past behaviour of home modification • Home hazard assessment intervention in Australia – frailer individuals were more likely to accept modifications, and the type of recommendation can impact on adherence, with 'normal looking' modifications such as stair rails and bath rails appearing more acceptable than other types of equipment • Previous research suggest that adherence is complex – the older person perceiving greater control over their environment has been linked to increased adherence • Comparing home hazard assessments with an occupational therapist versus unqualified trained assessors, an RCT suggests that the professional background of the person delivering the intervention influences its effectiveness – the difference in falls suggests OTs were doing the assessment better, ensuring greater adherence, or doing more than undertaking the assessment. For example, an enhanced understanding of the effect of the environment on function, or a problem-solving approach working with the participant to prioritise action may explain the lower rate of falls
Barriers / learning	• One of the main gaps in evidence is the lack of studies measuring home modifications as a single-factor intervention, meaning that in many cases the true effects of the home modification (for example, versus exercise) cannot be determined • Varied definitions of home modifications • Environment checklists show high variability in terms of the number of items assessed and which parts of the home are considered – the lack of standardised assessment limits cross-study comparisons • Although the causes of falls are multi-factorial, environmental hazards are implicated in as many as one-third of falls among older adults. Many studies of environmental hazards seem to conceptualise the environment as a static entity, ignoring how older adults interact with their environment. Assessments of person-environment fit (the functional capacity of the person) could be more effective at reducing falls than environment hazard assessment based on a checklist targeting the environment alone – observational studies suggest that the mere presence of hazards is not associated with falls. Furthermore, they need to account for the dynamic nature of some hazards, e.g. wet vs dry bathroom, changing lighting conditions • Handyperson schemes can support people to improve the safety of their homes, delivered in partnership with Home Improvement Agencies
Key references	(Blanchet and Edwards, 2018; Buck and Gregory, 2013; Carnemolla and Bridge, 2020; Currin et al., 2012; Gillespie et al., 2012; Harvey et al., 2014; Iwarsson et al., 2009; NHS Confederation, 2012; Pighills et al., 2011, 2016)

7 Area-based initiatives

7.1 Housing Action Areas (HAAs)

Aims	• Raising housing quality and removing underlying causes of housing stress in local areas of *multiple* deprivation (i.e. areas of around 300 dwellings)
Population of interest	• Neighbourhoods with a relatively high percentage of households sharing facilities, living at high densities, in privately-rented accommodation and with a concentration of low income households, including old age pensioners • No threshold was asserted, and LAs could use their own judgement to designate areas. The decision as to which areas are selected appears to have included a range of political and resource issues, in addition to measures of housing deprivation • An English HAA typically includes a few streets of pre-1919 terraced houses with back extensions and corner shops
Form	Grant funding
Funding	State and private owner - as part of the drive to improve housing quality in HAAs the 1974 Act raised the level of improvement grants in HAAs to 75 % of costs (90% in cases of hardship). The level was set at 50% elsewhere and 60% in GIAs.
Costs	Lack of data available
Implementation	It has been estimated that 700,000 dwellings are in areas which are suitable for HAA declaration. If we assume that there should be approximately 300 dwellings in each HAA this means that there are roughly 2333 potential HAAs in England and Wales. By mid-1977 only 219 HAAs containing 70,978 dwellings had been declared.
Timeframe	Introduced by the Housing Act 1974; HAAs and GIAs were replaced by 'renewal areas', under the Local Government and Housing Act 1989
Key outputs / outcomes	• It was estimated that 700,000 dwellings are in areas which are suitable for HAA declaration. Assuming there should be approximately 300 dwellings in each HAA this means that there are roughly 2333 potential HAAs in England and Wales. By mid-1977 only 219 HAAs containing 70,978 dwellings had been declared. • By March, 1976, 94 HAAs had been declared; but there were an estimate of 2,000 potential HAAs in 1976. • Early HAA s were slow to start - in many areas, housing improvement was not completed at the end of HAA declaration after five years. Furthermore, the number of housing improvements within HAAs were not impressive compared to the general pattern of grant distribution.

Programme mechanisms	• Focus on designated area, with a concentration of poor quality housing • HAAs were supposed to be 'areas where the physical conditions of the housing and conditions of the residents combine to produce a situation of poor housing conditions, and an inability on the part of the residents to improve these conditions without special help~ • Improvement grants available to owners with HAA areas to cover the large majority of improvement costs • In an HAA a local authority has the power of compulsory purchase and improvement • Key element of HAA programme was the important role played by housing associations; of first 81 HAAs declared in England and Wales, 55 were being run in co-operation with housing associations and three were run solely by HAs. • HAs registered with the housing corporation operated in HAAs by buying property from landlords, owner-occupiers and the LA, improving and converting these properties and then allocate housing to households as social rented properties. Funds for acquisition came from the housing corporation or the local authority (increasingly the former)
Barriers / learning	• Level of HAA declaration did not match the potential number of HAAs. The main reason is reported to be reduction in government funding i.e. LAs didn't have the resources required to designate and support HAAs. Also, there was reported to be a sluggish response amongst some local authorities linked to staffing, resources and/or commitment to a large housing improvement scheme. • Even with substantial grants, the repair costs could not be covered by the low incomes of many owner occupiers and landlords in HAAs. This served to undermine take-up of improvement grants. • Power of compulsory purchase and improvement rarely used by LAs; landlords unwilling to sell and LAs unwilling to enforce given politically-sensitivities. Voluntary acquisition was the main mechanism, but not used extensively. • Implicit assumption is that housing can be substantially improved by an area-based policy. BUT analysis suggests that the majority of people living in poor quality housing as measured in HAAs would not be included in a HAA area, given designation criteria. • Argued that by concentrating inadequate resources in a few selected areas the government and the local authorities did little to substantially improve poorer quality housing. • Encouragement approaches, involving incentives, are likely to have limited impact, particular on low income and older owners. They can prove a notable incentive for some landlords and 'well-established' owner occupiers, however, who can afford the costs and might either be able to secure greater rental returns on renovated properties or maximise value of the property upon sale. • Success depends upon grant uptake and grant uptake is highest reported to be highest where opportunities for profit maximisation exist.
Key references	(Christiansen, 1985; Short and Bassett, 1978)

7.2 New Deal for Communities

(Housing and the Physical Environment)

Aims	• The NDC Programme was one of the most important area based initiatives (ABIs) ever launched in England. The programme's primary purpose is to reduce the gaps between 39 deprived neighbourhoods and the rest of the country. • The Programme was designed to achieve the holistic improvement of 39 areas by improving outcomes across six themes: three 'place related' outcomes - crime, the community, and housing and the physical environment; and three 'people related' outcomes - education, health, and worklessness
Population of interest	• The 39 areas, each on average accommodating about 9,800 people, NDC partnerships implemented approved 10-year delivery plans. Each delivery plan attracted approximately £50m of Government investment i.e. a Programme average per capita investment between 1999–00 and 2007–08 of just under £450 per annum
Form	common components to the overall programmes of NDCs in relation to housing were • achieving the Decent Homes standard • improving the residential environment • undertaking improvements to the private housing sector • intensive housing and neighbourhood management • demolition and new build • development of community facilities.
Funding	Government investment and leverage of funds from other sources
Costs	Each delivery plan attracted approximately £50m of Government investment i.e. a Programme average per capita investment between 1999–00 and 2007–08 of just under £450 per annum • Spending on housing and the physical environment in the NDC Programme amounted to £427.3m from 1999–00 to 2007–08. This is 31 per cent of total NDC spend, and 13 percentage points higher than what has been spent on any of the other five themes. • NDC partnerships are estimated to have levered in around £298m of complementary funding to support their own measures equivalent to £0.70 for every £1 of NDC spend. The data is not available to enable any comparison with other area-based programmes, but one can compare this with the leverage ratios in other NDC domains: £0.88 per £1 in worklessness, £0.49 per £1 in health, £0.47 per £1 in crime, £0.43 per £1 in education, £0.19 per £1 in community development and an overall leverage ratio of £0.54 per £1 • the sustainability of housing and the physical environment outcomes depended on partner organisations mainstreaming initiatives that previously relied on NDC support.
Implementation	Quality relevant interventions included: • efforts to achieve the Decent Homes standard, including investing directly to support the modernisation of social housing, funding improvements to the exterior, such as gardens and fencing, as well as increasing security • improvements to private housing through block improvements, which included facelifts to property exteriors, energy efficiency improvements, repairs to roofs and chimneys and environmental improvements to gardens and alleyways
Timeframe	

Key outputs / outcomes	**OUTPUTS** - between 1999–00 and 2007–08 housing and physical environment outputs from the programme have included: • 31,057 homes improved or built; just under 19,800 of these dwellings were estimated to be 'additional': that is, they would not have been improved or built without the presence of the NDC Partnership • 126 other buildings in the neighbourhoods have been improved and brought back into use; 96 are estimated as 'additional' • 170 waste management recycling schemes have been implemented, of which 133 are estimated as 'additional'. **OUTCOMES** - by 2008, 84 per cent of NDC residents stated that they were either very, or fairly, satisfied with their accommodation; 2% points higher than in 2002, and the same degree of change as amongst comparator area residents • by 2008, 74 per cent of NDC residents were very, or fairly, satisfied with their area as a place to live, fully 13 % points higher than in 2002. This change was significantly greater than in comparator areas (8 % points) • between 2002 and 2008 there was no change in the proportion of NDC residents wishing to move from their current home, at 39 per cent; this compared with a 1 percentage point fall in the comparator areas and a 3 percentage point fall nationally • average property price in NDC areas increased by 70 % between 2001 and 2007 to £154,000; this was a greater increase than witnessed in comparator areas (58 per cent) or parent local authorities (63 per cent) during the same period
Programme mechanisms	• the housing element of NDC included 'inward-looking' initiatives, seeking to improve dwellings and neighbourhood infrastructure primarily for the benefit of existing residents, and 'outward-facing' programmes designed as more ambitious transformation of neighbourhoods, enhancing connectivity to external housing and labour markets and seeking to attract more demand from households living outside the neighbourhood
Barriers / learning	• Differences in change in satisfaction with accommodation between different NDC partnerships can be partly explained by three factors: the starting position is the most significant influence (those areas with low ratings in 2002 showing the largest increases by 2008), followed by the level of total NDC spend across all outcomes (the higher the spend, the larger the rate of increases in satisfaction) and those NDC areas that can be classified as 'escalators' according to the 2009 CLG typology of deprived neighbourhoods. Taken together, these three factors can explain 40 per cent of the variation in the change in levels of satisfaction • In some partnerships, a tension emerged between community preferences focused on the concerns of current residents, and housing market options focused on the long term future of the area and its sustainability. Reconciling the commitment to a bottom-up, community-led interventions and the expert advice about market conditions and how to achieve sustainability often provided challenging • There was a close correlation between effective partnership working between key housing an regeneration agencies (LA housing and planning, HAs and private developers) and success in delivering housing objectives. • Change in satisfaction with accommodation was found to be a function of change in satisfaction with repair of accommodation; satisfaction with area; vertical trust, fear of crime; visual problems with the environment and problems with social relations.
Key references	(CRESR, 2010)

8 Energy efficiency

8.1 Energy efficiency programmes – early developments

1976-1989	-	**Energy Survey Scheme** provided grants to industry for energy surveys, advice, and support for energy management
1977	-	**£407m four year programme** aimed at cutting energy demand by 10%. Included a ten-year programme to bring housing up to a basic level of insulation, supported by the **Home Insulation Scheme**, funding to improve insulation and heating controls in public sector buildings
1987	-	**EEO (part of Department of Energy)** budget cut and programmes constrained to interventions that did not directly interfere with the operation of free markets, e.g. information and advice
1990s	-	**Rise of climate policies**, especially driven by EU regulation, leading to the **Home Energy Efficiency Scheme**, 1991, providing insulation and central heating grants for poorer households (around £75m in grants annually to low-income families and pensioners). 1991-1997 around £350m spend on 2 million households
1992	-	UN framework Convention on Climate Change signed. Government agreed to return UK CO2 emissions to 1990 levels by 2000. New levy on energy bills announced to fund an **Energy Saving Trust**, but legality was challenged and pilots cancelled
2001	-	HEEP rebranded as **Warm Front** and given significant funding increase

(Mallaburn and Eyre, 2014)

8.2 Home Energy Conservation Act (HECA)

Aims	• The Act required local authorities to consider for the first time the energy efficiency of private as well as public housing stock • Authorities were given a duty to produce a strategy for the improvement of residential energy efficiency in their area by 30% in the next 10-15 years • Intention was to provide a focus for local authority activities in the energy field, bringing together housing investment, environmental initiatives, and fuel poverty programmes
Population of interest	• Applied to local authorities with a responsibility for housing provision, who became Energy Conservation Authorities (ECAs)
Form	Legal
Funding	N/A
Costs	N/A
Implementation	State
Timeframe	1995
Key outputs / outcomes	• Through the HEC Action programme (administered by the Energy Saving Trust) schemes were set up in local authorities to develop partnerships and generate private sector investment • Some authorities set up revolving loan funds offering low or no interest loans to enable lower income customers to afford investments
Programme mechanisms	• Some success in attracting private sector finance using small amounts of public sector money
Barriers / learning	• It was illegal for ECAs to grant loans to individuals, although this could be arranged through a third party such as a credit union • Lack of resources found to be the biggest constraint
Key references	(Jones et al., 2000)

8.3 Energy Efficiency Standards of Performance (EESoP)

Aims	• Targets were set on Public Electricity Suppliers, and from 2000 on all licensed gas and electricity suppliers with at least 50,000 domestic customers, to delivery energy efficiency measures to domestic households
Population of interest	• Most customers assisted under EESoP in its first four years were disadvantaged • In EESoP2 and 3, suppliers were required to focus two-thirds of their expenditure on this group
Form	• Regulation
Funding	• Levy of £1 per customer bill year (£1.20 in 2002)
Costs	• Supplier cost targets were £101.7m for EESoP1, £48.1m for EESoP2, and £110m for EESoP3 • Based on spending £1.20 per customer per fuel per year, but the onus was to meet targets as effectively as possible, and they were not required to spend a fixed amount of money
Implementation	• Private
Timeframe	• 1994-2002
Key outputs / outcomes	• Suppliers set up schemes to deliver energy efficiency measures, mainly: insulation, lighting, heating, and appliances • Insulation has been the most common measure delivered by suppliers as it provides the greatest benefit in terms of saving customers money and improving their comfort – it is also the most cost effective measure to install in terms of supplier expenditure against energy saved • Around 3 million households benefited from EESoP1, with savings of around £120 over the lifetime of the measures • Benefits from reduced energy bills and improved comfort • Most benefits have been enjoyed by disadvantaged customers – programmes were required to have a social focus to mitigate against the regressive impact of imposing a levy on all consumer's bills to pay for energy efficiency measures
Programme mechanisms	• Among the most successful way of targeting disadvantaged groups was to integrate schemes with social housing providers, offering energy efficiency savings to low-income consumers at little or no cost by levering in additional funds from housing providers • Some suppliers also targeted their own customers who were in debt • As competition was introduced in the supply market, the focus became more on the outcome (the energy saving) rather than the input (the expenditure), to develop a market mechanism that delivers savings through cost-effective measures. However, may also focus attention on the 'low hanging fruit'
Barriers / learning	• Suppliers had little practical experience of working on such programmes • Some concern that the definition of disadvantage was too broad – this was more tightly defined under the EEC • There will be contraction in the social housing market in the longer term – question of how to overcome barriers in the owner-occupied and PRS
Key references	(Ofgem and Energy Saving Trust, 2003)

8.4 Warm Front

(Replaced Home Energy Efficiency Scheme - 1991-2000)

Aims	• Improve energy efficiency for vulnerable households in fuel poverty in the PRS and owner occupation • Alleviate fuel poverty • Reduce CO2 emissions from housing
Population of interest	• Private tenure households • In receipt of certain household benefits • From 2011 – properties with a SAP rating of <55
Form	Intervention
Funding	State
Costs	• At its peak, eligible households entitled to grants of up to £3500 (or £6000 where particular technology was recommended) • Remainder paid by household or local authority / third sector • Hard to treat homes (max. grant £6000) were three times as likely to pay a contribution than homes not classed as hard to treat • Grants were 83% of scheme expenditure in 2007/8 • Public expenditure of around £3.4bn
Implementation	Private (contracted out by DECC)
Timeframe	2000-2013
Key outputs / outcomes	• 2.3m households assisted 2000-2013 • 2005-2013 922,000 properties received at least one major measure (insulation, boiler replacement, draught proofing) • On average, 2 measures were installed per household (excluding light bulb replacements) • The scheme improved energy efficiency and increased indoor temperatures; coldest properties benefited the most • Positive impacts on mental health, respiratory problems in children, and reducing deaths of older people
Programme mechanisms	• Grant funding was a key success factor – evaluation data showed that most participants surveyed would not have installed the measures without the scheme
Barriers / learning	• Level of funding restricted type of work undertaken, e.g. unlikely to cover radiators and pipework • From 2010 funds were reduced leading to criticism that fewer households could be assisted • By limiting eligibility to those in receipt of certain benefits, the scheme may have missed significant numbers who were eligible but had not claimed all the benefits to which they were entitled – 82% of 2.8m eligible households not in fuel poverty; 62% of fuel poor households not eligible • Qualitative research suggested that most beneficiaries had not undertaken any further work to improve energy efficiency after receiving Warm Front actions
Key references	(Broc, 2018; Green and Gilbertson, 2008; Ipsos MORI and University College London, 2014; Watson and Bolton, 2013)

8.5 Energy Efficiency Commitment

(Replaced EESOP)

Aims	• Requires energy suppliers to achieve targets for the promotion of improvements in energy efficiency • EEC targets were over three times the size of those required under EESoP3
Population of interest	• Suppliers are required to obtain equal energy savings from priority and non-priority groups
Form	Regulation
Funding	Levy on energy bills (fee per household)
Costs	• Cost to meet the targets is £690m • Cost effectiveness: for every £1 spent by energy suppliers, householders have benefited by £9 • Priority households contributed £26m towards the measures they received (primarily retail offers on appliances and CFLs) • Non-priority customers contributed £145m towards the measures received
Implementation	
Timeframe	2002-2005
Key outputs / outcomes	• 17 measures account for 99% of the energy saving • Most savings came from insulation, with lighting making the next biggest contribution • At least 20% of households benefited directly from EEC due to sales of CFLs and white goods appliances • Suppliers spent 55% of their direct budget for energy efficiency measures on the priority group • 23.7m CFLs were delivered to priority households, and 0.23m cavity wall insulations
Programme mechanisms	• Although there was a steady growth in condensing boiler sales during the programme, the main government action which has resulted in more than 80% of boilers now being condensing was a change in Building Regulations in 2005 • Only about half of the boiler market was actively subsidised by EEC, with the rest of the growth in the market attributed to 'free drivers' • Impact has been most marked where there was an opportunity to change the purchasing decision of the consumer to a more energy efficient solution, e.g. white goods, condensing boilers • As insulation is primarily about creating, rather than changing, a purchase decision, there were no significant signs of market transformation and suppliers had to offer insulation measures at considerable discount in order to attract sufficient sales • Without the financial incentives available to encourage consumers to choose more energy efficient products, evaluations doubted whether the same level of transformation would have been achieved
Barriers / learning	• Change in Building Regulations, coupled with incentives, and work to promote energy efficient boilers, enhanced the knowledge of heating installers
Key references	(Eoin Lees Energy, 2006)

8.6 Carbon Emissions Reduction Target (CERT)

(Replaced Energy Efficiency Commitment, 2005-2008)

Aims	• The Carbon Emissions Reduction Order 2008 required certain energy suppliers to achieve targets for a reduction in carbon emissions in the domestic sector by promoting the uptake of energy efficiency measures in domestic properties • Requires energy companies to set up schemes to promote and deliver energy saving measures to domestic energy users • Ultimate focus is to drive carbon savings
Population of interest	• Energy efficiency measures available to all consumers, but a proportion of reduction to come from low-income households • At least 40% of the target had to be met by promoting to Priority Group consumers – those in receipt of certain income-related benefits, or over 70 • 16.2 Mt CO2 had to be met by promoting to Super Priority Group (those receiving a narrower set of benefits)
Form	Regulation
Funding	Levy on consumer bills, estimated to cost £24/year for each fuel
Costs	• CERT and its extension is estimated to have cost £3.6bn • CERT delivered at an average cost to obligated parties of £13.17 per tonne of CO2 saved in nominal terms
Implementation	Private
Timeframe	2008-2012
Key outputs / outcomes	• Main areas of activity: insulation, lighting, heating, micro-generation and Combined Heat and Power (CHP), behavioural, demonstration actions, and appliances • In the first three years, insulation and lighting measures contributed the highest proportion of carbon savings. CERT extension – after 2011, compact fluorescent lamps (CFLs) were removed from CERT, leading to more focus on insulation and heating measures • Insulation measures accounted for 66% of total carbon savings, including 2.8m homes DIY loft insulation, 3.9m homes professional loft insulation, 2.57m homes cavity wall insulation, 60,000 homes solid wall insulation • 19% of all domestic properties in GB received a CERT measure over the programme. Variation geographically – just over 10% of domestic properties in London received a CERT measure, compared to 25% in the North West
Programme mechanisms	• Principal delivery mechanisms included offering measures direct to consumers, and partnering with social housing providers • Activity with social housing providers was popular with energy companies as it enabled them to target large numbers of priority and super priority group householders, and they could leverage additional funding towards the cost of measures • In many cases, insulation was offered free to private household in the priority group, and some offered cash incentives to attract those in the super priority group • Stakeholders noted benefits of area-based approaches

Barriers / learning	• Private sector households sceptical of free offers • Whilst CERT was widely delivered to private tenure households (90% of those surveyed in a national survey were owner occupiers), there were challenges engaging in the PRS • Concerns among stakeholders that CERT left a legacy of expectations among customers that measures such as loft insulation and cavity wall insulation should be free or very low-cost • Focus on 'low hanging fruit' – incentive structure encouraged delivery of the lowest cost measures, resulting in an emphasis on the easier to treat properties in more accessible areas (remote areas, and dense urban areas where access costs were higher, were less likely to benefit) • CERT beneficiaries were often not the neediest – more likely to be on higher incomes and less likely to be concerned about their financial situation. A relatively high proportion of customers claimed that they would have undertaken the measures without the discount
Key references	(Ipsos MORI et al., 2014; Ofgem, 2013; Preston and Croft, 2012)

8.7 Community Energy Saving Programme (CESP)

Aims	• To significantly reduce the fuel bills of low-income households • To improve the energy efficiency of existing housing stock in order to reduce CO2 emissions
Population of interest	• Area-based approach focused on low-income areas • Whole house approach (house-by-house and street-by-street) • Intention to engage with every household in specified area
Form	Regulation; intervention
Funding	Levy on energy bills (fee per household) (an obligation on energy suppliers, and later also on electricity generators)
Costs	• Lack of cost information for specific measures • Estimated cost incurred by obligated parties: £702 million • Delivery partners reported that contributions from obligated parties to CESP measures ranged from 10% to 100% - far lower than anticipated • This may in part reflect the competitive nature of CESP, which encourages energy companies to meet their obligation in the most cost-effective way – which includes finding partners willing to contribute to the direct cost of measures in order to minimise their own • Scheme achieved at a price to obligated parties of £32.85 per tonne of CO2 saved
Implementation	Multiple (may be managed by energy company, or funding provided to local authorities, housing associations, or other third parties to deliver)
Timeframe	2009-2012

Key outputs / outcomes	• Slow progress – by June 2011, 201 proposals had been submitted to Ofgem, equating to around 50% of target. Ultimately, most measures were delivered through 491 individual schemes – most delivered through social housing providers working in partnership with private households • Energy companied have favoured just a small number of the 15 possible measures – generally, preference for solid wall insulation plus one other measure • Of measures installed under CESP, 40% were insulation measures, 39% were heating measures – external solid wall insulation (26% of measures), heating controls (20% of measures), replacement boilers (15% of measures) • External wall insulation contributed to the majority of unadjusted CO2 saved • Feedback from recipients showed over ¾ felt warmer and were able to heat their homes adequately. All those who said it was too expensive to heat their homes before installation were now able to.
Programme mechanisms	• Previous studies have found that area-based schemes bring significant benefits in terms of take-up and cost-effective delivery • Intensive marketing and engagement in local areas improve take-up • Local authorities are critical in the successful delivery of area-based schemes –building trust, awareness, local expertise, resources • Geographical concentration delivers operational efficiencies in surveying and installation • Most stakeholders reported that CESP had successfully focused delivery on low-income areas • Knowledge, experience, and effective partnerships were crucial, particularly local authority and housing association expertise, and good stock data • CESP was often aligned with existing stock refurbishments, enhancing projects already 'ready to go', and levering in additional funding • Evaluation of Nottingham programme – 40% of those who signed up were motivated by improving home conditions. Improvements to modernise kitchens and bathrooms in addition to energy upgrade works seemed to promote higher uptake levels (upgrades occurred alongside decent homes work) • Key factor in successful engagement of private households was offering measures for free, but this was rare. Other drivers were: hearing about benefits from social housing neighbours, low-interest loans where measures were offered at cost, and the visibility of external wall insulation aided marketing to private households
Barriers / learning	• As CESP targets low-income areas, affordability issues for private households was not surprising • Unlike with social housing, there was a lack of match funding for private households, and much higher transaction costs for delivery (dealing with individuals households rather than a large landlord) • May not be possible to provide the cost of additional works under CESP, if local authority and housing association investment already committed to other areas • Significant amount of stock data needed to judge a scheme's viability • Three-year timeframe seen as too short by many stakeholders • Targeted at most deprived 10% of LSOAs, but those living in fuel poverty are not necessarily based in these areas
Key references	(CAG Consultants et al., 2011; De Laurentis et al., 2017; Elsharkawy and Rutherford, 2018; Ipsos MORI et al., 2014)

8.8 Green Deal

Policy field	Energy & climate change
Aims	• To ensure no capital costs to landlords in the PRS, thereby tackling the 'principal-agent' problem (mismatch between who pays for measures and who benefits from them
Population of interest	• Private households and energy consumers
Form	Intervention
Funding	Pay as you Save (PAYS) finance mechanism – loan financed efficiency measures, paid back over time through energy bills
Costs	• Estimates of the potential impact of the Green Deal and ECO showed costs of £10bn in installation and £17.3bn total costs, with benefits of £25.6bn, including £15bn in energy savings and £3.5bn in comfort benefits • However, it failed to attract householders or investors in large numbers and was withdrawn after a short period of implementation • Government costs of £240m, but the NAO assessed expenditure as failing to generate additional energy savings, and not value for money
Implementation	Private
Timeframe	2012-2015 (Green Deal loans funding ended 2015)
Key outputs / outcomes	• About 6,000 homes a year were retrofitted using Green Deal finance. Discontinued in 2015 after 20,000 home energy improvements funded across 14,000 homes • By the end of 2014, 14,000 households had taken Green Deal loans • Only 50% of loan applications ultimately resulted in one being arranged • Further 'nudge' mechanisms were introduced after poor uptake of the Green Deal, e.g. council tax holidays, voucher schemes, cashback funds of up to £7,600per household for installing approved measures (Green Deal Home Improvement Fund) • Cashback scheme was very successful – demand for grants far exceeded expectations, but the scheme was capped at £120m over one year – the first phase of the fund lasted 6 weeks, and funds provided during the second phase were spent in just one day • Lasting damage to the retrofit sector due to loss of momentum – sharp drop in energy efficiency measures installed in British homes. By mid-2015 the average delivery rate for loft insulation had dropped 90%, cavity wall insulation was down by 62% and solid wall insulation had declined by 57% compared to 2012. By 2017, home insulation rates were 5% of the 2012 peak rate
Programme mechanisms	• Government wanted households that benefited from measures to pay for them, rather than all energy consumers contributing as under previous schemes • Underpinned by 'Golden Rule' that that the loan is repaid at an annual rate no higher than the estimated annual energy savings gained from the new efficiency measures • Intended to overcome the landlord-tenant dilemma where the landlord bears the costs of making energy efficiency improvements, but the tenant reaps the benefits of energy cost savings. Also addressed the high upfront costs of financing improvements by tying loans to the building rather than the occupant, and paid through instalments on energy bills – therefore emphasised financial savings, and failed to engage with a broader narrative • Research into the decision-making of homeowners who undertake energy efficiency retrofitting indicates that while financial concerns are important, so are context, routine and disruption – but the Green Deal gave primacy to a neoclassical economic framing, assuming that the major barrier to action was a lack of capital

Programme mechanisms (CTD)	• The scheme was also designed to address uncertainty and lack of information by guiding households through stages, from home energy assessments to contractor selection
Barriers / learning	• If was difficult to persuade people to pay for measures themselves. Even where there was consumer interest, people were initially put off by the complexity of arranging a loan • The Golden Rule constraint meant that the average size of a Green Deal loan was £3,500, which was insufficient to finance measures such as solid wall insulation, a heat pump, or deep retrofits • Around 11% of Green Deal assessors and 14% of installers were suspended from the scheme because of poor workmanship • Pay-as-you-save schemes are better suited to well-off homeowners, whilst poorer households might require grants, and PRS households other mechanisms due split incentives between landlords and tenants • Rather than economic incentives, highlight aesthetics, comfort, health and wellbeing, alongside guaranteed energy savings and low-cost financial model • Emphasis on increasing comfort, quality of life, and value of the property may have a wider appeal as part of a home improvement scheme, rather than an environmental / green improvement scheme • Whole house retrofits and a one-stop shop that simplifies the customer interface • Whole house approach may appeal to homeowners interested in renovation who may not have considered energy efficiency measures – there is evidence that energy efficiency is of potential appeal to all households considering major renovations in their homes, regardless of the renovation they are considering. Energy efficiency improvements are more likely to therefore be incorporated into other types of home improvement – or at particular trigger points such as house purchase/sale • Given that renovation decisions are often taken over a long time period, there is an opportunity to engage homeowners during the decision process, and inform how they improve their homes • Operation in the PRS – research with PRS landlords in Wales highlighted lessons for the operation of the Green Deal: landlords understood their properties had poor energy ratings, but normalised this, emphasising very few properties nearby would achieve more than this due to the nature of the housing stock • For most landlords in this research, improvements which yielded only energy efficiency benefits were less of a priority compared to those which enhanced appearance and amenity – tenants viewed as attaching little importance to energy performance • Concern about requirements to make repayments on loans during void periods or if the tenant defaulted – suggests importance of understanding different geographical market contexts • Lack of coherence and consistency in policy creates uncertainty that hinders private sector investment • Finance mechanisms did not encourage take up of measures at the scale required for success, often due to high interest rates which averaged between 7% and 10%. Levering investment at the household level is not viewed as a viable large-scale solution – the level of finance required suggests the need to for new financial mechanisms. A low-interest mortgage or loans with rates of 2-3% is an attractive proposition, but this would likely require government guarantees of loans or subsidies to financial organisations offering such rates
Key references	(Ambrose, 2015; Bergman and Foxon, 2020; Hall and Caldecott, 2016; Marchand et al., 2015; National Audit Office, 2016; Pettifor et al., 2015; Rosenow and Eyre, 2016)

8.9 Energy Company Obligation (ECO 1-3)

Aims	• To improve homes' energy efficiency by placing an obligation on energy suppliers to install measures in homes that will cumulatively reduce CO2 emissions by a set amount • To help household keep their homes warmer and reduce their energy bills • Alongside the Green Deal, it replaced CERT and Warm Front
Population of interest	• Energy companies were told that most of the ECO target should be met by improving the energy efficiency of harder-to-treat homes (however, this requirement was reduced in late 2013) • In 2017, the scheme was changed to focus on low income, vulnerable and fuel poor households – targeted 70% of the obligation (Affordable Warmth) to low income and vulnerable households. The remaining 30% (the Carbon Emissions Reduction Obligation) was open to all households, focused on reducing carbon emissions of housing stock • July 2018 – the scheme became a 100% Affordable Warmth scheme
Form	Regulation
Funding	Suppliers pass on their costs to all customers through energy bills
Costs	• NAO did not receive data on households' contribution to measures installed under ECO, or how much measures cost suppliers • First year evaluation of ECO was delivered at an estimated cost of £1.54bn
Implementation	Suppliers can install measures or contract installers, either directly or through a brokerage platform
Timeframe	2013
Key outputs / outcomes	• 97% of home energy improvements between 2013 and 2015 were paid for by the ECO or one of the government's subsidy schemes – just 1% funded by Green Deal finance • 1.4m homes improved under ECO, installing 1.7m measures (up to 2016) • As of September 2018, delivered 2.4m improvements in around 1.9m homes • Activity skewed towards cheaper measures such as hard-to-treat cavity wall insulation • Failed to develop a market for solid wall insulation, in part due to the scale of hard-to-treat cavity wall insulation • Suppliers installed 525,000 measures, mostly boilers, through Affordable Warmth – a sub-obligation of ECO aimed at reducing bills for low-income households (to 2017)
Programme mechanisms	• Focus on harder-to-treat homes – based on analysis suggesting that previous supplier obligation schemes had absorbed most of the potential demand for cheaper measures, e.g. loft insulation • Instead of ECO blending with Green Deal finance to fund more expensive measures, ECO could act in competition, with households only installing measures using ECO
Barriers / learning	• The focus of the Affordable Warmth strand on replacing boilers in urban, gas-heater homes left rural households disadvantaged
Key references	(Department for Business, Energy and Industrial Strategy, 2019; Hall and Caldecott, 2016; National Audit Office, 2016)

8.10 Energy Company Obligation 4 (ECO4)

Aims	To support progress towards achieving the Government's fuel poverty target for England to ensure that as many fuel poor homes achieve a minimum fuel poverty energy efficiency rating (FPEER) of band C as is reasonably practicable, by 2030. *The first Energy Company Obligation (ECO) scheme was introduced in 2013* [see above]
Population of interest	• Owner occupiers • Private rented sector (PRS) • Social housing providers
Form	Obligation on energy suppliers
Funding	Households (energy suppliers recover the cost of delivering the scheme through customers' energy bills).
Cost	£4 billion over 4 years 10% of ECO3 delivery may be carried over into ECO4, subject to certain measure exclusions
Implementation	ECO4 is an obligation on larger energy suppliers to provide energy efficiency and heating measures for fuel poor consumers across Great Britain. Smaller energy suppliers (<150,000 customers) were exempt from ECO in previous phases, however, the Government is currently legislating for their inclusion in ECO4 with the option of a so-called 'buy-out' scheme.
Timeframe	ECO4 will run from 2022 to 2026
Key outputs / outcomes	• 450,000 homes to be upgraded in total. • A minimum of 90,000 solid wall measures. • A minimum of 150,000 private tenure homes in EPC bands E, F or G to be upgraded. • The scheme is designed to support upgrading fuel poor homes and homes of those unable to pay. The focus is on improving the worst-quality homes.
Programme mechanisms	Energy suppliers are obligated to deliver the scheme and they recover the costs of delivering the scheme through customers' energy bills. This scheme is therefore not a grant scheme, but an obligation placed on energy suppliers. Main policies of ECO4: • supporting households on the lowest incomes. Households in receipt of means tested benefits will be eligible. Up to 50% of the obligation target can be met under the reformed ECO4 Flex, which is designed to target households on low incomes, but not in receipt of benefits. ECO4 Flex will be voluntary for local authorities, the Scottish and Welsh governments, and obligated suppliers. The eligible pool will be at least 3.5 million homes.

	• only energy efficiency band D-G homes eligible for ECO4. For social housing and private rented accommodation, ECO4 will support the least efficient homes in bands E-G only • an EFG minimum target (this means properties with an EPC rating of E, F or G) increased to 150,000 private tenure homes, pushing greater delivery to homes needing the most improvements and attracting higher scores • a solid wall minimum target of 90,000 solid wall measures over the 4-year scheme • a broken boiler and electric storage heating (ESH) replacement cap for efficient heating to 5,000 per year. Inefficient heating systems upgraded with efficient heating will not be subject to a cap. Repairs will be capped at 5,000 homes per year, subject to certain conditions • 2 uplifts for innovation, so that improvements can be rewarded and differentiated between relative and substantial improvements against standard counterparts available in the market. Demonstration actions will be removed • score uplifts of 35% in off-gas rural areas in Scotland and Wales to incentivise delivery in areas that may be harder to reach Eligible households can save up to £300 on their energy bills. Households are eligible if they receive certain benefits, live in the least efficient social housing or if they are referred by their local authority.
Barriers / learning	Not yet started.
Key references	(Department for Business, Energy and Industrial Strategy, 2022; Department for Energy Security and Net Zero and Department for Business, Energy and Industrial Strategy, 2023; Ofgem, 2023)

8.11 Great British Insulation Scheme

(formerly known as ECO+)

Aims	To extend support provided by ECO4 (above) to tackle fuel poverty and help reduce energy bills for those who do not currently benefit from any other government support to upgrade their homes but are living in the least energy efficient homes in lower Council Tax bands, as well as targeting the most vulnerable.
Population of interest	• Owner occupiers • Private rented sector (PRS) [limited] • Social housing providers
Form	Obligation on energy suppliers
Funding	Households (energy suppliers recover the cost of delivering the scheme through customers' energy bills).
Cost	£1 billion over 3 years
Implementation	In the same way as ECO, this is an obligation on larger energy suppliers to provide energy efficiency and heating measures for fuel poor consumers across Great Britain.
Timeframe	The Great British Insulation Scheme will run from 2023 to 2026
Key outputs / outcomes	300,000 homes to add insulation to their homes. Eligible households could save up to £400 on their energy bills.

Programme mechanisms	Energy suppliers are obligated to deliver the scheme and they recover the costs of delivering the scheme through customers' energy bills. This scheme is therefore not a grant scheme, but an obligation placed on energy suppliers. The scheme is aimed at two main groups: • Those living in homes with an Energy Performance Certificate (EPC) rating D-G and within council tax bands A-D in England and A-E in Scotland and Wales. • Householders receiving qualifying benefits and living in homes with an EPC rating of D or below. There is a self-referral service at www.gov.uk where people will be referred to their energy supplier for further support or to their local council for Home Upgrade Grant (see below). Unlike the ECO4 'whole house' approach, the Great British Insulation Scheme will mostly delivery single insulation measures.
Barriers / learning	Not yet started.
Key references	Department for Energy Security and Net Zero (2023)

8.12 Central Heating Fund

Aims	• Introduced by the Department of Energy and Climate Change to achieve statutory fuel poverty targets and implement the principles of the fuel poverty strategy for England in off-gas areas • To incentivise the installation of first time central heating systems in the properties of fuel poor households who did not use mains gas as their primary heating fuel
Population of interest	• Qualification under the Energy Company Obligation, or • Household income below £16,010 and a health condition, or • Assessed as fuel poor • And property located within 23 metres of the gas main
Form	Intervention
Funding	State
Costs	• East Riding of Yorkshire Council – awarded a CHF grant of £1m, with another £1.1m in match funding through the ECO and Fuel Poverty Network Extension Scheme, the Green Deal, and some local authority and household / landlord funds • Devon – awarded £1.1m, with an additional £1.1m in match funding
Implementation	Multiple (local authority, energy companies, third sector)
Timeframe	2015-2017
Key outputs / outcomes	• Local evaluations suggest the schemes targeted vulnerable households, improving self-reported physical and mental health and wellbeing, and improving energy efficiency • East Riding of Yorkshire scheme – completed measures to 251 households. Pre-intervention, average SAP score was 32 (range: 1-55); after the average was 64 (range: 27-74). Householders reported increased ability to keep comfortably warm in cold weather • Cosy Devon partnership – central heating installations in 187 properties, resulting in improved ability to achieve affordable warmth. Harmful practices, e.g. under-heating and cutting back on essentials were reduced. Pre-intervention, the average SAP score was 39 (range: 1-71) whilst after the average was 67 (range: 41-89). 65% of installations were in owner occupied homes, 34% in PRS

Programme mechanisms	• East Riding of Yorkshire scheme – 77% conversion rate from application to approvals suggested the scheme was effectively targeting eligible individuals • Advertising was a useful way to generate referrals to the scheme • Devon scheme – good links with health professionals, and up-skilling health professionals to generate referrals. However, the conversion rate from application to installation was only 29%, raising questions about how effectively the scheme was targeted at those most in need of assistance
Barriers / learning	• Requirement to be within 23 metres of the gas main made considerable numbers of households ineligible • Difficulty in confirming eligibility, e.g. health conditions required a letter from a medical professional, confirmation of income was required, and surveys to assess the SAP rating of the property were needed – contributed to delays • Software or system to manage project delivery may enhance efficiency and data sharing • Delays nationally – most installations delivered after the original scheme completion date • Operational complexity of the scheme, the need for sequencing of support between partners, and to share data across discrete policy programmes (e.g. ECO) also contributed to delays – underlines the challenge of time-limited forms of funding. Establishing partnerships and investing in systems is more likely with ongoing funding streams
Key references	(Stephenson and Ruse, 2017a, 2017b)

8.13 Warmth for Wellbeing

Aim	15 month pilot project to offer interventions to those in fuel poverty
Population of interest	• Individual occupants • Fuel poor or cold in their homes • Brighton
Form	Legal duty; regulation and enforcement; targeted intervention; information and advice
Funding	Private (British Gas Energy Trust 'Healthy Homes' programme)
Costs	Not reported
Implementation	Third sector
Timeframe	Time-limited (2015-2017)
Key outputs / outcomes	• Reached 555 households living in cold homes, offering in-depth advice, hardship grants, energy efficiency adaptations • Hard (boiler replacement, draft repairs, insulation) and soft measures (debt advice, energy saving lightbulbs, tariff switching) – but far fewer hard measures implemented, in part due to tenure issues • Only 2 boilers replaced, 1 wall insulation, compared with 37 draught repairs, 84 LED bulbs and energy monitors
Programme mechanisms	• Individuals referred by partner organisations, or directly by phone. Active approach, e.g. GP surgeries providing contact to individuals at risk; leaflets at flu vaccination clinics • Partnership approach noted as key success factor • In-depth case work, several face-to-face meetings, follow up phone calls – hardship payments early on encouraged engagement in the longer-term process

Barriers / learning	• Clients concerned landlords would perceive negotiation about home improvements negatively • A significant proportion of clients required multiple forms of intervention to be able to heat their home adequately
Key references	(Darking and Will, 2017)

8.14 SSE Warm at Home Programme

Aims	• To improve the energy efficiency and / or thermal comfort of the homes of vulnerable homeowners
Population of interest	• Targeted at owner-occupiers who were: over 60, on a low-income, or with a disability / long-term illness
Form	Intervention
Funding	Private – from a financial penalty imposed by Ofgem on SSE for failure to meet obligations under a previous energy efficiency scheme
Costs	• Average cost of an intervention was £241 • Funding over £500 was exception, with only 15% of households where work was identified receiving this level of funding • For every £1 of WAH funding provided, an additional £2.42 (minimum) was levered in from other sources
Implementation	Multiple (private; third sector – managed by Foundations Independent Living Trust)
Timeframe	2015-2016
Key outputs / outcomes	• A wide range of measures were eligible for funding, from draught proofing and fitting reflector radiator panels, to central heating system replacement • 3678 home energy assessments took place • 71 HIAs acted as delivery partners, in 183 district councils in England • 2647 warm homes measures took place • 70% of respondents in the evaluation reported that it was easier to heat their home to a comfortable temperature following the work • The greatest health and wellbeing improvements were reported by those who received a replacement or installation associated with their heating system, and for those whom highest cost work (£1000>) was undertaken • Smaller, practical improvements could also make a big difference to daily lives, enhancing wellbeing and independence
Programme mechanisms	• Funds were channelled through 33 Home Improvement Agencies operating across England, with a central pot held by FILT for applications • Broad eligibility criteria meant that HIAs could help people who would not have qualified for other schemes • There were fewer restrictions on what could or could not be funded, enabling HIAs to use their judgement in order to meet clients' needs • HIAs were well-placed to reach more vulnerable households • HIAs were knowledgeable about other sources of funding, enabling them to lever in other funds, e.g. local authority hardship funds, money from CCGs, from ECO, and other charitable funds

Programme mechanisms (CTD)	• Older clients were reassured by the involvement of a trusted organisation, highlighting the importance of vetted contractors and handyperson services, which were seen as safe and trusted
Barriers / learning	• HIAs typically used handyperson services to install draught proofing and smaller measures, and vetted contractors for larger work • Flexibility of funding meant that HIAs were able to install 'enabling' measures, such as carrying out loft clearances, which was able to then facilitate other measures, e.g. ECO, and to put together the most appropriate solution for household circumstances
Key references	(Bennett et al., 2016)

8.15 Arbed (Wales)

Aims	• To reduce domestic energy demand and promote the diffusion of micro-renewables as part of a transition towards sustainability in the build environment • To bring environmental, social, and economic benefits to Wales through coordinating investments into the energy performance of Welsh homes • Reduce fuel poverty and carbon emissions • Support the energy efficiency and renewables supply chain
Population of interest	• Targeted at regeneration areas with low incomes • Mixed tenure communities of public and private ownership preferred • Whole house (house-by-house, street-by-street approach)
Form	Intervention
Funding	Phase 1: Funding from Welsh Assembly and leveraged funding from energy suppliers (through CERT and CESP), housing associations, local authorities and gas distribution network providers. Phase 2: European Regional Development Fund and Welsh Assembly
Costs	Phase 1: £30m from Welsh Assembly and UK DECC; £10m from energy suppliers through CERT and CESP; £20m from RSLs and local authorities bringing forward maintenance and renewal budgets
Implementation	State; private
Timeframe	2010-2015
Key outputs / outcomes	• Phase 1 measures installed: over 7500 measures, including solid wall insulation, solar PV and hot water, heat pumps, fuel switching from coal or electric • 57% of properties improved were owned by RSLs, who were key drivers in securing funding under Phase 1. 25% were owned by local authorities, and 20% owner occupied • External wall insulation was the most common measure • Phase 2: bids invited on annual basis from local authorities for up to 2 scheme areas per year, 10-20 schemes per year, with a private and social mix of 55:45

Programme mechanisms	• To develop a retrofit pathway that was distinct from the market-let pathway (exemplified by the Green Deal) promoted by the UK government • The Welsh Assembly framed retrofitting as a vehicle to promote a wider sustainability agenda – energy efficiency and carbon reduction translated into improving and sustaining people's quality of life, wellbeing of people and communities, and social justice. This provided a motivating 'vision' to draw actors together • Arbed focused on targeting the right areas first, with the worst performing stocks, and vulnerable communities, compared to the Green Deal focus on the individual house • A key driver for social housing improvements in Wales is the Welsh Housing Quality Standard, which requires that everyone has the opportunity to live in a good quality home within a safe and secure community • Phase 1 – 15 energy wardens were employed to work with Warm Wales (a community interest company) and the main contractor, to support community engagement and provide aftercare to residents. They were trained to deliver Home Energy Assessments, provide energy advice, and install Real Time Displays
Barriers / learning	• Although the scheme aimed to take a whole house approach, most properties received one or two measures • Key drivers of a large scale retrofit programme included: a good contractor who is efficient, organised, and resourced to take 'well-planned' risks; large scale funding – at an average rate in excess of 80% grant – enabled the work to go ahead and for risks to be taken, e.g. using technologies that RSLs and local authorities had not previously utilised
Key references	(De Laurentis et al., 2017; Patterson, 2012)

8.16 NEST (Wales)

(Replaced Homes Energy Efficiency Scheme (Wales))

Aims	• Improve the energy performance of housing stock, targeting groups at the highest risk of fuel poverty • To provide advice on saving energy, money management, fuel tariffs, benefit entitlement checks and referrals to other schemes, for all householders
Population of interest	• Targets the most inefficient properties (SAP rating F and G) and households on the lowest incomes (in receipt of certain means tested benefits) • For owner occupiers or privately rented homes
Form	Intervention
Funding	Mixed –approx. £58m funding 2011-2014, leveraged an additional £4.2m of ECO funding into Wales
Costs	• Funding for intervention measures capped at £8000 for on-grid and £12000 for off-grid properties • British Gas data showed an average on-grid intervention cost of around £2500 • Improvements are free for those in receipt of certain means tested benefits
Implementation	Private (contract managed by British Gas, who subcontract the advice / first point of contact service to the Energy Saving Trust. BG carry out home assessments and coordinate installation)

Timeframe	2011>
Key outputs / outcomes	• Takes a whole house approach • Differs from CERT and CESP by focusing on hard to treat homes • Household assessors recommend the most cost-effective package of measures to improve the SAP rating of the house to reach band C where possible • Scheme data suggests it has been successful in reaching older people and those with limiting illnesses • Advice and support to over 61,000 households • Referred over 20,000 households to third parties, e.g. money advice, eligibility assessment for fuel discounts • 15,603 households provided with free energy improvement measures (18,481 measures), increasing the SAP rating of 94% of properties to E or higher (from F/G) • Gas boilers accounted for the majority of measures (almost two thirds of interventions), followed by oil (11%) and loft insulation (10%) • Whole house approach – households received up to four measures, although the majority (84%) received only one measure • 59% of respondents reported installing new heating controls, e.g. a thermostat, following advice from NEST, 45% had an energy assessment carried out • Just over half of those surveyed who received advice from NEST reported being better able to head their home, whilst this was 89% for those who had received an installation
Programme mechanisms	• Successful targeting requires a robust evidence base and data matching from a variety of sources, e.g. data on housing quality, data and knowledge of local authorities • Widespread support and praise for the whole house approach, but the majority of households have only received one measure
Barriers / learning	• Advice provision alone has been less effective than improvements in achieving fuel poverty outcomes • Targeting rural houses challenging • A cap of £12,000 for off-grid properties was rarely thought to be enough to pay for a 'whole house' package • Many of those who were ineligible for household improvements were forced to make similar choices about heating to those who were deemed eligible – suggests a risk that those equally in need are unable to access support as they failed to meet qualifying criteria. Those not in receipt of benefits could fall through the gaps between schemes – potential for improved targeting based on household income • Those over 80 or with disabilities may have a high level of need but be ineligible – new health based criteria introduced from 2019 in response • Does not always work in tandem with other programmes, e.g. ECO, to ensure people were getting a full package of measures • Some felt that ECO and other insulation schemes had improved the SAP rating of households to just above the threshold, meaning they were unable to benefit from the whole house approach offered by NEST • During the scheme, applications from tenants in the PRS where landlords had already had three properties improved under the scheme were sent to Welsh Government for a decision – followed reports of multiple landlord applications as a means of upgrading rental stock for free. However, this meant that some tenants may be excluded from the scheme
Key references	(Marrin et al., 2015)

8.17 Domestic Renewable Heat Incentive (RHI)

(Part of the RHI was replaced in 2022 with the BUS, although BUS provides fixed one-off, up-front payments for certain technologies as opposed to tariffs (grant income) over time.)

Aims	A government financial incentive to promote the use of renewable heat, which can help reduce carbon emissions and meet the UK's renewable energy targets.
Population of interest	• Owner occupiers • Private rented sector (PRS) • Social housing providers
Form	Intervention
Funding	State
Cost	Payments since the start of the scheme total over £943million.
Implementation	Central Government
Timeframe	9 April 2014 – 31 March 2022
Key outputs / outcomes	As of 31 March 2023, the scheme has supported 110,830 lower carbon heating systems. Since scheme launch, accredited systems have generated approximately 8,030 GWh of renewable heat.
Programme mechanisms	The RHI set tariffs for heat generated by renewable technologies. The tariff varied by technology (air-source heat pumps, ground and water-source heat pumps, biomass boilers and solar panels) and was also adjusted (gradually reduced) over the period of the programme to reflect changing cost of renewable heat generation compared to fossil fuel based heat.
Barriers / learning	An evaluation into the administration, delivery and influence of the RHI was published in 2017, covering applications received between May 2014 and April 2016: https://www.gov.uk/government/publications/report-from-waves-1-24-of-the-domestic-rhi-census-of-accredited-applicants This report (and its positive findings) formed the basis for the UK Government to increase RHI funding to £1.15 billion in 2021. An evaluation of reforms made to the RHI in 2017 to 2018 was published in July 2023: https://www.gov.uk/government/publications/reforms-to-the-domestic-renewable-heat-incentive-evaluation.
Key references	(Department of Energy & Climate Change, 2015; Ofgem, 2023a; Ofgem, 2023b)

8.18 Green Homes Grant

Aims	To encourage and enable individuals to install energy efficiency and low-carbon heating measures in their homes in England to help reduce energy bills and greenhouse gas emissions, as part of the short-term Economic Stimulus Package announced in July 2020.
Population of interest	• Owner occupiers • Private rented sector (PRS)
Form	Intervention
Funding	State
Cost	£1.5 billion initially allocated in budget; severely underspent with a total of only £314 million worth of vouchers issued.
Implementation	Central Government
Timeframe	September 2020 to 31 March 2021 (implementation possible beyond March 2021; each voucher has an expiry date buty which time the work has to be completed)
Key outputs / outcomes	More than 133,700 applications were made, and more than 79,200 vouchers have been issued. Overall the scheme is considered a failure and waste of taxpayers' money (see Public Accounts Committee Report below).
Programme mechanisms	Homeowners or residential landlords could apply for a voucher towards the cost of installing energy efficiency improvements to their home. The voucher covered up to two-thirds of the cost of the chosen improvements, with a maximum government contribution of £5,000. If the applicant or someone in their household, received certain benefits, the voucher may have covered up to 100% of the cost of the chosen improvements. The maximum overall government contribution was £10,000. The scheme launched in August 2020 and was closed to new applicants on 31 March 2021. Grant could be combined with Domestic Renewable Heat Incentive (RHI) but it could not be combined with ECO or LAD. The available measures were split into primary and secondary measures and the voucher must be used to include at least one primary measure, such as insulation or low carbon heat (detailed list of eligible measures published on website).
Barriers / learning	Overall the scheme is considered as having underperformed. According to the Public Accounts Committee the Green Homes Grant Voucher Scheme underperformed badly, upgrading around 47,500 homes compared to the 600,000 originally envisaged, delivering a small fraction of the expected jobs and accounting for just £314 million out of the original £1.5 billion budget. Administration costs are likely to amount to more than £1,000 per home upgraded, totalling just over £50 million in all – this equates to 16% of the total spend. By August 2021, 52% of homeowners' voucher applications were rejected or withdrawn, and 46% of installer applications failed. The main reasons for failure of the scheme were that it was: • too short (voucher only valid for three months) • too complex (both for homeowners and tradespeople to navigate the cumbersome admin of the application) • too restricted (limited choice of primary measures and no whole-house approach)

Barriers / learning (CTD)	• too slow (delays in issuing vouchers) • industry could not cope with the short-term demand (lack of skilled people and short-termist start-stop intervention that did not merit any investment in upskilling/ hiring new people).
Key references	(Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, 2021; House of Commons, 2021)

8.19 Social Housing Decarbonisation Fund (SHDC)

Aims	To upgrade a significant amount of the social housing stock currently below EPC C up to that standard (or higher). It will support the installation of energy performance measures in social homes in England, and help: • deliver warm, energy efficient homes • reduce carbon emissions • tackle fuel poverty • support green jobs • develop the retrofit sector • improve the comfort, health and well-being of social housing tenants
Population of interest	• Social housing providers • Social housing tenants • Other tenure types can be included but only when social homes would be adversely aeffected without it (e.g. mixed tenures in apartment blocks) and the bid contains a minimum of 70% social housing
Form	Intervention (competition for grant)
Funding	State (an element of co-funding by the social housing provider is possible)
Cost	A total of £3.8 billion over 10 years is proposed by the Government; to date just over £1 billion has been committed (Demonstrator + Wave 1 + Wave 2). The SHDC is being delivered through: • Social Housing Decarbonisation Fund Demonstrator: £61 million awarded to 18 projects in 2020 • Wave 1 of SHDC: £179 million awarded to 69 projects in 2021 • Wave 2.1 of SHDC: £778 million awarded to 107 projects that must be delivered by 30 September 2025. Match funding from Wave 2.1 applicants provides an additional £1.1billion.
Implementation	Social housing providers
Timeframe	2020-2025

Key outputs / outcomes	• Demonstrator to learn lessons and catalyse innovation in social housing retrofit for main programme to integrate. It will retrofit more than 2,300 homes across 16 LA areas to bring them up to EPC C or higher. • Wave 1 to deliver around 20,000 social housing retrofit to EPC of C or higher (by March 2023) – the deadline for delivery was extended to June 2023 as by November 2022 only 7% of the projects were completed. • Wave 2 to improve their social homes to at least a minimum energy efficiency rating threshold of EPC Band C; except for those EPC band F/G homes that cannot reach this level that would need to reach Band D.
Programme mechanisms	• Funding and contract award from Central Government. • Competition for grant subsequently awarded to registered providers • Delivery through registered providers • Minimum project size of 100 homes per bid • Funding (grant) caps per property are in place (landlord can co-fund)
Barriers / learning	Wave 1 is lagging behind which suggests that delivery timescales need to be adjusted (or projects need to be pre-selected on the basis of a readily implementable solution with contractors already in place).
Key references	(Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, 2021a; Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, 2022; Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, 2023a; Inside Housing, 2023)

8.20 Green Homes Grant – Local Authority Delivery (LAD)

Aims	To support delivery of the target to reduce fuel poverty in England, the UK's pathway to net zero by 2050 and stimulate economic recovery following COVID-19, supporting and creating green jobs through energy efficiency and low carbon heating projects for low income households. LAD scheme (phase 1 + 2) launched 2020 with £500 million to upgrade homes of EPC D or worse (saving on energy bills and making it easier to keep homes warm). LAD scheme phase 3 (extended in 2021 with an additional £280 million). Aimed at on-gas properties with a £10,000 maximum allocation per owner-occupied property. Private rented properties can receive up to £5,000, with an additional third of the costs coming from the landlord.
Population of interest	• Owner occupiers – focus on low income households • Private rented sector (PRS) – landlords must contribute one third of the total cost
Form	Intervention
Funding	State (via Local Authorities)

Cost	• Phase 1A: grants of around £74 million were allocated to 55 projects which aimed to upgrade the energy efficiency of low-income households in over 100 local authorities across all areas of England by the end of August 2021 • Phase 1B: around £126 million of funding was allocated to 81 local authorities for delivery of energy efficiency projects, with a managed closedown of projects by the end of March 2022, and one month of additional delivery until 30 April 2022 where required. This included consortium bids submitted by a lead local authority that cover energy efficiency upgrades across multiple geographically related local authorities • Phase 2 of the LAD Scheme has allocated £300 million between 5 Local Net Zero Hubs. The 5 Local Net Zero Hubs are working with the local authorities in their region to deliver energy efficiency upgrades in low income homes across England by the end of June 2022. Local Net Zero Hubs are a collaboration of Local Enterprise Partnerships (LEPs) working together to increase the number, scale and quality of local energy projects being delivered across England. • Local Authority Delivery Phase 3 (LAD3): a third phase of the LAD scheme with £287 million available. LAD3 had a refined scope to support low-income households heated by mains gas (this was delivered as part of the Sustainable Warmth Competition which also included the Home Upgrade Grant Phase 1, HUG1 – see below); completed by March 2023
Implementation	Local Authorities
Timeframe	2020 - 2023
Key outputs / outcomes	• Phase 1 overall aims to upgrade to up to 20,000 homes • Phase 2 aims to upgrade 50,000 homes • No targets published for Phase 3. Interim data is available on the ongoing implementation of LAD (data up to end of June 2023; published August 2023; monthly updates): • To the end of June 2023, there were 23,821 measures installed in 18,634 households in LAD Phase 1. • To the end of May 2023, there were 27,038 measures installed in 20,542 households in LAD Phase 2. • To the end of June 2023, there were 17,887 measures installed in LAD Phase 3.
Programme mechanisms	The LAD scheme provides support for low income households through local authorities in England. Around £200 million of funding is also available for new projects delivering to low income households in the most inefficient homes that are on-the-gas grid in England through LAD3. The main criteria for on-gas-grid properties remain the same as those in the first two phases of LAD, including the cost caps for owner-occupier and rented properties, along with landlord contributions.
Barriers / learning	Too early to identify.
Key references	(Department for Energy Security and Net Zero and Department for Business, Energy and Industrial Strategy, 2021b; Department for Energy Security and Net Zero and Department for Business, Energy and Industrial Strategy, 2022a; Department for Energy Security and Net Zero and Department for Business, Energy and Industrial Strategy, 2022b; Department for Energy Security and Net Zero, 2023a).

8.21 Home Upgrade Grant (HUG)

Aims	• Provide energy efficiency upgrades and low carbon heating to households in England that are low income, off the gas grid and have an Energy Performance Certificate (EPC) between D and G. • Improve these homes to EPC C while decarbonising the housing stock to substantially improve performance and help tackle fuel poverty. • Phase out the use of fossil fuel heating and make progress towards the UK's 2050 Net Zero commitment to support improved household health and wellbeing by reducing the number of cold homes • Play a key role in the government's wider programme of green retrofit.
Population of interest	• Owner occupiers • Private rented sector (PRS) • Some small exceptions for social housing (see below)
Form	Intervention
Funding	State (via Local Authorities)
Cost	A total of £950 million over 2022/23 to 2024/25 • HUG1 (delivered as part of the sustainable warmth competition which ran June to August 2021): over £218 million allocated to 42 projects covering over 200 local authority areas (expected to be in delivery until March 2023) • HUG2: Up to £700 million for projects to be completed by March 2025 – now closed to applications 60% of total funding is ringfenced for rural LAs
Implementation	Local Authorities
Timeframe	2022-2025
Key outputs / outcomes	• Reduce fuel poverty by improving fuel-poor homes to EPC C by 2030 • Progress Net Zero target by phasing out of off-grid fossil fuels and transition to low-carbon heating systems • Improving properties to a space heating demand target of 90 kWh/m2/year or better where reasonable and cost effective **Interim data:** • To the end of June 2023, there were 5,025 measures installed in HUG Phase 1.
Programme mechanisms	Local authorities apply for the funding; if successful they will use the funding to install energy efficiency measures and low carbon heating to eligible homes in their area. Home owners on a low income do not contribute to the cost of upgrades. For those renting their home private landlords must contribute at least a third of the total cost of the upgrade whilst social landlords must contribute at least half of the total cost. HUG2 is only available to private landlords with four properties or fewer – social housing is only allowed for in-fill purposes, up to a maximum of 10% and only as part of area-based retrofit of mixed tenure housing. Cost caps apply (total range from £3-38k per property): • £3-24k for energy efficiency improvement • £5-14k for clean heat cost Local authorities will be asked to provide evidence on their resourcing and procurement progress to show they have contractors in place to begin delivery.

Barriers / learning	Too early to identify. Some lessons learned from HUG1 have been incorporated in HUG2, such as revised cost caps and the overall change from a grant scheme to a challenge fund for local authorities.
Key references	(Department for Energy Security and Net Zero, 2023; Home Upgrade Hub, 2023).

8.22 Boiler Upgrade Scheme (BUS)

(Replaced the Clean Heat Grant)

Aims	It provides upfront capital grants to support the installation of heat pumps and biomass boilers in homes and non-domestic buildings in England and Wales.
Population of interest	• Owner occupiers (including second homes) • Private rented sector (PRS) • Small businesses England and Wales only.
Form	Intervention
Funding	State
Cost	£450 million
Implementation	Central Government
Timeframe	2022-2025
Key outputs / outcomes	In total 90,000 boilers should be upgraded to low carbon heat by 2025. 30,000 vouchers are available until March 2023 and another 30,000 for each of the following two years.
Programme mechanisms	Acting on behalf of property owners, installers can apply for: • £5,000 off the cost and installation of an air source heat pump • £5,000 off the cost and installation of a biomass boiler • £6,000 off the cost and installation of a ground source heat pump, including water source heat pumps Home owners need to obtain quotes from MSC certified installers and the installer will check eligibility. When confirmed installer will apply on behalf of the property owner. The value of the grant will be taken off the amount the property owner pays the installer.
Barriers / learning	Application process started 23 May 2022. Up to the end of July 2023, there has been a total of 21,438 BUS voucher applications received. 18,717 vouchers have been issued, with 14,183 redemption applications received, of which 13,772 have been approved and paid. According to a Nesta report “uptake [of the BUS] has so far been slower than most people involved in the heat pump industry would have hoped. [...] it is possible that the Boiler Upgrade Scheme is failing to support installers, especially with long lags in receiving payments.”.

Barriers / learning CTD	A letter (22 February 2023) from the Chair of the Environment and Climate Change Committee (Lords Select Committee) is even more critical. Following their inquiry into the BUS, the Committee concludes that "the BUS is seriously failing to deliver against its objectives." The Committee compares the UK BUS to a French scheme (MaPrimeRenov) which has allocated £390m to the installations of heat pumps in a single year (2022)
Key references	(Department for Business, Energy and Industrial Strategy, 2022a; Ofgem, 2023c; Ofgem, 2023d; Orso & Sissons, 2022; Parminter, 2023; The National Archives; 2022).

8.23 Future Homes Standard (FHS)

Aims	To ensure that new homes built from 2025 will produce 75-80% less carbon emissions than homes built under the current Building Regulations. The Future Buildings Standard sets out energy and ventilation standards for non-domestic buildings, existing homes and includes proposals to mitigate against overheating in residential buildings.
Population of interest	All new buildings. FHS must also be adhered to when extending or renovating UK homes.
Form	Legislation
Funding	N/A
Cost	Potentially higher building cost to be borne by property owners. But residents will benefit from increased energy efficiency and thus reduced cost. It is also anticipated that property values will increase for those homes that are compliant with the FHS.
Implementation	The FHS aims to decarbonise new homes by focusing on improving heating, hot water systems, and reducing heat waste. This will be achieved in part by replacing current technologies with low-carbon alternatives. To meet the specifications set out in the 2025 FHS, the Government updated Parts F (new standards for ventilation) and L (minimum energy efficiency performance for buildings, airtightness requirements and improved minimum insulation standards) of the Building Regulations at the end of 2021. These requirements must be applied to UK homes from June 2022 and will achieve about 30% reduction in carbon emissions.
Timeframe	From 2025 (see above Part F and L of Building Regulations from June 2022). Further consultation planned (2023-2025)
Key outputs / outcomes	A 75-80% reduction in carbon emissions from new homes compared to current standards, with low-carbon heating and very high fabric standards. No new homes will be built with a gas boiler from 2025.
Programme mechanisms	Enforcement of regulation through planning control. Three metrics to be used for assessments: • Primary energy use of the building • Carbon dioxide emissions from the building (though not embodied carbon) • Fabric Energy Efficiency Standard (FEES)

Barriers / learning	Too early to assess. Some professional bodies (e.g. RIBA) argue that the mandatory 75-80% reduction in carbon emissions from buildings is not ambitious enough to meet the UK's 2050 net zero target. Whilst the regulatory change also includes existing buildings (at the point of renovation or extension) and non-domestic buildings, the average annual replacement rate of <0.5% means that 80% of the UK's current residential buildings will still be in use by 2050. Therefore the carbon reduction aimed for through the Building Regulations for new homes will only make a small, albeit still very important, contribution.
Key references	(Ministry of Housing, Communities & Local Government, 2021; RIBA, 2021).

8.24 Minimum EPC C rating by 2035

Aims	All homes sold must have an EPC C rating by 2033 (proposal included in FHS).
Population of interest	• Owner occupiers • [Private rented sector (PRS) – MEES see below]
Form	Legislation
Funding	N/A
Cost	UP to £65 billion of investment for UK required to upgrade as many homes to EPC band C by 2035 where practicable, affordable, and cost-effective.
Implementation	This proposal for owner occupied properties sits alongside the already mandatory Domestic Minimum Energy Efficiency Standard (MEES) Regulations for private rented properties. Since 1 April 2020, landlords can no longer let or continue to let properties covered by the MEES Regulations if they have an EPC rating below E, unless they have a valid exemption in place. The Government intends to raise the minimum standard to an EPC C rating by 2025/28 (new tenancies/all tenancies) for private rented properties. The Minimum Energy Performance of Buildings (No. 2) Bill was making its way through Parliament but as the 2021-2022 session of Parliament has prorogued this Bill make no further progress.
Timeframe	2033/35 onwards (some uncertainties remain over when the minimum EPC rating would come into effect as consultations are still ongoing)
Key outputs / outcomes	Not yet known.
Programme mechanisms	Not yet implemented.
Barriers / learning	Not yet started. Scale of task is huge: In England in 2019, approximately 15 million (60%) of homes were below EPC band C, most or all of which will need to be upgraded between now and 2050.
Key references	(Department for Energy Security and Net Zero and Department for Business, Energy and Industrial Strategy, 2020; Department for Energy Security and Net Zero and Department for Business, Energy and Industrial Strategy, 2023b; House of Commons, 2022).

9 Digital connectivity

9.1 Digital Connectivity

Aims	• Despite increased use of digital service and more people accessing the internet (especially in mid to later life) there are still significant numbers of people not accessing the internet. • There needs to be greater access to the internet and digital service for those who want to engage but are unable to do so. • For older populations aged between 65-74 years old there has been a marked increase in the number of people accessing the internet (rising from 52% in 2011 to 83% in 2019). However, there are still approximately 4 million people who have never used the internet.
Population of interest	• Widespread population of interest, but particular concerns with a digital divide between urban and rural populations and people mid to later life.
Form	Intervention
Funding	Private investment to cover 90% of full fibre deployment to UK premises. Public funding to cover the remainder.
Costs	The delivery of full fibre to premises is expected to cost £33 billion.
Implementation	Multiple (central government, local authorities, telecommunication providers)
Timeframe	N/A
Key outputs / outcomes	• The Government has recognised that connectivity is an essential utility and has introduced the broadband Universal Service Obligation (USO) to reduce the divide between urban and rural areas.
Programme mechanisms	• DCMS established a Barrier Busting Task Force to work with local authorities to overcome key challenges to digital infrastructure deployment. • There is currently no overarching digital inclusion programme for older people in the UK
Barriers / learning	• UK full fibre coverage is still lagging behind other develop economies, having only 8.1% compared to some areas that have achieved nearly 100% coverage. • Market regulation and competition and high deployment costs are key barriers to a full-fibre roll out. • Rolling out fibre broadband is met by barriers when trying to coordinate the work. In London, for example, across the thirty-two boroughs and the City of London each can take different approach to applying rules and permits to the planning permission. • There are complexities and challenges between property owners and landlords and a telecommunications provider granting right of access to undertake work (known as 'wayleave')
Key references	(Centre for Ageing Better, 2018a, 2020b; House of Commons DEFRA Committee, 2019; London First, 2019)

10 Methodology

An extensive evidence review was undertaken by the UK Collaborative Centre for Housing Evidence (CaCHE), which involved the identification of programmes, initiatives, interventions and practices implemented with the intention of improving the quality and/or appropriateness of housing; understanding the theory and practice of delivery; evaluating effectiveness and efficiency; and identifying critical success factors.

Searches were operationalised in a range of databases (e.g. Web-of-Science, Scopus, Google Scholar) and included web searches to identify 'grey' literature, including outputs from: the NAO, House of Commons library, research centres and think-tanks, HousingLIN, CIEH, CIH, Foundations and others. Searches also drew on learning from the local level, drawing on various networks and issuing calls for evidence through the CaCHE knowledge-exchange.

Evidence was subject to a quality review and key insights were extracted and coded under an intervention name/label (for example, private sector renewal grant; Decent Homes Programme) and against a series of categories (for example, policy field, aims, mechanisms, funding, beneficiaries). Finally, evidence was synthesised into a rounded assessment of evidence on different interventions. Evidence for synthesis was prioritised on the basis of 'fit' and quality, for example, more weight was given to findings from large-scale, multi-method, national evaluations of a defined policy intervention. However, useful insights were also harvested from less robust studies on related issues. The outcome was a compendium of past policies designed to address housing quality issues, published in May 2021 as an appendix to *Past, present and future: Housing policy and poor-quality homes*.

Policy interventions launched between May 2021 and February 2023 were subsequently updated by Arno Schmickler and included in this compendium. Statistics from these interventions were updated by the Centre for Ageing Better in September 2023 to ensure accuracy at the time of publication.

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