



Knowledge Services

Scotland's public health information service



Julie Arnot Fuel Poverty

Introduction

Fuel poverty is not new. It has been recognised as a problem since at least the 1970s. However there is now a greater acknowledgement of fuel poverty and this is reflected in policy at both Scotland and national level.¹

The Scottish Government aims to ensure that by November 2016, so far as is reasonably practicable, people are not living in fuel poverty'.² The extent to which this ambition can be fulfilled is unclear and a recent Scottish Parliament Economy, Energy and Tourism Committee report suggests that this target may not be met.³ The proportion of Scottish households experiencing fuel poverty, has risen exponentially since 2002 and the most recent (2013) Scottish House Condition Survey (SHCS) estimates that 940,000, or 39% of households were fuel poor. A quarter of households said that their heating kept them warm in winter only sometimes (20%) or never (5%). A further 8% reported that they could not afford to heat their home in winter.⁴ A key driver of this has been fuel price increases of 78% between 2002-2010.⁵ Domestic fuel bills rose by 27% (gas by 32%, electricity by 22%, liquid fuels by 31%) between 2010-2013. Fuel poverty saw a concomitant rise from 34.7% to 39.1% in the same period, and while median incomes rose and the energy efficiency of homes has improved, this has not offset the impact of rising fuel prices.⁶

Definition

Fuel poverty is an inability to pay for heating in order to adequately heat one's home. It is a product of some or all of the following factors:

¹ Scottish Government (2012a), *Fuel Poverty Evidence Review: Defining, Measuring and Analysing Fuel Poverty in Scotland*. Available from: <http://www.scotland.gov.uk/Resource/0039/00398798.pdf>

² Scottish Government's fuel poverty policy. Available from: <http://www.scotland.gov.uk/Topics/Built-Environment/Housing/warmhomes/fuelpoverty>

³ Scottish Parliament (2014), Economy, Energy and Tourism Committee, *Report on the draft budget 2015-2016*. Available from: http://www.scottish.parliament.uk/S4_EconomyEnergyandTourismCommittee/Reports/ee15-DraftBudget.pdf

⁴ SHCS provides the only official figures on fuel poverty in Scotland. It is based on interviews with householders and surveys of their properties.

⁵ Scottish Parliament (2012), *Fuel poverty*. Available from: http://www.scottish.parliament.uk/ResearchBriefingsAndFactsheets/S4/SB_12-07.pdf

⁶ Scottish Parliament Information Centre (2015), *Fuel poverty in Scotland*. Available from: http://www.scottish.parliament.uk/ResearchBriefingsAndFactsheets/S4/SB_15-13_Fuel_Poverty_in_Scotland.pdf

- High cost of heating fuel
- Household income
- The energy efficiency of a home which determines how expensive it will be to heat
- Having access to heating that is inefficient or ineffective
- Belonging to a group that spends more time at home and requires greater use of fuel (e.g. pensioners, disabled people).⁷

A household has been considered fuel poor if in order to maintain a satisfactory heating regime it would be required to spend more than 10% of its income on all household fuel use. This is defined as 21°C in the living room and 18°C in other rooms for 9 hours a day during the week for all households, and for the elderly and infirm, 23°C in the living room and 18°C in other rooms for 16 hours each day.⁸ However, this is no longer the sole definition in use. Since 2013 the UK government has defined fuel poverty using the 'low income high cost' method, where a household is deemed to be fuel poor if they have required fuel costs that are above average (the national median level), and were they to spend that amount, would be left with a residual income below the official poverty line.⁹ Definition change, adopted following publication of the Hills report¹⁰, has been contentious and critics have claimed that it artificially lifts a substantial number of households out of fuel poverty.¹¹ Hills states that his recommendation to move away from the 10% indicator is not aimed at underestimating the problem, but is an attempt to better gauge fuel poverty because the 'gravity of the problem is so great'.¹² The Scottish Fuel Poverty Forum, set up to work with the Scottish Government to tackle fuel poverty, has described the new definition, which has not been adopted in Scotland, as 'overly complex', 'immune to any movement in energy prices' and one that does not contribute to the identification or support of the fuel poor.¹³

⁷ NICE (2015), *Excess winter deaths and morbidity and the health risks associated with cold Homes*. Available from: <http://www.nice.org.uk/guidance/ng6/resources/excess-winter-deaths-and-morbidity-and-the-health-risks-associated-with-cold-homes-51043484869> ; Marmot Review Team (2011), *The Health Impacts of Cold Homes and Fuel Poverty*. Available from: <http://www.instituteofhealthequity.org/projects/the-health-impacts-of-cold-homes-and-fuel-poverty/the-health-impacts-of-cold-homes-and-fuel-poverty-full-report.pdf>

⁸ Scottish Government (2013), *Scottish House Conditions Survey 2012 - Key Findings*. Available from: <http://www.scotland.gov.uk/Publications/2013/12/3017/290984>

⁹ Department of Energy and Climate Change (2013), *Annual Report on Fuel Poverty Statistics*. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/199833/Fuel_Poverty_Report_2013_FINALv2.pdf

¹⁰ Hills, J. (2012), *Getting the measure of fuel poverty*. Available from: <http://sticerd.lse.ac.uk/dps/case/cr/CASereport72.pdf>

¹¹ See for example: BBC (2014) *Fuel poverty: Ministers 'shifting goalposts'*. Available from: <http://www.bbc.co.uk/news/uk-politics-25180992>; The Independent (2014), *800,000 people 'lifted' out of fuel poverty - by redefining it*. Available from: <http://www.independent.co.uk/news/uk/politics/800000-people-lifted-out-offuel-poverty-by-redefining-it-8976232.html>

¹² Hills, op. cit. ; Hills, J (2011). *Fuel poverty: the problem and its measurement*. Interim report of the fuel poverty review. Available from: <http://sticerd.lse.ac.uk/dps/case/cr/CASereport69.pdf>

¹³ Scottish Fuel Poverty Forum (2014), *Final report on the review of the Scottish Government's fuel poverty strategy*. Available from: <http://www.scotland.gov.uk/Resource/0044/00446911.docx>

Health and Wellbeing

The problem of fuel poverty is one that impacts on health and a connection between being fuel poor and living in a cold home with excess winter deaths and ill-health is established. Deaths from all causes increase during cold weather but cardiovascular and respiratory conditions are the key causes associated with cold weather and cold homes.¹⁴ The UK has one of the highest excess winter death rates in Europe, based on a World Health Organization estimate.¹⁵ Furthermore, international comparisons show lower rates of excess winter deaths in countries where homes are more energy efficient.¹⁶ The health problems of those living in cold homes are not experienced solely during periods of extremely cold weather, but also during 'normal' winter temperatures.¹⁷

Cold homes are detrimental to physical health and a direct health impact of living in a cold home is higher risk of mortality and increased morbidity rates. The effects are evident across all age groups. In children, cold homes impact on infant weight gain, hospital admission rates, developmental status and asthmatic symptoms; for adolescents, cold homes impact on mental health; for adults there are measurable effects of cold homes on physical health and well-being, particularly for the vulnerable or those with existing health conditions, and for older people, cold homes impact on mortality risk, physical and mental health. In addition to this, the financial stress associated with fuel poverty may impact negatively on mental health and the choice of 'eat or heat' is one that forces poorer people to choose between a sufficient, healthy diet and heating homes to a reasonable temperature.¹⁸

Population groups more vulnerable to living in a cold home include those with cardiovascular conditions, respiratory conditions (e.g. COPD, childhood asthma), mental health conditions, disabled people, those aged 65 and over, households with young children (up to school age), pregnant women and those on low incomes.¹⁹

Who are Scotland's fuel poor?

A range of social and economic characteristics (being a pensioner, economically inactive or on a low income) predispose those groups to fuel poverty and more than half of fuel poor households fall within those groups.²⁰ The SHCS for 2013 estimates that around half of single adult households are fuel poor, while single pensioners have the highest levels of fuel poverty of any household type; 66% of this group (up from 58% in 2012) are thought to be fuel poor.²¹

¹⁴ NICE op. cit.

¹⁵ UK Health Forum (2014). Fuel poverty: how to improve health and wellbeing through action on affordable warmth. http://www.fph.org.uk/uploads/UKHF-HP_fuel%20poverty_report.pdf

¹⁶ NICE op. cit.

¹⁷ Ibid.

¹⁸ Marmot op. cit.

¹⁹ NICE, op. cit.

²⁰ Scottish Government (2012a), op. cit.

²¹ Scottish Government (2014), *Scottish House Conditions Survey - Key Findings 2013*. Available from: <http://www.gov.scot/Resource/0046/00465627.pdf>

Given that the available fuel poverty statistics are not disaggregated by gender (or ethnicity or disability), it is not possible to determine how far fuel poverty is more likely to impact on female pensioners and women in general, but it is important to note that two thirds of Scotland's poorest pensioners are women²² and of all single pensioner households, 71% are women.²³ Up to 38% of single parents were fuel poor in 2013.²⁴ The vast majority, 93%, of single parents are women, and they are nearly 3 times more likely to experience fuel poverty than couples with children.²⁵ Disabled people (many of whom will experience disadvantage) and those suffering from chronic health conditions, are among those groups, including pensioners, who may be required to spend more time at home, use more fuel, and to suffer from the ill-effects of living in a cold home.²⁶

In terms of family groups, the SHCS estimates that small family households (2 adults and up to 2 children) are least likely to be fuel poor (15%), followed by small adult (25%), large adult (26%) and large family households (28%). Older smaller households are, however, much more likely to be fuel poor (46%). Unsurprisingly there is a direct correlation between fuel poverty and income, those with lower incomes experience higher rates of fuel poverty. It is estimated that 94% and 69% of those earning £200 and £200-300 per week are fuel poor respectively. The figure for those earning £300-400 per week is 40%, for those earning £400-500 it is 20% and 15% for those earning £500-700 per week. The comparable figure for those earning £700 per week or more is 2%.²⁷ A 2012 SHCS review of fuel poverty evidence estimated that 78% of low income households are fuel poor, and 73% of fuel poor households are economically inactive (retired, unemployed, disabled or have family commitments). By comparison, only 7% of people in full-time employment are fuel poor.²⁸

Fuel poverty is not a straightforward issue, and while it is a subset of general poverty, it can also impact on those on a higher income who would not consider themselves to be poor.²⁹ For example, in 2012 59% of those experiencing fuel poverty were not in receipt of tax credits, benefits or disability allowances, and many were outright home owners.³⁰ The latter are estimated to be most at risk of fuel poverty of all house tenure types, and around 56% were fuel poor in 2013. Outright owners tend to be pensioners, often with lower incomes, living in houses that are much less likely to be energy efficient, especially detached properties. Mortgage holders are least likely to suffer from fuel poverty (19%). Those in the private rented sector and housing associations experience higher rates of fuel poverty (36% and 38% respectively) although housing association properties tend to be more energy efficient. Those living in terraced, detached or pre-1919 built dwellings are more likely to be fuel poor, as are those who live in a rural area, or whose primary source of fuel is from oil or

²² McKendrick, J.H. 2014. Who lives in poverty. In: J.H. McKendrick, G. Mooney, J. Dickie, G. Scott and P. Kelly (eds.) *Poverty in Scotland: The independence referendum and beyond*. London: Child Poverty Action Group.

²³ Scottish Government (2012a), op. cit.

²⁴ Scottish Government (2014a), op. cit.

²⁵ Scottish Government (2012a), op. cit.

²⁶ NICE op. cit.

²⁷ Scottish Government (2014a), op. cit.

²⁸ Scottish Government (2012a), op. cit.

²⁹ Scottish Government (2010), *Progress Report on the Scottish Fuel Poverty Statement 2002*. Available from: <http://www.scotland.gov.uk/Resource/Doc/332313/0108135.pdf>

³⁰ Scottish Government (2012a), op. cit.

electricity. Those not on the mains gas grid are also at greater risk, with 50% of those households estimated to be fuel poor.³¹

Where are Scotland's fuel poor?

The absence of access to the gas grid (the cheapest form of domestic fuel) is a contributing factor to higher rates of fuel poverty among those living in remote and rural areas. 63% of those living in rural areas are off the gas grid, the figure for urban areas is 6%.³² Remote and rural customers in the north of Scotland receive some of the highest energy bills, reflecting the higher costs associated with providing electricity in these areas³³ and reliance on fuel such as oil, which has undergone substantial price increases.³⁴ The harsher climate in many rural and remote areas of Scotland and the concomitant longer heating season contributes to the problem.

Dwellings in rural areas tend to be older, detached and have solid walls and the proportion of homes in rural areas deemed 'hard to treat' in terms of improving energy efficiency is higher than in urban areas at 42% and 27% respectively. SHCS data for 2010 suggests that around 30% (704,000) of all dwellings are deemed 'hard to treat' in terms of reducing energy consumption. There is no formal definition of hard to treat, but typical features include solid walls, flat roofs, buildings with more than 4 storeys and those off the gas grid. The majority of hard to treat dwellings have solid walls.³⁵ Additionally, those living in rural areas in Scotland, tend to be older (45+) and to own their homes outright, particularly those living in remote rural areas.³⁶

The Eilean Siar experiences the highest levels of fuel poverty in Scotland (62%) and extreme fuel poverty (24%), much of this attributable to the factors noted above, as well as low income levels. Eilean Siar has one of the lowest household income levels in Scotland, and homes tend to be older, larger, detached and occupied by elderly residents.³⁷ 86% of dwellings are off the gas grid (the Scottish average is 15%). 63% of dwellings fail the SHCS 'energy efficient' criterion, the highest percentage across all local authority areas (the Scottish average is 41%). Orkney experiences the second highest levels of fuel poverty (58%) and extreme fuel poverty (28%), and 61% of homes fail the SHCS 'energy efficient' criterion, the third highest rate in Scotland, behind the Shetlands Islands (64%). 100% of Orkney homes are off the mains gas grid (as are all homes on the Shetland Islands).³⁸

³¹ Scottish Government (2014a), op. cit.

³² Scottish Government (2014a), op. cit.

³³ Scottish Government (2014b), Progress Report on the Scottish Fuel Poverty Statement 2002. Available from: <http://www.gov.scot/Resource/0046/00468801.pdf>

³⁴ Scottish Government (2012a), op. cit.

³⁵ Scottish Government (2012) *Energy Use in the home: Measuring and Analysing Domestic Energy Use and Energy Efficiency in Scotland*. Available from: <http://www.gov.scot/Resource/0039/00398667.pdf>

³⁶ Scottish Government, equality evidence. Available from: <http://www.gov.scot/Topics/People/Equality/Equalities/DataGrid/Age/AgeRuralEnv>; Scottish Executive (2003), *Living in Scotland: An Urban-Rural Analysis of the*

Scottish Household Survey. Available from: <http://www.gov.scot/Resource/Doc/47133/0031405.pdf>

³⁷ The Energy Advisory Service (2014), Fuel poverty report 2014. Available from:

http://www.theenergyadvisoryservice.co.uk/downloads/FuelPovertyReport2014_Email-Layout.pdf

³⁸ <http://www.gov.scot/Resource/0046/00467518.xlsx>

Higher than Scottish average (36%) fuel poverty rates are experienced across primarily rural areas, but not exclusively so, including Highland (50%), Dumfries and Galloway (45%), Aberdeenshire (43%), Argyll and Bute (43%), Shetland Islands³⁹(43%), Scottish Borders (43%), North Lanarkshire (41%) Stirling (38%). North Ayrshire (39%) South Ayrshire (39%), Inverclyde (38%), Angus (37%). The areas of Scotland, often central and urban areas, that display rates of fuel poverty on or below the Scottish average include Moray (36%), East Ayrshire (35%), Clackmannanshire (35%), Perth and Kinross (35%), Fife (34%), East Lothian (34%) South Lanarkshire (33%), East Renfrewshire (33%), East Dunbartonshire (33%), Falkirk (32%), Midlothian (31%) West Dunbartonshire (30%) Renfrewshire (29%) and West Lothian (23%). Of the Scottish cities, Dundee experiences higher levels (42%) of fuel poverty than Glasgow (36%), Aberdeen (30%) and Edinburgh (26%).⁴⁰ It is assumed that these figures will mask considerable variation across rural areas and within cities.⁴¹

Key Initiatives

There is no UK wide approach to tackling fuel poverty and improving energy efficiency of homes, and strategies diverge across the constituent countries.⁴² The range and breadth of schemes and interventions in Scotland is complex and a number of agencies (government, non-profit, private sector, local authority, housing associations) fund, provide or manage fuel poverty and energy efficiency advice, measures and loans.

Benefits / Discount Schemes

At UK level the non means-tested Winter Fuel Payment (WFP) provides those born on or before 1952 (for winter 2014-2015) with £100 to £300 pounds to help pay towards fuel bills.⁴³ Although there is no obligation to spend the payment on fuel bills it is thought that it does play a part in reducing the extent of under-heating among low-income households. WFP is not without its critics who argue that it only temporarily lifts some people out of fuel poverty, for them to fall back into fuel poverty again during following winters, and that it is poorly targeted (at a cost of several billions of pounds each year) in that most of its recipients are not fuel poor.⁴⁴ Nevertheless, a recent study, an econometric estimation of the impact of WFP on excess winter mortality, in the *Journal of Public Health* suggests that its impact (in England Wales) may be very positive and responsible for a reduction in excess

³⁹For further information about fuel poverty in the Shetland Islands see the recent Citizens Advice Bureau report. Available from: <http://www.cas.org.uk/system/files/Fuel%20Bills%20Survey%20Report.pdf>

⁴⁰ <http://www.gov.scot/Resource/0046/00467518.xlsx>

⁴¹Changeworks provides a useful map of Scotland which highlights the areas most affected by fuel poverty: http://www.changeworks.org.uk/sites/default/files/Fuel%20Poverty%20Mapping%20at%20Small%20Area%20Level_HRIS_26August14.pdf

⁴²National Energy Action. *UK fuel poverty monitor*. Newcastle Upon Tyne. National Energy Action. c. 2013. Available from:

[http://www.nea.org.uk/Resources/NEA/Publications/2013/Fuel%20poverty%20monitor%202014%20\(WEBSITE%20COPY\).pdf](http://www.nea.org.uk/Resources/NEA/Publications/2013/Fuel%20poverty%20monitor%202014%20(WEBSITE%20COPY).pdf)

⁴³ See <https://www.gov.uk/winter-fuel-payment>

⁴⁴ Howard, R. (2015). *Warmer Homes Improving fuel poverty and energy efficiency policy in the UK*. Available from: <http://www.policyexchange.org.uk/images/publications/warmer%20homes.pdf> ; Hills (2012), op. cit.

winter mortality, although the author states that some of the data used to support the study may be inaccurate.⁴⁵

The Cold Weather Payment targets those in receipt of various other benefits (Pension Credit, Income Support, income-based Jobseeker's Allowance, income-related Employment and Support Allowance or Universal Credit) with £25 for each 7 day period of very cold weather between 1 November and 31 March.⁴⁶

The Warm Home Discount scheme offers (for 2014-2015) a discount of £140 on electricity bills during the winter months. It is paid only to those whose supplier is part of the scheme or where individuals are in receipt of the Guarantee Credit element of Pension Credit. Some suppliers offer the discount to vulnerable groups, suppliers determining who falls into that group. Recipients are contacted by suppliers to inform them that they qualify. Payment is not made directly to the customer but is deducted from bills.⁴⁷

Local schemes include, for example, the Affordable Warmth Dividend, a Glasgow City Council initiative which provided £100, between November 2014 and March 2015 to all of those aged 80 or older.⁴⁸

Local Authorities

A significant role in identifying and tackling fuel poverty is played by local authorities in Scotland who are required by the Housing (Scotland) Act 2001, to develop strategies which ensure "so far as reasonably practicable that persons do not live in fuel poverty." This applies to all housing tenures. Local authorities are expected to define the nature of locally experienced fuel poverty and how its causes (social, economic and environmental) differ or correspond with national trends.⁴⁹ Broadly, local authority aims and activities tend to revolve around all, or some, of the following themes:

- The provision of advice, energy efficiency awareness raising, referrals and signposting
- Income maximisation and debt advice
- The identification of fuel poor households
- To ensure energy efficiency in council properties by 2015 to meet Scottish Housing Quality Standards
- To improve the fuel and energy efficiency of all homes
- The use of the Energy Company Obligation (ECO) and other sources of private and Scottish Government sector funding to deliver energy efficiency measures.

At national level, Home Energy Scotland, funded by the Scottish Government and managed by the Energy Saving Trust, provides a telephone helpline and energy advice from local

⁴⁵ Iparraguirre, J. (2015). *Have winter fuel payments reduced excess winter mortality in England and Wales?* Journal of Public Health, (2015) 37 (1): 26-33. <http://jpubhealth.oxfordjournals.org/content/37/1/26.abstract>

⁴⁶ See <https://www.gov.uk/cold-weather-payment>

⁴⁷ See <https://www.gov.uk/the-warm-home-discount-scheme/overview>

⁴⁸ See <https://www.glasgow.gov.uk/affordablewarmth>

⁴⁹ Scottish Government and COSLA (2009), *Guidance to local authorities on fuel poverty*. Available from: <http://www.gov.scot/Resource/Doc/273879/0081848.pdf>

centres across Scotland.⁵⁰ The comprehensiveness of provision of energy and fuel poverty advice at local authority level is not clear. However local authority approaches include Glasgow's Home Energy Advice Team, a collaboration including Glasgow City Council, housing associations and the Wise Group. Advice, aimed at all householders and tenants, extends to fuel bill reduction, tariffs, billing assistance, benefits health checks, access to grants, discounts and white goods and referral to financial advisors.⁵¹ Similar services are offered by The Dundee Energy Efficiency Advice Project (DEEAP), a Dundee City Council project,⁵² Allenergy (Argyll, Lomond and the Islands Energy Agency), a charity set up by the Argyll and Bute Council⁵³, TIG - Energy Advisory Service in the Eilean Siar⁵⁴, and Save Cash and Reduce Fuel (SCARF), a social enterprise, that operates Home Energy Scotland in the north east of Scotland.⁵⁵ A significant provider of energy advice services and projects in the Edinburgh area is Changeworks, an environmental charity, providing a combination of energy efficiency, billing and income maximisation advice.⁵⁶

Local authorities deliver, or have delivered, a significant proportion of Scottish Government fuel poverty and energy efficiency initiatives such as the now superseded Home Insulation Scheme / Universal Home Insulation Scheme which provided free energy assistance measures. The schemes attracted funding from major energy suppliers through the Carbon Emissions Reduction Target (CERT) and the Community Energy Saving Programme (CESP).⁵⁷ Current activity is now focussed on the Home Energy Efficiency Programmes for Scotland (HEEPS). It is comprised of:

- **Area Based Schemes:** This receives the major share of funding and focusses on private and mixed tenure (private / social) sector properties in fuel poor areas. Up to £60m was to be distributed during 2014-15 to local authorities who deliver this work. Schemes are free to householders. It is expected to lever in further funding from the Energy Company Obligation (ECO), which places a legal obligation on larger energy suppliers to deliver efficiency measures, particularly for vulnerable groups and hard-to-treat homes.⁵⁸ The Scottish Government estimates that £170m was received via the ECO during 2013-2014 however changes to the ECO passed by the UK Parliament in late 2014 might reduce the proportion of ECO funds available.⁵⁹ The majority of ECO measures installed in the UK have focussed on cavity wall and loft insulation and boiler upgrades. Solid wall insulation (aimed at hard to treat properties) has been provided much less frequently⁶⁰
- **Affordable Warmth:** This is offered to those who are vulnerable to fuel poverty. Energy efficiency measures are installed and paid for via the ECO

⁵⁰ See <http://www.energysavingtrust.org.uk/domestic/content/home-energy-scotland>

⁵¹ See <http://www.g-heat.org.uk/>

⁵² See <http://www.dundeecity.gov.uk/housing/energyadvice>

⁵³ See <http://www.alienergy.org.uk/>

⁵⁴ See <http://www.theenergyadvisoryservice.co.uk/aboutus.html>

⁵⁵ See <http://www.scarf.org.uk/what-we-do/home-energy-scotland/>

⁵⁶ See <http://www.changeworks.org.uk/projects/our-energy-projects/476/>

⁵⁷ Scottish Government (2014b), op. cit.

⁵⁸ See: <https://www.ofgem.gov.uk/environmental-programmes/energy-companies-obligation-eco>

⁵⁹ Scottish Parliament Information Centre (2015) op. cit.

⁶⁰ House of Commons Library (2014), ECO, the Energy Company Obligation. Available from: <http://www.parliament.uk/briefing-papers/SN06814.pdf>

- **Energy Assistance Scheme:** This provides grants to eligible home owners and private sector tenants for insulation and heating measures. The scheme has funding of £16m during 2014-15⁶¹
- Upcoming work (from late 2015 onwards) will direct Scottish Government funds via **Warmworks Scotland** (formed by Changeworks, Energy Saving Trust (a social enterprise), and an SME, Everwarm) which will aim to provide a range of measures (insulation, heating, renewable energy, solar, thermal, biomass) across up to 28,000 fuel poor and vulnerable households.⁶²

Further Scottish Government funds are channelled into interest free loans to owner occupiers to install or connect to heating systems using renewable energy,⁶³ the Community and Renewable Energy Scheme to encourage community ownership of renewable energy (biomass, hydro, wind turbines, solar)⁶⁴ and the District Heating Loan Fund aimed at local authorities and registered social landlords among others.⁶⁵

The following case studies show how HEEPS and ECO work across an urban (Dundee) and rural (Eilean Siar) local authority area:

During 2014-2015 more than £1.7m of HEEPS Area Based Scheme funding was allocated to Dundee City Council by the Scottish Government. It has been used to pay for improvements to private sector housing stock, such as ex-council houses. HEEPS is typically spent on multi-tenure blocks of four properties (e.g. two socially rented, two privately owned) requiring external wall cladding. The city council's capital budget pays for the rented homes while HEEPS and ECO funds pay for the treatment of the privately owned homes. Wall insulation costs are around £8,000 per property, which many owner-occupiers may be unable to pay. HEEPS means that low income owner occupiers do not need to pay upfront costs for improved insulation. 260 properties have received solid-wall insulation treatment in Dundee, at a total cost of £2.6m (Approximately £720,000 of this came from the council's capital budget, £1.5m from HEEPS and £260,000 from ECO).

In the Eilean Siar, fuel-poor homes tend to be detached, privately-owned and off the gas grid. The local authority contracts a local not for profit Tighean Innse Gall (TIG) to deliver their fuel poverty programme. During 2013/14 TIG helped treat 100 houses with external wall insulation plus several hundred more with various forms of insulation. The average costs per house of external wall insulation was £17,500 (compared to £8,000 in Dundee), with larger wall areas to cover, added logistics costs and less opportunity for 'economies of scale' savings. For external wall insulation, TIG requires HEEPS spend per house of £7,500, a customer contribution of £1,750, an administrative/enabling fee from TIG of £3,000 and average ECO spend of around £5,000. This funding ratio differs from the £3 ECO to £1 HEEPS ratio anticipated by the Scottish Government.

Source: Scottish Parliament Information Centre (2015), *Fuel Poverty in Scotland*. Available

⁶¹ See <http://www.eas.org.uk/page.php?id=3206>

⁶² See <http://news.scotland.gov.uk/News/Tackling-fuel-poverty-186d.aspx>

⁶³ See <http://www.greenerscotland.org/warm-homes/advice-grants/home-renewables-loan-scheme>

⁶⁴ See <http://www.localenergyscotland.org/>

⁶⁵ See <http://www.energysavingtrust.org.uk/scotland/businesses/getting-support/district-heating-loan>

from: http://www.scottish.parliament.uk/ResearchBriefingsAndFactsheets/S4/SB_15-13_Fuel_Poverty_in_Scotland.pdf

There are a number of examples of housing association and local authority interventions aimed at improving energy efficiency and reducing fuel bills. The evidence is patchy, and scattered across many sources, but there are examples of use of biomass heating systems (i.e. wood and pellets that are biological in origin), ground source heat pumps (using ground temperature as a source of heat) and solar power, for heat and hot water for tenants and residents in domestic settings across a limited number of properties, some of which use meters to allow residents to control heat use.⁶⁶ More substantially, although district heating schemes have been slower to develop in Scotland than in other parts of Europe (such as Scandinavia)⁶⁷ there are pockets of activity. Such schemes use a single heat source to supply hot water or steam to a cluster of properties, such as for heating and hot water. Using renewable resources, systems can be based on a boiler or a combined heat and power (CHP) system fuelled by biomass, such as wood chips and can achieve greater efficiencies in comparison with electrical generation plants. The source of fuel can be renewable (e.g. biomass) or fossil fuel.⁶⁸

Aberdeen offers several examples of CHP provision across both housing and non-domestic use public buildings. These schemes are developed and operated by Aberdeen Heat and Power Ltd. a non-profit set up by Aberdeen City Council. Three CHPs generate electricity across hundreds of dwellings and public buildings, at four sites. The company estimates that carbon emissions from the supplied buildings have reduced by 45% and typical fuel costs to tenants have been reduced by 50% over previous heating systems. The City Council aims to connect all of the city's 52 multi-storey housing blocks to district heating systems.⁶⁹

In Glasgow a CHP has been installed by Cube Housing Association in Maryhill, comprised of tower blocks and maisonettes. The centralised boiler generates heat, electricity and hot water and replaces electric storage heating.⁷⁰ SSE Heat Networks has provided the gas driven CHP, as well as overcladding and new windows, for 1,300 tenants and 300 owners. Cube estimates that this scheme reduces heating costs by an average of 25%, and saves 7,000 tonnes of carbon emissions every year.⁷¹ The views of 154 residents (a 10% sample) of the Wynford estate have been captured by *Heat and the City*, a research group based at Edinburgh University. Many were found to have been dissatisfied with the old electric

⁶⁶ Examples include Fyne Homes Housing Association, Hanover Housing Association, West Highland Housing Association, Lochalsh and Skye Housing Association, Albyn Housing Society, Port of Leith Housing Association, Orkney Housing Association, Highland Council, Glasgow Housing Association, and Dumfries and Galloway Housing Partnership/ Dumfries and Galloway Council.

⁶⁷ Hawkey, D. (2012), *District heating in the UK: A Technological Innovation Systems analysis*, Environmental Innovation and Societal Transitions, vol 5, pp. 19-32. Available from:

http://www.research.ed.ac.uk/portal/files/14773640/Hawkey_2012_UK_DH_TIS.pdf

⁶⁸ Scottish Government (2011). *Community renewable energy toolkit*. Available from:

<http://www.gov.scot/Resource/Doc/917/0115761.pdf>

⁶⁹ See <http://www.aberdeenheatandpower.co.uk/about/> Aberdeen City Council (c.2012), *Aberdeen Local Housing Strategy 2012-2017*. Available from: <http://www.aberdeencity.gov.uk/> / See also Energy Saving Trust (2003), *Aberdeen City Council: a case study of community heating*. Available from:

<http://www.theade.co.uk/medialibrary/2011/04/07/aca68579/Aberdeen.pdf>

⁷⁰ See: http://www.theade.co.uk/wyndford-estate-glasgow_1698.html

⁷¹ See: <http://www.cubehousing.co.uk/>; <http://www.gov.scot/Resource/0041/00416501.doc>

heating and fuel poverty was prevalent. Half reported a longstanding illness or disability, and almost two thirds were taking prescribed medicines. A follow up study of residents, post installation, reports that satisfaction with heating has risen sharply with a dramatic fall in the proportion of residents reporting that they felt cold at home in winter. Heating costs have not necessarily fallen for all users, however far fewer residents, especially tenants, report using extreme ways of coping with cold homes. The report states that it is too soon to determine if there has been an improvement in residents' health although there may be a modest improvement in reported respiratory conditions.⁷²

Further examples include Dundee City Council's (working with Scottish Gas), district heating system for flats and multi-storeys blocks, including in areas of deprivation. It is anticipated that these activities will reduce fuel bills by at least 30%.⁷³⁷⁴ In Edinburgh, district heating systems have been installed across several concrete built multi-storey blocks at Leith. Further systems have been installed for 172 flats in Niddrie, an area of deprivation. It is estimated that the heating system will reduce fuel bills for residents of 50%.⁷⁵

Impact

A short appraisal of current energy efficiency and fuel poverty schemes in Scotland has recently been published by Energy Action Scotland (EAS) and is based on a summary of a discussion and participant views between EAS members (representing various organisations and companies) Scottish Government and the Scottish Fuel Poverty Forum in 2014.⁷⁶ The summary states that there is a lack of monitoring and evaluation of outputs of the major schemes, making it difficult to track progress and determine what works well, and therefore a number of points, and criticisms of current activity, raised in the discussions are worth reproducing in brief here.

Budgets are thought to be insufficient, especially if the ECO is cut. The ECO is deemed too complex and eligibility of customers difficult to establish. While Area Based Schemes are thought to work well, the use of the Scottish Index of Multiple Deprivation to identify areas is considered restrictive, and one that fails to recognise low population / high deprivation rural areas (rural and off gas grid areas are considered to be losing out). It is thought that schemes are reverting to installing easy insulation measures, to the detriment of harder to treat insulation. Low income and not benefits are thought to be a better indicator of who should receive assistance and more data sharing (such as that taking place between the Department for Work and Pensions and energy suppliers) is required to identify the

⁷² See http://www.heatandthecity.org.uk/resources/documents/wyndford_estate

⁷³ Dundee City Council (c. 2013), *Local Housing Strategy 2013-2018*. Available from: <http://www.dundee.gov.uk/sites/default/files/publications/LHS%202013%20-%2018%20Final.pdf>

⁷⁴ Scottish Government (2013), *Greener Homes Prospectus*, 3rd Edition. Available from: <http://www.gov.scot/Resource/0041/00416501.doc>

⁷⁵ See http://www.heatandthecity.org.uk/dh_vanguards_network/dh_projects; www.edinburgh.gov.uk; Edinburgh City Council (2011), *City Housing Strategy 2012-2017*. Available from: http://www.edinburgh.gov.uk/download/meetings/id/34414/item_no_11_-_city_housing_strategy_2012-2017

⁷⁶ Energy Action Scotland (2015). *Reaching the Target to End Fuel Poverty by 2016*. Available from: <http://www.theclaymoreproject.com/uploads/associate/365/file/EAS%20Publications/Reaching%20the%20Target%20to%20End%20Fuel%20Poverty%20by%202016.pdf>

vulnerable. In terms of service provision, the activity deemed most worthwhile is the single point of access one-stop-shop model, for advice and signposting, with a need for more in-depth face to face advocacy and a multi-agency approach. The delivery of energy advice is thought to be insufficiently funded and there is a need for integration of services (e.g. energy efficiency advice and benefits or tariff checks) and for income maximisation to be embedded in all energy efficiency / fuel poverty programmes. The summary also states that frontline services need to be more aware of the role they can play. An example was provided of a local authority (Fife) which is using 'trigger points' (hospital discharge, maternity, premature births) to make referrals for benefits and tariff checks. It further states that there needs to be more formal links at a high level with Social Services and the NHS.⁷⁷

Impact on health

Several Scottish intervention studies have sought to determine if improvements to the energy efficiency of homes have had a concomitant positive impact on health. For example, a study by Lloyd et al (2008) focussed on the upgrading of two blocks of flats (36 properties) in the Easterhouse area of Glasgow experiencing significant problems with cold, damp and mould, with two similar blocks for controls. The intervention entitled 'Heatfest' supplied insulation, draught proofing, double glazing, gas central heating, solar panels, dual purpose heat recovery system and inclusion of front and back verandas within internal living areas. The authors state that for those receiving the intervention, systolic and diastolic blood pressures fell very significantly ($p < 0.000$). There were improvements in general health reported subjectively, and a reduction in medication use and hospital admissions. Spending on heating costs fell. The authors state that there were no changes in the control subjects in any of these measures.⁷⁸

A subsequent study by Walker et al (2009) assessed the impact of a publicly funded domestic heating programme on self-reported health. This was a prospective controlled study of 1281 households receiving new central heating with 1084 comparison households who did not. The study sought to measure the impact of improved heating on 30 individual outcomes representing various symptoms and health conditions, focussed primarily on cardiorespiratory conditions. The authors state that 5 of the 30 outcomes displayed statistically significant associations with the provision of central heating, which may also have been associated with a reduced probability of receiving a first diagnosis of heart disease or high blood pressure. The authors state however that their findings must be treated with caution due to self-reporting and the limited time period of the study.⁷⁹

⁷⁷ Ibid.

⁷⁸ Lloyd, E. McCormack, C. McKeever, M. Syme, M. *The effect of improving the thermal quality of cold housing on blood pressure and general health: a research note.* Journal of Epidemiology and Community Health 2008;62:793-797

⁷⁹ Walker, J. Mitchell, R. Petticrew, M. Platt, S. *The effects on health of a publicly funded domestic heating programme: a prospective controlled study.* J Epidemiol Community Health 2009;63:12-17. For further information about this work see: Platt, S. Mitchell, R. Petticrew, M. Hopton, J. et al. *The Scottish Executive Central Heating Programme: Assessing Impacts on Health.* Edinburgh: Scottish Executive Social Research, 2007. Available from: <http://www.gov.scot/Resource/Doc/166025/0045176.pdf>

A 2010 study of an intervention to provide elderly COPD patients in Aberdeen with energy efficiency measures recruited 178 participants (59 intervention, 59 control and 60 participants who had agreed to indoor monitoring) although due to various reasons (e.g. concerns about costs, loans and disruption) few participants agreed to receive the intervention. 25 of 59 intervention properties received measures, while others, including within the control group, sought energy improvements outwith the original randomisation. The authors conclude therefore that their study indicates that most elderly COPD patients will not take up energy efficiency measures when offered to them. However among those who did receive an intervention, outwith the original randomisation, the authors state that there were significant improvements in respiratory symptoms.⁸⁰

At systematic review level, three reviews have considered if housing improvements, including warmth and energy efficiency measures, improve health. A further review is an economic analysis of the health impacts of housing improvement studies.

A 2001 review (Thomson et al) identified four studies that found that energy efficiency measures improve respiratory and other symptoms, only one study adjusted for potential confounding variables. High rates of attrition in this and most other studies limited the generalisability of the findings.⁸¹ A subsequent 2009 review (Thomson et al) identified 19 studies following improvements in warmth or energy efficiency or both (e.g. insulation, central heating, improved flued heat source, benefits advice). The authors conclude that improvements in warmth, in particular, can lead to tangible improvements in health, but the potential for health benefits may depend on careful targeting of the intervention and baseline housing conditions.⁸²

A further (2013) review (Thomson et al) aimed to assess the health and social impacts on residents following improvements to the physical fabric of housing. Studies which assessed change in any health outcome following housing improvement were included. The authors identified 39 studies (located in high income countries within the last 30 years) including refurbishment, installation of central heating, insulation, relocation and rehousing. 17 studies were identified that assessed the health impacts of warmth and energy efficiency improvements, conducted post 1980 in high income countries (primarily the UK, including the Scottish based studies identified above, as well as New Zealand, Germany and Denmark). 13 were conducted after 2000 and were deemed relevant to modern day housing conditions. Most of the interventions were delivered to low income households and included installation, upgrade or repair of central heating, installation of insulation, double glazing, or a combination of these, and several included advice on welfare benefits. The authors state that it would appear that improvements to housing conditions can lead to improvements in health. Investment which improves thermal comfort in the home can lead to health improvements, especially where the improvements are targeted at those with

⁸⁰ Osman, L.M. Ayres, J.G. Garden, C. Reglitz, K. Lyon, J. Douglas, J.G. A randomised trial of home energy efficiency improvement in the homes of elderly COPD patients. *Eur Respir J.* 2010 Feb;35(2):303-9.

⁸¹ Thomson, H. Petticrew, M. Morrison, D. *Health effects of housing improvement: systematic review of intervention studies.* *BMJ.* 2001 Jul 28; 323(7306): 187–190. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC35268/>

⁸² Thomson, H. Thomas, S. Sellstrom, E. Petticrew, M. *The Health Impacts of Housing Improvement: A Systematic Review of Intervention Studies From 1887 to 2007.* *Am J Public Health.* 2009 November; 99 (Suppl 3): S681–S692. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2774202/>

inadequate warmth and those with chronic respiratory disease. Housing that is an appropriate size for the householders and is affordable to heat is linked to improved health and may promote improved social relationships within and outside the home. In addition, the provision of adequate, affordable warmth may reduce absences from school or work.⁸³

Further work by Fenwick et al (2013) reviews 25 studies (from those identified by the 2009 systematic review noted above) that have reported costs and economic analysis of housing improvements, the majority of which were UK focussed. The authors state that most of the studies provide data on intervention and / or recipient costs but have missed opportunities to run economic analysis, even where there has been data to support this. They conclude that there is a need for future studies to plan an economic evaluation alongside the intervention as a means of allowing for the identification of those policies and interventions that provide good value for money.⁸⁴

A recent London based intervention, not included in Thomson's 2013 review, focusses on the barriers to switching energy tariffs among 151 residents (black and ethnic minority groups, aged 75 or over, families with young children) 94% of whom were in receipt of state benefits. Researchers interviewed participants about their experience of switching, their finances and current energy supplier and provided advice on switching in the form of printed materials and website access. A follow up interview discussed the usefulness of the intervention, barriers to switching and information needs. 19 participants (13%) tried to switch and 13 actually did so, although others were actively looking to switch. The proportion of participants seeking to switch was thought to be similar or higher than figures for those switching among the general public across a 12 month period. The study identified a high level of disengagement, apathy and barriers to switching (e.g. scepticism about saving money, loyalty to current providers) particularly for vulnerable people with complex lives. The authors identified a need for consumer advice, representation and advocacy in complex markets such as the energy market and acknowledged that due to the small sample and non-random sampling method the generalizability of their findings is limited.⁸⁵

NHS and partner activity

How far the interventions and schemes described above tackle fuel poverty, contribute to improving the health of those who receive them or contribute to savings for the NHS is not clear. In the UK it has been estimated that the annual cost to the NHS of treating disease due to cold private housing is over £850m and this does not include further spending by social services, or losses due to work absence.⁸⁶ Therefore there is a clear rationale for

⁸³ Thomson, H. Thomas, S. Sellstrom, E. Petticrew, M. *Housing improvements for health and associated socioeconomic outcomes (Review)*. Cochrane Database of Systematic Reviews 2013, Issue 2. Art. No.: CD008657. Available from: <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008657.pub2/pdf>

⁸⁴ Fenwick, E. Macdonald, C. Thomson, H. *Economic analysis of the health impacts of housing improvement studies: a systematic review*. Journal of Epidemiology and Community Health. 2013 Oct;67(10):835-45.

⁸⁵ Lorenc, A. Pedro, L. Badesha, B. Dize, C. Fernow, I. Dias, L. *Tackling fuel poverty through facilitating energy tariff switching: a participatory action research study in vulnerable groups*. Public Health. 2013 Oct; 127(10):894-901.

⁸⁶ In terms of NHS savings it has been estimated for example that for every £1 spent in the £109m Warm Homes scheme in Northern Ireland during 2001-2008, the health benefits may have saved the health service 42p. Additionally, the Department of Energy and Climate Change has estimated the value of warm homes

reducing these costs as well as the pressure the impact of fuel poverty and cold homes places on those organisations providing health and social care.

Recent England focussed NICE guidelines set out how they envisage a wide range of organisations (both statutory and voluntary, including the NHS) to work together to tackle cold homes and fuel poverty, emphasising the one stop shop model. Among a range of recommendations, NICE states that there is a need for greater awareness (based on up to date information in appropriate formats on cold homes and health as well as sources of national and local support) among practitioners and the public on how to keep warm at home. They recommend that health and wellbeing boards should identify those at risk, assess heating needs, identify local interventions and providers and ensure that a local single-point-of-contact health and housing referral service is commissioned to help vulnerable people and those who come into contact with them. This would link with relevant services, offer face to face contact if required and tailored measures (heating improvements, insulation, benefits, energy, tariff and health advice). It is recommended that:

- Health and social care practitioners should be trained to help people whose homes may be too cold and raise the issue with service users⁸⁷
- Primary health and home care practitioners collaborate with local authorities and professional contacts and work with existing data to identify those in cold homes and regularly assess heating needs of service users, provide information and refer on to relevant services. A person's record (with consent) would record this information and be shared with other practitioners
- Those responsible for discharging vulnerable people from health or social care settings should assess if the person is likely to be vulnerable to the cold, well before discharge
- Non-health/ social care workers who visit people at home (e.g. voluntary sector, energy companies, housing professionals) should be able to assess heating needs, refer to the local single point of contact and provide information.⁸⁸

interventions in QALYS saved per measure, and in value of health saving per measure installed (£ - net present value). For Cavity wall insulation (NPV - £969) (QALYS – 0.049); Solid wall insulation (NPV -£742) (QALYS – 0.036); Replacement boiler (NPV - £224) (QALYS – 0.009); Central Heating (NPV - £303) (QALYS – 0.012). (Public Health England (2014), *Cold Weather Plan for England. Making the case: why long-term strategic planning for cold weather is essential to health and wellbeing*). Available from:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/365269/CWP_Making_the_Case_2014_FINAL.pdf

⁸⁷ A recent article by McConalogue et al states that research on the role of healthcare practitioners in working with the fuel poor is limited. Their own evidence, drawn from a small study of community healthcare practitioners (9 GPs and nurses) in England, suggests an underestimation of the health consequences of fuel poverty and a lack of desire to discuss personal issues with clients. Fuel poverty was perceived as something that could be observed in material circumstances (and presumably ignored if not observable). Their preference was to help patients make the link between their circumstances and their health and to help them access further help, but not deal directly with the issue. The authors point to further sources of evidence that come to broadly similar conclusions. The authors state that their study supports the need for clinical training to better focus on social issues and health outcomes and for clinicians to be encouraged and supported to engage patients in ways that help them tackle the cause of their social problems. (See: McConalogue, D. Kierans, C. Moran, A. *The hidden practices and experiences of healthcare practitioners dealing with fuel poverty*. J Public Health (Oxf). 2015 May 11).

⁸⁸ NICE, op. cit.

In Scotland the recent *Progress Report on the Scottish Fuel Poverty Statement 2002* (2014) highlights several interesting examples of NHS collaborative work with partners. For example, the Healthy Homes for Highland partnership (HHH) provides one example of a referral network. Running since 2012 in the Highland Council area the partnership (comprised of Home Energy Scotland, NHS Highland, Highland Council, Housing and Money Advice, and the Scottish Fire and Rescue Service) allows staff to refer their clients to HHH via Home Energy Scotland who link with services. The partnership aims to support vulnerable and hard-to-reach householders by working with agencies that have face to face contact with those groups and by providing energy efficiency advice and measures, income maximisation, money and home safety advice.⁸⁹

The *Progress Report* further alludes to evidence of a prescription bag initiative, developed through partnership with the NHS, to include energy advice service information with all dispensed medicines in disadvantaged areas within a (unnamed) local authority. A further project provides advice surgeries in care centres and hospitals which allow for health benefit checks and opportunities for relevant forms to be completed while patients are still in hospital or soon after they return home. In addition to this, the Link Worker Programme, funded by the Scottish Government, is being delivered as a partnership between the Health and Social Care Alliance (The ALLIANCE) and 'GPs at the Deep End' who serve deprived groups. The programme, in recognition of the lack of time that GPs in deprived areas have to work with patients to help them access potentially beneficial community services, aims to assist in helping people make contact with services such as those that provide advice and support to the fuel poor.⁹⁰ The Scottish Government also plans to take forward work to determine how it can supplement the activities of Home Energy Scotland to get information to those who need it most such as in NHS locations, prescription services, Fire Safety services and foodbanks.⁹¹

The following interventions, including collaborative working and referral schemes, provide an overview of work already underway elsewhere in the UK to address fuel poverty and cold homes:

- **Seasonal Health Interventions Network (SHINE):** Operating in Islington SHINE aims to reduce winter deaths and hospital admissions. A network of over 400 front line staff (housing, health, social care, children's services, voluntary sector) refer residents to a single point of contact where they are assessed and provided with advice on energy saving techniques and keeping warm, and, where necessary, pass residents on to appropriate interventions to address specific needs. Interventions include health (e.g. flu jabs and health checks), energy, benefits and debt advice, home energy improvements and fire safety and community alarm services. Vulnerable residents can also self-refer. Those aged over 75 or with long term health conditions (e.g. cardiovascular disease, mental illness, dementia and respiratory disease) and low income families with young children are prioritised. It is estimated that residents save £450,000 a year on their

⁸⁹ Scottish Government (2014b) op. cit. ; See also:

http://www.highland.gov.uk/downloads/download/680/healthy_homes_for_highland

⁹⁰ Scottish Government (2014b) op. cit. ; See also <http://www.alliance-scotland.org.uk/what-we-do/projects/linkworkerprogramme/>)

⁹¹ Ibid.

energy bills through measures accessed through SHINE (since 2010 over 4,150 residents have been referred, leading to around 19,100 interventions). The scheme can also provide emergency credit for prepayment meter customers. With European Commission funding SHINE is developing an early intervention programme to target low income households with children and young people to improve financial capability and home management skills.⁹² A similar SHINE scheme runs in Hackney.⁹³

- **Liverpool Healthy Homes:** A referral scheme set up in 2009 that visits properties in areas with greater housing and health needs and gathers information about the occupants, their health and condition of their homes. 30,000 homes have been visited and 22,200 referrals made to partner organisations. For rented properties, 'Healthy Home Advocates' have enforcement powers to ensure that necessary improvements are made by the landlord. For owner occupiers, an outline of improvement works to make the property healthier is provided and assistance explored. Clients can be referred to the scheme by a range of partners, or referred by the scheme to these partners. 'Healthy Homes on Prescription', an extension to the programme works with GPs who are prompted to ask patients about their housing conditions. In 2013 Healthy Homes received roughly 25 referrals per month from the 55 GP practices where the system has been fully introduced. In terms of benefits, housing improvements made in year 1 of the programme are estimated to save the NHS in the region of £439,405 per year, from this point onwards (2013).⁹⁴
- **Boilers on Prescription:** Piloted in Sunderland by social enterprise and social housing provider, Gentoo, working with Sunderland's clinical commissioning group, which provided £50,000. The pilot installed a wide range of measures including boilers, across a handful (6) of poorly insulated, non-Gentoo owned properties. Residents were COPD sufferers. A control group (6 homes) did not receive these measures. The scheme has been viewed as successful and early findings suggest that after six months those who received the measures visited their GP, outpatients and A&E departments significantly less often (there was no change for the control group). Energy bills dropped by £30 a month and the temperature in people's living rooms and bedrooms rose by over 3C.⁹⁵

⁹² Public Health England (2014), *Local action on health inequalities: Fuel poverty and cold home related health problems*. Available from:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/355790/Briefing7_Fuel_poverty_health_inequalities.pdf ; See:

<http://nhfshare.heartforum.org.uk/RMAssets/Casestudies/IslingtonSHINE.pdf>

⁹³ See <http://www.cityandhackneyccg.nhs.uk/News-and-publications/Shine.pdf>

⁹⁴ Public Health England (2015), *Local leadership, new approaches: How new ways of working are helping to improve the health of communities*. Available from:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/407060/2014712_Local_leadership.pdf ; Public Health England (2013), *Health and Care Integration Making the case from a public health perspective*. Available from:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268181/Health_and_care_integration.pdf

⁹⁵ The Guardian (2014), *Boiler on prescription' scheme transforms lives and saves NHS money*. Available from:

http://www.theguardian.com/environment/2014/dec/09/boiler-on-prescription-scheme-transforms-lives-saves-nhs-money?CMP=share_btn_tw ; <http://www.gentooogroup.com/news/gentoo-group-launch-boiler-on-prescription-pilot/> ; <http://sunderlandccg.nhs.uk/news-media/news/gentoo-group-launch-boiler-on-prescription-pilot/>

- AWARM (Affordable Warmth Access and Referral Mechanism):** This is a pilot programme that operates in Manchester and has linked health, housing and fuel poverty services with the aim of increasing referrals from various sectors (local authority, PCTs, GPs, UKPHA) to a one-stop-shop. Services include energy efficiency, benefits and debt advice, support for home repairs and insulation measures. The programme was evaluated, and a cost-benefit analysis conducted on 52 household interventions analysed the impact of warmer housing on the quality of life. The cost of the 52 interventions was estimated to be £88,800, with an estimate of 2.55 life years gained from living longer (across the 52 participating households housing 82 adults) and an estimated health gain compared to over £600,000 (value of total QALYs). The evaluation also identified a dramatic increase in referrals from across the social and care sectors.⁹⁶
- Cornwall Together:** Launched in 2012, this scheme helps individuals switch energy tariffs to get the best deal. It is estimated to have saved Cornish residents £3.7m in fuel bills through reductions of 10-15%. The project aims to reduce fuel bills, alleviate fuel poverty and improve public health. Partners include the Eden Project, Cornwall Council, Community Energy Plus (CEP), Age UK, Citizens Advice Bureau, uSwitch, energyshare, Unison, St Austell Brewery, and the NHS. The scheme invests in a Cornwall Together fuel poverty fund for the whole county, overseen by the NHS, CEP, Cornwall Council and the Eden Project. The scheme, which aims to use sustainable and environmentally friendly energy wherever possible, also delivered an awareness raising campaign aimed at targeting the most hard to reach, fuel poor and vulnerable households in Cornwall.⁹⁷
- Citizens Advice Bureau (CAB), Derbyshire:** 98 GP practices provide access to CAB, which can advise on a range of issues, including fuel poverty, with GPs able to refer patients to these accessible co-located services. The scheme, set up initially by the NHS, but now county council led, is viewed as taking pressure of GPs and is focussed on the vulnerable and disadvantaged. The scheme is expected to be rolled out across children's centres in the county.⁹⁸
- Warm Homes Oldham:** The Oldham Clinical Commissioning Group jointly funded this project (launched in 2013), with Oldham Council and Oldham Housing Investment Partnership with the aim of generating demonstrable cost savings for the partners involved. Various home energy improvements (new boilers, insulation) and energy and income maximisation advice including benefits checks, tariff switching advice, relief of fuel debt (by applying for trust fund grants) are provided to those at risk of fuel poverty. The project is area based, a mapping exercise undertaken to identify those most at risk. Households had to meet income-based (household income of under £40,000) and health criteria. One household member had to be under the age of 16, over the age of 50, pregnant, physically disabled, physically unwell, suffering from anxiety or depression or with symptoms exacerbated by cold. A recent interim evaluation of the project states

⁹⁶ Public Health England (2014) op. cit. For further information about AWARM see:

Threlfall A. *Understanding the costs and benefits of fuel poverty interventions: A pragmatic economic evaluation from Greater Manchester*. Manchester: 2011. Available from: <http://beatcold.org.uk/wp-content/uploads/2011/09/Awarm-evaluation-final-report.pdf>

⁹⁷ Public Health England (2014) op. cit.

⁹⁸ Public Health England (2015). op. cit.

that there has been a statistically significant change in almost all key change variables such as improvements in fuel poverty, general health and wellbeing, life satisfaction, and condition of homes.⁹⁹

⁹⁹ Centre for Regional Economic and Social Research (2014), *Warm homes Oldham: interim evaluation report*. Available from: http://www.oldham.gov.uk/download/downloads/id/3386/warm_homes_interim_evaluation_report