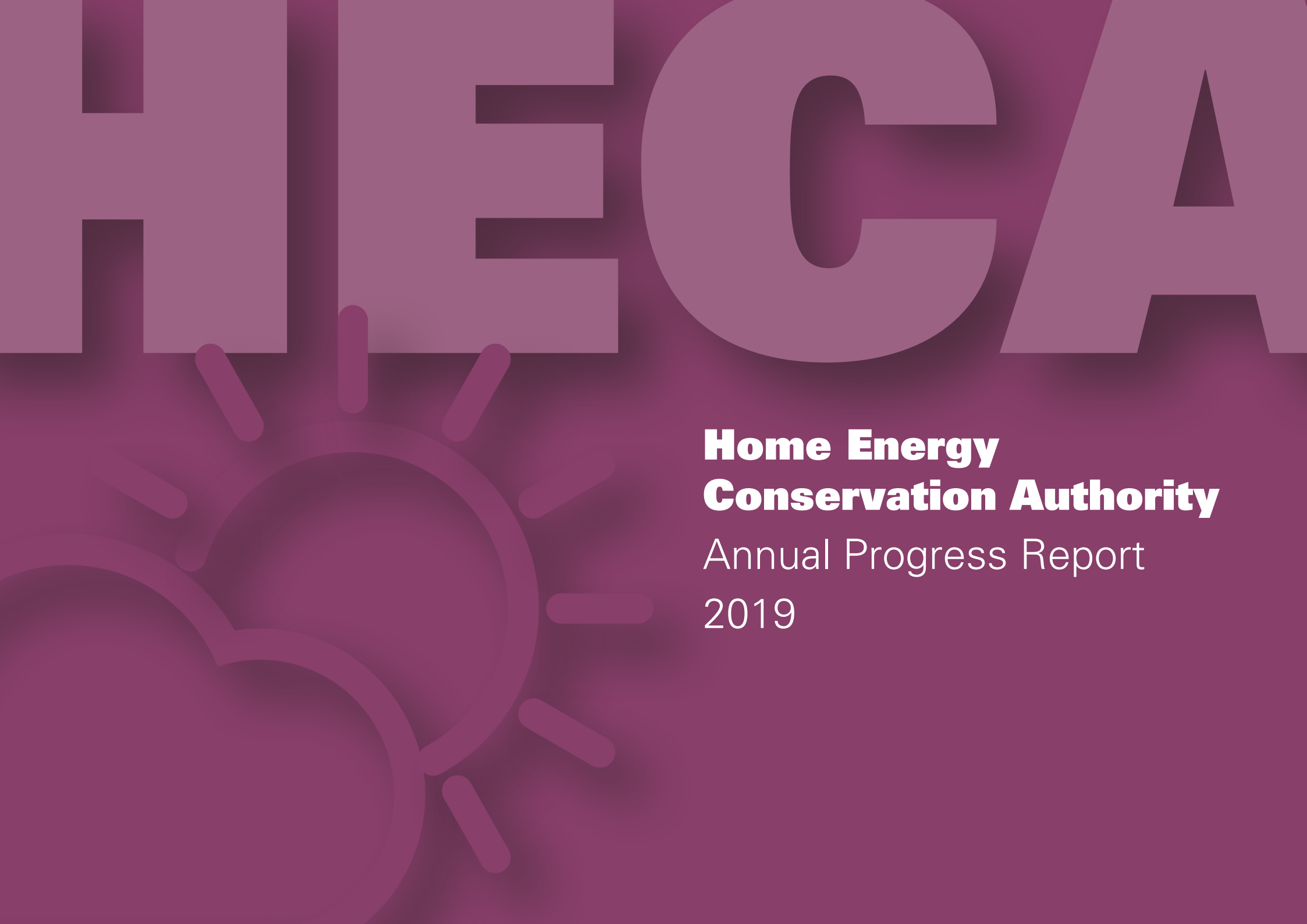

Home Energy Conservation Authority

Annual Progress Report 2019

FOREWORD

This year's annual report is a key milestone for the Housing Executive as the Home Energy Conservation Authority.

Through the findings of the 2016 Northern Ireland House Condition Survey (HCS), published by the Housing Executive's Research Department in May 2018, we can evidence the impact of reducing energy consumption and improving the energy efficiency of housing in Northern Ireland.[1]

Since the introduction of the Home Energy Conservation Act (1995), I am delighted to advise that as a result of the 'back to basics' approach to energy efficiency, educational awareness and fabric-first solutions, the findings of the 2016 HCS indicate that the number of NI households in Fuel Poverty is now recorded as 22% (160,000), which compares favourably with the figures for Wales (23%) and Scotland (27%).

The findings of the 2016 HCS indicate that there has been a 20 per cent reduction in the level of Fuel Poverty compared with the position in 2011.[2]

During this period, a total of £300 million has been invested in energy efficiency and conservation programmes. In England, fuel poverty is measured using the Low Income High Cost (LIHC) methodology. Overall, findings from the 2016 HCS show that 7 per cent of households were in fuel poverty under the LIHC definition. This compares with 11 per cent in England (2015).

Despite substantial investment, energy conservation still remains a priority in Northern Ireland. In recent years, significant investment has been made by the Housing Executive, the Department for Communities, housing associations, the Utility Regulator, and homeowners, in a combined effort to reduce levels of energy consumption and to increase the energy efficiency of Northern Ireland's housing stock.

During 2018/19, the Housing Executive invested £41.328m across a wide range of programmes, including e.g. window and heating replacement schemes.

An essential part of our success reflects on our professionalism in partnership working and, in particular, the collaboration we have with local government, including our role as a statutory partner in the production of Community Plans. This has provided us with the opportunity to focus on the reduction of fuel poverty, ensuring that enhanced environmental performance is incorporated in community planning outcomes. All of the local councils have prioritised the need to enhance the health and wellbeing of householders, and this commitment provides a further opportunity to deliver energy conservation and efficiency.

In October 2018, our expertise, as the Home Energy Conservation Authority (HECA) for Northern Ireland, was recognised internationally when the Housing Executive was appointed Lead Partner to coordinate and manage HANDIHEAT.

This €2 million EU Northern Periphery and Arctic Programme (NPA) project originated from a concept to provide renewable energy for a community scheme in Irvinestown, Co Fermanagh. The project was further developed into a NPA 2014-2020 funding application, focusing on identifying the means by which domestic heating solutions from renewable sources could be developed and implemented in rural communities across the project area of Northern Europe.

The Lead Partner is responsible also for managing the technical installation and progress of a 2nd pilot demonstration site of five houses, located at a sparsely rural settlement in Lisnaskea, Co Fermanagh.

The Housing Executive has been active in managing and monitoring the operational activities of the HANDIHEAT project, and the technical progress of the 2nd pilot demonstration site at Lisnaskea, Co Fermanagh. These five houses will have value for money refurbishment works carried out with one house fitted with a monitoring kit to collect data over a year.

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1. For the first time the House Condition Survey was awarded National Statistics status by the UK Statistics Authority, which denotes the highest standards of trustworthiness, quality and public value

2. Fuel Poverty is defined as circumstances where a household, in order to maintain an acceptable level of temperature throughout the home, would have to spend more than 10% of its income on all household fuel

Now in the second year, HANDIHEAT partners are continuing to progress their activities and outputs with a focus on:

- policy review
- fuel poverty
- health/housing and winter deaths
- benchmark existing best practice across partner countries
- demonstration pilots in Finland and Northern Ireland
- development of a toolkit of best practice policies and sustainable solutions for retrofit for rural communities affected by fuel poverty/inequality

During the last reporting period, the Lead Partner has chaired monthly Work Package conference call meetings, with two full partner meetings in Co. Mayo, hosted by Clár ICH May 2019, and another in east Iceland in September, hosted by Austurbrùses.

Representatives from respective local, regional organisations and enterprises attended the respective meetings: Bord na Mona, Sustainable Energy Authority of Ireland (SEAI), The Housing Agency Ireland, Landsvirkjun (The National Power Company of Iceland), Varmalausnir - HeatRD (Heat Research and Development) and Austurbrà, Iceland.

In the absence of any new government support for renewable technologies within the domestic sector, and the potential impact of Brexit, we will continue to provide an exemplar within the energy efficiency arena.

We remain committed to the objectives to 'reduce poverty' and 'increase environmental sustainability through the implementation of our wide-ranging programmes and initiatives', as outlined in the Programme for Government (PfG) 2016-2021 Outcomes Framework.

It is important that energy efficiency remains a priority, as this has a meaningful impact on many aspects of people's lives.

This Annual Progress Report highlights the means by which improvements in domestic energy efficiency have been secured, and the extent to which collaborative working across the housing and energy efficiency sectors continues to reduce levels of fuel poverty across Northern Ireland.

Within the Housing Executive, we have introduced an Environmental Working Group in order to support energy conservation and a wide range of other activities. In creating this new group, the intention is that we should focus all of our activities on helping to combat climate change and to reduce the carbon burden associated with our operations.

I look forward to working in partnership with our existing stakeholders, other organisations of a like mind, and all the citizens of Northern Ireland to progress our work on energy conservation and efficiency and to deliver this mission.

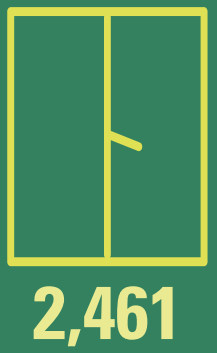
By continuing this work we can contribute to combatting climate change and securing a sustainable future for our children.

Professor Peter Roberts, Chair
Northern Ireland Housing Executive

Heating conversions

£20.5m

invested in
Housing Executive homes



Double glazing installations

£4.1m

invested in
Housing Executive homes

Affordable Warmth Scheme

£14.5m

of works in private sector homes (funded by the DfC and managed by the Housing Executive)

Boiler Replacement Scheme

£1.9m

funded for the installation new energy efficient boilers

NI Sustainable Energy Programme (NISEP)

£7.4m

on energy efficient schemes to help householders implement energy saving measures to their home

Oil buying clubs

27

Housing Executive and Bryson Energy collaboration continues to deliver monthly oil deliveries within manageable budgets below the NI Consumer Council's average oil prices.

Domestic energy market

Five companies are continuing to offer choice in energy - Power NI, SSE Airtricity, Budget Energy, Click Energy and Electric Ireland.

2018/19

Strategic Context

The NI Executive's Draft Programme for Government (PfG) 2016-21 Outcomes Framework to 'reduce poverty' and 'increase environmental sustainability, aims to address the issue of fuel poverty and create a society that offers everyone, regardless of identity, the opportunity to access decent housing.

PfG-Outcomes Framework

This approach encourages increased levels of renewable energy use, to improve security and diversity of energy supply, and is intended to contribute to reduced carbon emissions.

Under the terms of the Home Energy Conservation Act (1995), the Housing Executive fulfils the statutory role as the HECA for Northern Ireland.

This is further supported by the Local Government Act 2014, under which Councils have a requirement to produce a Community Plan document. The legislation states that the Community Plan must contribute to the achievement of sustainable development and identify long-term objectives for improving:

- The social wellbeing of the district;
- The economic wellbeing of the district; and,
- The environmental wellbeing of the district.

Community Planning

As a Statutory Partner, we have established energy objectives within the Community Plans and, as a Statutory Consultee in the Local Development Plan (LDP) process, we advocate a holistic approach to developing energy policies. This seeks to provide better alignment of central and local government priorities in Northern Ireland.[1]

We believe that the Local Government Act 2014 provides key influence through local policies aimed at reducing energy consumption, improving connectivity, integrating land use and transport, and requiring all new buildings to be developed to high standards of energy efficiency.

The Housing Executive has advocated a policy within the LDP process, which includes a minimum SAP rating for new buildings. (For new build schemes delivered as part of the Social Housing Development Programme, an optional Energy Efficiency Multiplier supports sustainable and energy efficient design, beyond the existing statutory minimum SAP ratings).[2]

Legislative context

In June 2019, the UK became the first major world economy to pass laws aimed at ending its contribution to global warming by 2050.[3]

The target requires the UK to bring all greenhouse gas emissions to net zero by 2050, compared to the previous target of an 80% reduction against the level of emissions that existed in 1990.

Net zero means that any emissions would be balanced by schemes to offset an equivalent amount of greenhouse gases from the atmosphere, such as planting trees or using technology like carbon capture and storage.

The Housing Executive, through its HECA role, continues to encourage increased levels of energy efficiency, as well as supporting customer choice of energy supply and encouraging innovative low carbon technologies that can contribute to reductions in carbon emissions throughout Northern Ireland.

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1. http://www.legislation.gov.uk/nia/2014/8/contents/enacted.

2. Energy Efficiency Multiplier' for new dwellings which exceed the minimum standards currently required under the NI Building Regulations 2012. This standard is optional, and dwellings must achieve a SAP Band A or minimum Fabric Energy Efficiency Standard (FEES)

3. Clean Growth Strategy: This sets out the UK Govt policies and proposals that aim to accelerate the pace of "clean growth" towards compliance with the Climate Change Act 2008, i.e. deliver increased economic growth and decreased emissions. "Clean growth" means growing our national income, while cutting greenhouse gas emissions.

Improving domestic energy efficiency

Home energy

Reducing fuel poverty

Fuel poverty

Living sustainably, saving the environment

Environment

To have a more equal society

Equality

How to save energy

Measureable outcomes - baseline, actions and progress

Advice

Improved access to advice, improved connectivity with residential customers

Reduce

Implement energy efficient schemes within social and private housing sectors

Protect

Increase electricity consumption from renewable resources, research and install innovative measures

Measure

Energy mix, reduce oil dependency, gas to the west

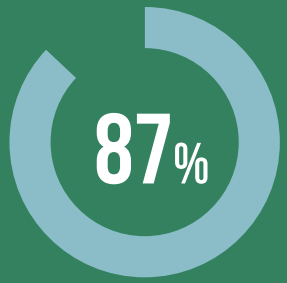
Improving domestic energy efficiency

Measuring progress across all dwellings

have central heating

still use home heating oil

have loft insulation



have full double glazing

SAP ratings

The Northern Ireland House Condition Survey (HCS), is the primary data source for assessing progress of energy efficiency across the residential sector.

As noted, the Standard Assessment Procedure (SAP) is the Government's standard method of rating the energy efficiency of a dwelling.

The overall SAP rating for Northern Ireland in 2016 was 65.83, using the latest SAP model.[1]

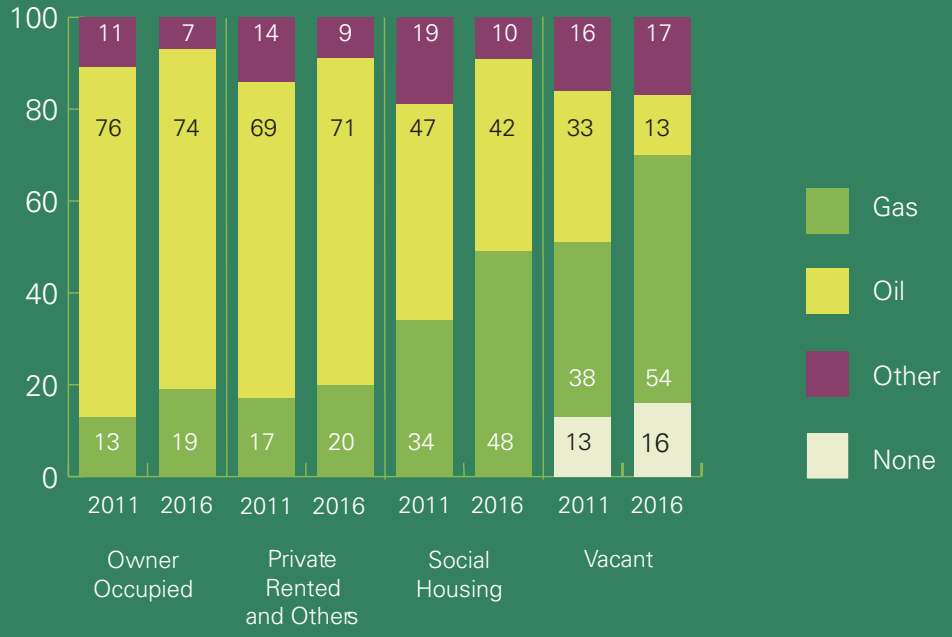
Social housing had the highest SAP Mean rating (72.63) and vacant dwellings had the lowest SAP rating (51.78), as shown in the adjacent graphic.

As previously mentioned, there has been a total investment of £300m in energy efficiency works during the 5-year period from 2011 to 2016, which has contributed significantly to achieving improved levels of energy efficiency.[2]

Mean SAP and Tenure (2016 HCS)

1. The SAP model was modified between 2011 and 2016 in order to improve the accuracy of energy efficiency ratings.

2. 2016 Housing Executive HCS.



Domestic Heating (fuel sources)

At present, Northern Ireland has the highest dependency on high carbon fossil fuel across the UK - with 68% dependency on home heating oil.

The natural gas network is being developed in the west of the province, however, dispersed rural communities will limit the feasibility to fully exploit this network.

As reported in the 2016 HCS, "oil is the predominant fuel source both in urban (58%) and rural (84%) locations".

By contrast, there is only a 4% dependency on home heating oil across GB, admittedly with a more mature natural gas network, albeit in the context of a higher population density.

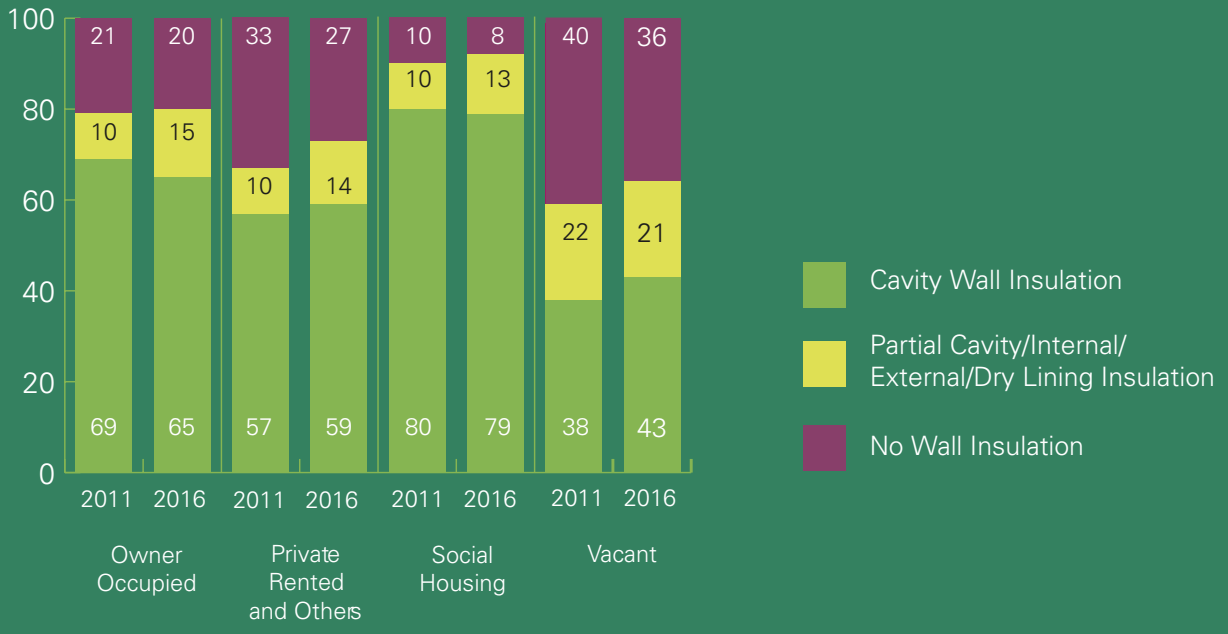
Gas central heating systems are the preferred option for the Housing Executive's heating replacement schemes as it provides security of supply from regulated energy suppliers, with lower carbon emissions than home heating oil. With housing associations installing gas systems in their new build schemes, where available, gas has overtaken oil as the predominant fuel source for heating systems in social housing, between 2011 and 2016.

Home Insulation

The proportion of housing stock with full cavity wall insulation is 65%, based on the 2016 HCS; this figure has remained static since the findings of 2011 HCS.

As the 2016 HCS noted, 'this was expected, as there hasn't been the same level of investment in cavity wall insulation as there has been in loft insulation, double glazing or the replacement of solid fuel heating.'

As part of the 2016 HCS, an examination of the extent of cavity wall insulation (by tenure), provided the following results.



Energy Consumption and Carbon Dioxide (CO2) Emissions within Northern Ireland's Housing Stock

The Housing Executive commissioned the Building Research Establishment (BRE), to interrogate the 2016 HCS data to produce an updated assessment of progress against the original HECA baseline statistics identified in 1996.[1]

Key findings

In the 2016 HCS, the improvement in energy efficiency, since 1996, was 29.1% from the occupied pre-1996 housing stock. This was measured, in the 2011 HCS, as a 22.5% improvement in energy efficiency and the latest data demonstrates continued progress in this key measurement.[2]

Methodology

The analysis provides the CO_2 emissions from dwellings in Northern Ireland from the following activities:

- Space heating
- Water heating
- Lights and appliance use
- Cooking

1. BRE is one of the world's leading building science centres, and provides training, publications, advice and digital tools for the construction industry.

2. Based on measurement of modelled standardised consumption by BRE.

Energy Consumption Results

The consumption and emissions results are also presented for space and water heating only, thereby excluding lights, appliance use and cooking. This approach can be useful when analysing the effect of improvements to the building fabric and heating systems.

It is clear that the general trend since 1996 has been a reduction in energy consumption. This is consistent with improvements to dwellings' fabric energy efficiency (in particular cavity wall insulation) and heating system improvements (condensing central heating systems replacing older, less efficient systems).

The decrease in energy consumption over the latest five year period, 2011 to 2016, for the occupied stock only, is similar to the previous 5-year period (2006 to 2011).

In 2011, there was total stock of 760,000 properties (54,700 of which were vacant), compared to 2016's total stock of 780,000 properties (28,500 of which were vacant). The reductions in energy consumption are consistent with improvements to dwellings' fabric energy efficiency (in particular through improvements in cavity wall insulation) and heating system improvements (with condensing heating systems replacing older, less efficient systems).

Energy consumption in pre-1996 dwellings (Terajoules/year), 1996-2016

	1996	2001	2006	2009	2011	2016
Total energy consumption						
All dwellings	83,384	80,423	71,557	71,315	69,581	57,920
Occupied dwellings	78,860	75,445	67,388	66,937	61,091	55,935
Space and water heating consumption						
All dwellings	77,301	72,753	63,427	63,231	61,506	49,461
Occupied dwellings	73,034	68,127	59,658	59,258	53,641	47,714

Carbon Dioxide Emissions Results

The emissions results are constructed by taking the consumption figures and then applying associated emissions factors (from the SAP specification) for each fuel source being used in the dwelling.[1]

This will be dominated by the space and water heating method in use in each dwelling, typically oil, gas or electricity. Emissions from lights and appliances use are calculated using the carbon dioxide factor for electricity.

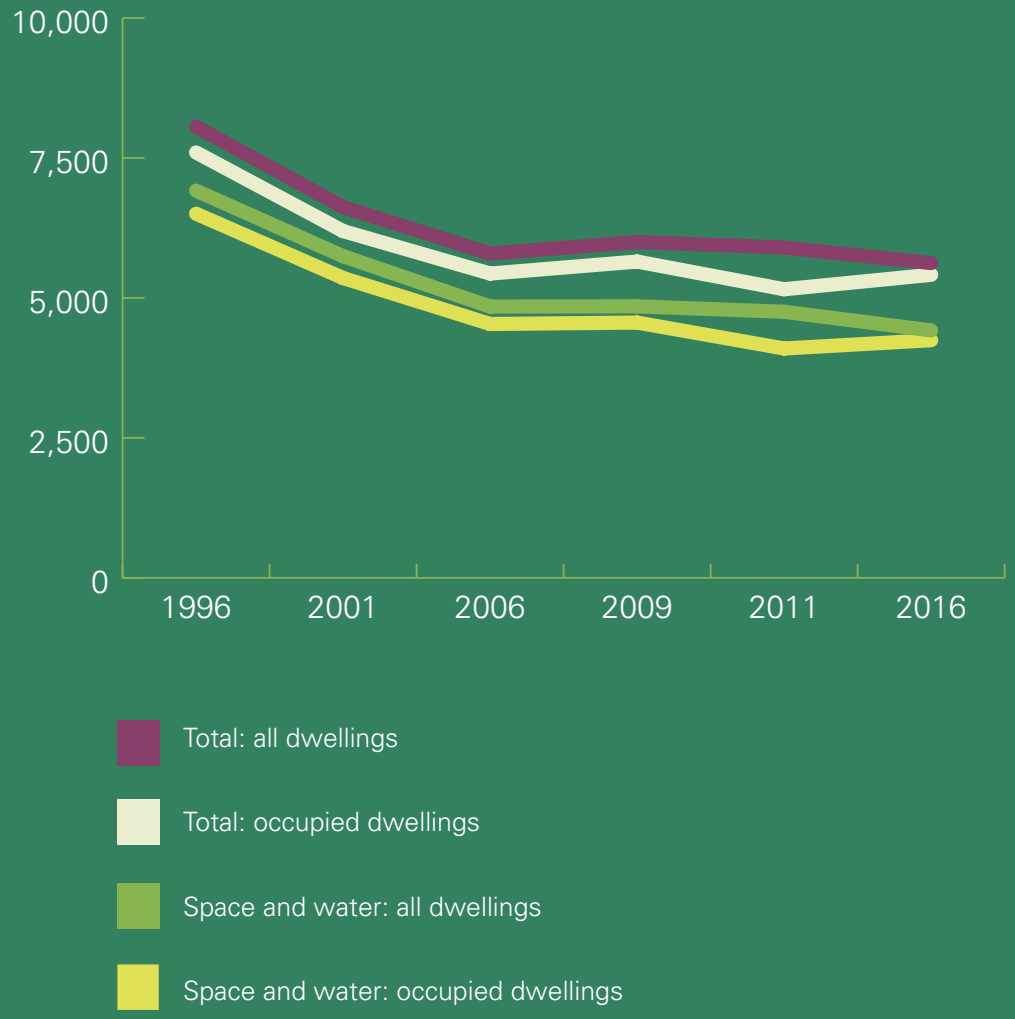
The results presented here use different emissions factors for different years to reflect the fact that the carbon mix of electricity generation has changed over the years as has the carbon intensity of other fuels, and the understanding of emissions associated with each fuel.

CO_2 emissions exhibit a similar pattern of reduction to energy consumption, apart from in 2009.[2]

As with the energy consumption, the CO_2 emissions decreased more for all dwellings compared with occupied dwellings between 2011 and 2016. This is partly due to the smaller proportion of vacant dwellings in 2016 compared with 2011.

This shows a decrease in emissions consistent with what would be expected given the observed reduction in energy use.

Carbon dioxide emissions from pre-1996 dwellings (Kilotonnes/year), 1996-2016.



1. The CO_2 emissions are taken from the pre-1996 dwelling stock.

2. In 2009, the modelling switched to using the SAP 2009 carbon emissions factors which incorporated factors for electricity which are significantly higher than in the SAP 2005 specification.

Marketing the Energy Efficiency Message

The Housing Executive actively promotes the energy efficiency message through various media. During 2018/19, our staff took part in several radio interviews, delivered presentations at key seminars and promoted the energy efficiency message in various press and media publications. We continue to promote energy conservation to the public through annual regional events and campaigns.

Northern Ireland Energy Advice Line (EAL)

The HECA marketing message is partly delivered in partnership with Bryson Energy, through the delivery of a fully resourced Freephone number (0800 1422 865), to provide an independently-managed, free energy efficiency advice service to all domestic users within Northern Ireland. This service provides impartial energy efficiency advice to over 7,000 customers annually.

Schools Energy Efficiency Awareness Programme (SEEAP)

Key Stage 2 pupils from primary schools across Northern Ireland have availed of an interactive Schools Energy Efficiency Awareness Programme, (SEEAP) delivered by Bryson Energy through a project funded by the Housing Executive.

The Bryson Energy education team delivered 130+ school visits to Primary 6 and 7 pupils across Northern Ireland, during the 2018/19 year. In excess of 7,000 pupils participated in the Programme, with 82 of the awareness visits made to schools in rural locations.

The SEEAP encourages awareness of energy use, and under the 'World Around Us' area of learning from the Northern Ireland Curriculum Primary, the Programme encourages action through informative presentations and activities.

National Energy Action (NEA)

NEA, is a charity working to end fuel poverty across the UK. Supported by Housing Executive funding, it also provides essential energy efficiency training and awareness outreach in Northern Ireland to householders and community groups.

It raises public awareness through an extensive range of activities, including accredited training courses which cover fuel poverty, fuel debt, affordable warmth and delivering practical energy advice.

Level 3 City & Guilds 6281-01 qualification

This course is aimed at those who are required to give domestic energy advice to householders, equipping our staff to provide better energy advice to customers.

It has provided a sound understanding of the causes and consequences of fuel poverty and has taught how improving energy efficiency can help provide householders with affordable warmth, which was linked to physical and mental wellbeing modules.

The four key modules are:

- Home heating
- Fuel Poverty and Paying for Fuel
- Reducing Heat Loss
- Condensation and Dampness.

17 Staff from Housing Executive (Regional Services) successfully completed NEA's 3-day City & Guilds Level 3 Award in Energy Awareness during 2019.

HECA: Energy Efficiency Promotional Events

Fuel Poverty Awareness Day 15 February 2019

Fuel Poverty Awareness Events 2019: In 2019, the Housing Executive continued to support our HECA partner National Energy Action (NEA), by attending their Fuel Poverty awareness Events.

As part of Clanmil Housing Association's energy efficiency strategy they have commenced tenant energy conservation awareness through energy saving advice and bill management.

Tackling Fuel Poverty through Health and Housing Routes; From Policy to Practice'

Sustainable Development Manager, Robert Clements, joined the esteemed panel with speakers from The Consumer Council, Health & Social Care Board & the Public Health Agency at this half-day symposium.

Energy Saving Week 18-22 November 2019

This annual event, now in its 19th year, brings together the Energy Saving Trust and partner HECA Panel organisations, in a drive to help as many households as possible to save energy, reduce their bills and limit the impact of energy use on the environment.

The following HECA Panel organisations made an active contribution to Energy Saving Week: during November 2019; the Housing Executive (Sustainable Development Unit); NEA (NI); Bryson Energy; Consumer Council NI; Phoenix Natural Gas; SGN Natural Gas; Firmus Energy; Power NI; NIFHA; and Choice Housing.

During the most recent event, these organisations utilised social media platforms to raise awareness of the importance of energy efficiency at home to reduce carbon emissions and make savings on energy bills.

Love Your Home 11-13 October 2019

The Housing Executive, alongside over 175 exhibitors providing products, advice, ideas and inspiration for the home, offered energy advice.

This weekend home event at #TEC Belfast, gave our team the opportunity to answer questions and address energy awareness.

In collaboration with HECA Stakeholder Panel, Consumer Council, National Energy Action, Energy Saving Trust, Bryson Energy and our own Housing Executive Energy Efficient Grants, we chaired a theatre panel discussion.

This in-depth analysis offered information on energy saving grants, draught-proofing, insulation, how to save money by switching providers and how to energy-proof your home.

Home Energy Schools Poster Competition

In May 2019, the Housing Executive launched its annual Northern Ireland Schools' 'Design an Eco-Home' art competition.

Application packs were sent to all NI schools, with instructions for teachers to roll out an eco-home lesson to P6/7.

For this year's competition, pupils were asked to design an energy efficient and environmentally friendly home.

The competition has grown year-on-year, with 753 incredibly detailed posters received for 2019.

With fantastic prizes up for grabs - the winning school, Annalong Primary was awarded a cash prize of £500, Leadhill Castlereagh took 2nd prize of £250 and St Patrick's Primary School Derry in 3rd with £150.

These top three schools were also offered a trip to Belfast W5.

Reducing fuel poverty

% In Fuel Poverty

(10% definition) against gross income

55% <£10,399

33% £10,400-£15,599

23% £15,600-£20,799

07% £20,800-£31,199

01% £31,200-£46,799

01% £46,800+

Source: HCS 2016

Analysis of Fuel Poverty Data

Northern Ireland has around 160,000 fuel poor households. This represents an average fuel poverty rate of 22%. A key driver to deliver energy efficiency within refurbishment of housing in Northern Ireland is the need to help reduce fuel poverty.

The 2016 HCS, reports the two different methods of measuring fuel poverty, namely:

- 10% Definition, used in previous HCS and referenced in the DfC Fuel Poverty Strategy.
- Low Income High Cost (LIHC) method, used to measure Fuel Poverty in England.

10% Definition

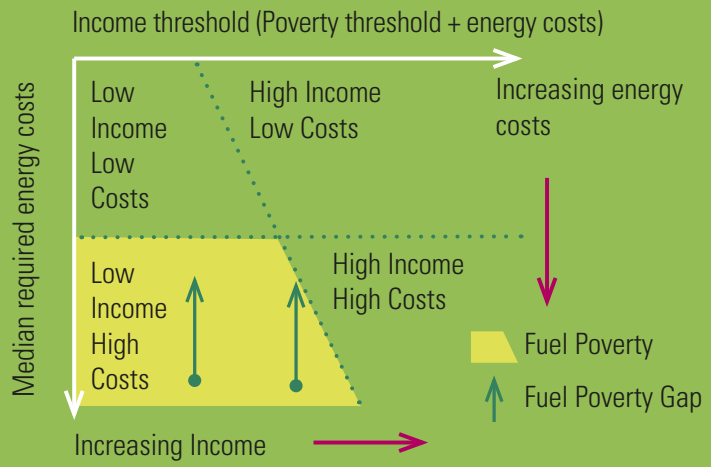
This methodology (which is used in NI, Scotland and Wales) requires the householder to maintain a satisfactory level of heating (21˚C for the living area and 18˚C for other occupied rooms) and the householder is required to spend in excess of 10% of its household income on all heating and electric bills. The three factors which determine fuel poverty model within the 10% definition are:

- Fuel prices
- Energy consumption (based on energy efficiency)
- Household income

Low Income, High Cost Definition

In England fuel poverty is measured using the LIHC methodology. A household is considered to be fuel poor if:

- Fuel costs are above average (national median level).
- After paying for fuel costs the remaining household income is below the official poverty line. (See figure below). Although not incorporated within the DfC Fuel Poverty Strategy, this method provides baseline data to compare with England.



This diagram illustrates that fuel poverty is distinct from general poverty: not all poor households are fuel poor, and some households would not normally be considered poor but could be pushed into fuel poverty if they have high energy costs.

Households in Fuel Poverty

(10% definition)

**Estimated figures from the Housing Executive Research Unit using the 2016 HCS model*

2006	2011	2016	2017*	2018*
226,000	294,000	160,000	128,000	131,000
34%	42%	22%	17%	18%

Analysis using the 10% definition

a. General Findings

The 2016 HCS, estimated that approximately 22% (160,000 households) were living in fuel poverty. This represented a significant improvement compared to the 2011 HCS figures.

The reduction can be attributed to a drop in home heating oil prices during the survey period in 2016, improved energy efficiency of houses and a moderate increase in incomes.

(i) Fuel Prices: Fuel costs consider both the heating and electric costs. Average household fuel costs in 2006 were £1,400, rising to £1,700 in 2011 and £1,500 in 2016. The most volatile issue is the erratic nature of the unregulated energy supply of home heating oil which increased by 1.81 pence per kWh between 2001 and 2011, then decreased by 0.01 pence per kWh between 2011 and 2016.[1] (The oil price used in the fuel poverty methodology is based on a three year average).

(ii) Energy Efficiency: The overall SAP rating for Northern Ireland in 2016 using the latest SAP model (version 9.93 - published in November 2017) was 65.83 rising to 66.32 for occupied dwellings.

(iii) Income: Average household income increased from £20,500 in 2011 to £23,800 in 2016, a 16% increase.

The Housing Executive commissioned BRE to undertake a further evaluation of information relating to fuel prices/the installation of Energy Efficiency measures/and household income, in 2018. This evaluation concluded there had been a further reduction in the number of households living in fuel poverty, to 18% (131,000 households).

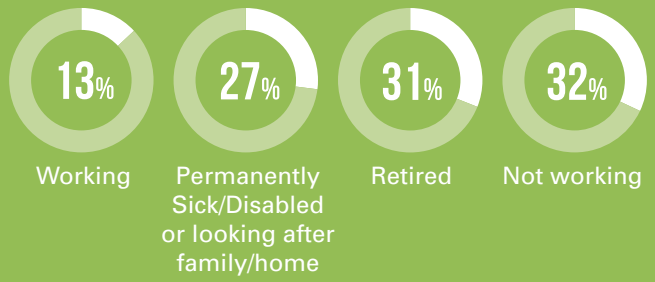
b. Age of Household

There is clear evidence those households where the household reference person (HRP) is over 75 are more likely to be living in fuel poverty. Households with children were least likely to be living in fuel poverty.

c. Employment of Household

The largest group of fuel poor is where the HRP is unemployed and the lowest rate of fuel poor households is where the HRP is working.

Households in Fuel Poverty (10% definition) by Employment



d. Household Income

There is a clear correlation between household income and fuel poverty, which is reinforced with 55% of households with incomes up to £10,399 being fuel poor.

e. Rural Fuel Poverty

As with the 2011 HCS, rural councils have the highest levels of fuel poverty. Based on the 2016 HCS the highest rates are in Mid Ulster (32%) and Derry & Strabane (31%). The lowest rate is in Lisburn & Castlereagh (13%).

Low Income High Costs is a dual indicator in that it measures not only the extent of the problem (how many households are in fuel poverty) but also the depth of the problem (how badly affected each fuel poor household is).

The depth of fuel poverty is calculated by taking account of the fuel poverty gap. This is a measure, of the additional fuel costs (in ££s) faced by fuel poor households, to meet the non-fuel poor household threshold. (Department for BEIS 2017, p6).

Unlike the 10% fuel poverty definition measure, the LIHC is a relative measure as it compares households to the national median modelled notional fuel bill and household income. (HCS 2016, p63).

Overall, findings from the 2016 HCS show that 7% of households were in fuel poverty under the LIHC definition. This compares with 11% in England (2015).

In 2016, the average fuel poverty gap for all Northern Ireland households (the amount needed to meet the fuel poverty threshold or what is needed to be added to income to afford fuel bills) was estimated at £436. This compares to £353 in England in 2015.

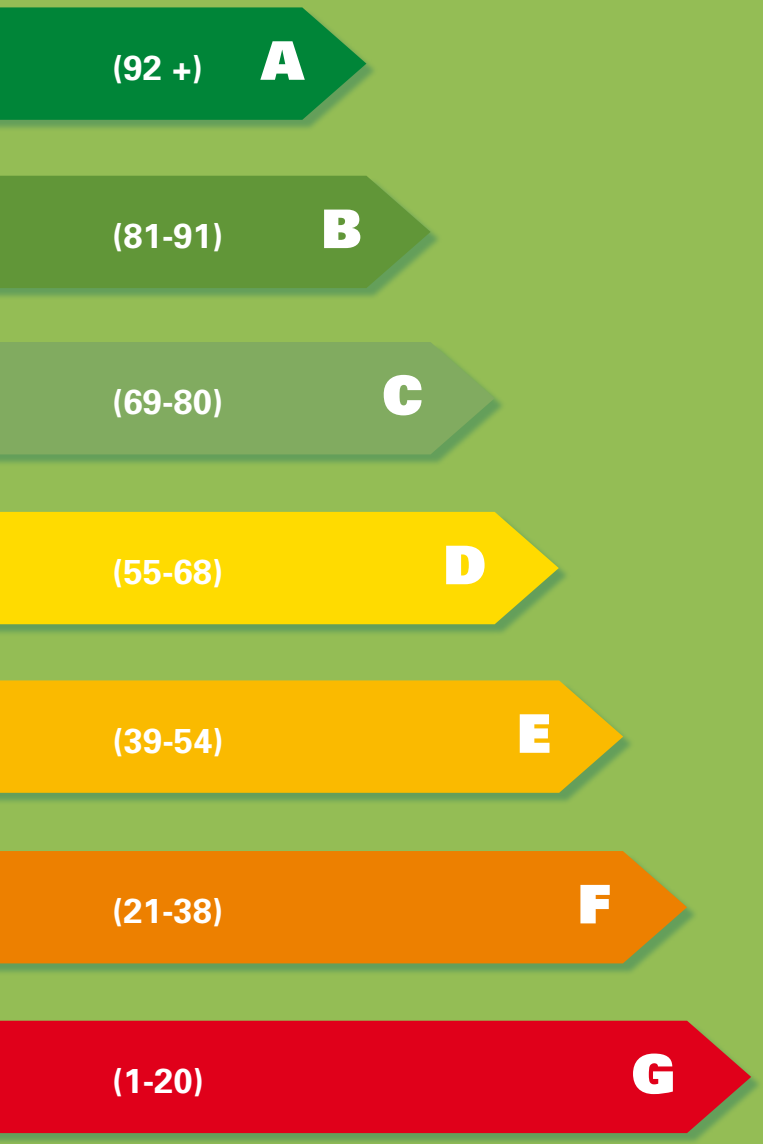
This indicates that while the extent of fuel poverty under LIHC is less in NI compared to England (7% compared to 11%), the depth or severity is greater than in England.

Fuel Poverty Ready Reckoner

The Housing Executive recognises the need to gather fuel poverty data on a more frequent basis, rather than at the HCS 5-year cycle and, in 2018 published a Ready Reckoner to estimate the levels of fuel poverty based on the previous HCS (2016). This FP reckoner is available to the public - in raw form.

This provides fuel poverty figures based on variances in fuel prices, which is the most changeable factor of fuel poverty between the cycles of HCS.

1. 2016 Northern Ireland House Condition Survey.



Grants for Owners and Private Rented Tenants

In 2018/19, further progress was made improving energy efficiency in private homes.

Affordable Warmth Scheme

The Affordable Warmth Scheme was introduced in September 2014. It replaced the Department for Communities' (DfC) previous Programme, the Warm Homes Scheme. The replacement Scheme is also funded by the DfC and is the Domestic Energy Efficiency Improvement Programme for vulnerable low income households. The Affordable Warmth Scheme is a central element in the NI Executive's Fuel Poverty Strategy.

Our Private Sector Improvement Services (PSIS) is active in the promotion of energy efficiency in its role as administrator of the Affordable Warmth Scheme, on behalf of the DfC.

The Scheme is designed to help reduce the effects of fuel poverty in the private sector. The Housing Executive works in partnership with local Councils to target interventions via an area based approach.

In 2018/19, the Affordable Warmth Scheme provided 6,063 measures installed in 3,205 homes at a cost of approximately £14.5m. This is a targeted Scheme for private sector households which the Department for Communities and the Ulster University, using a targeting algorithm, have identified as being within areas where fuel poverty is prevalent.

The Affordable Warmth Scheme offers a range of measures for households with an annual income of less than £20,000.

During 2018/19

- £14.5m of Affordable Warmth expenditure
- 3,205 homes were improved
- 6,063 measures were installed i.e.
- 1194 loft insulation
- 2,745 heating
- 1,600 windows
- 404 cavity wall insulation
- 68 draught-proofing measures
- 52 solid wall insulation

The Energy Savings Trust (EST) carried out an analysis of the impact of the Affordable Warmth Scheme, by modelling the extent of carbon and energy savings. The analysis also identified reductions in fuel costs and measured the overall improvement in SAP ratings.

Three years after the launch of the Affordable Warmth Scheme, in 2018, EST carried out a project analysis. Their report indicates that during the lifetime of the installed energy efficiency measures, each participating household will manage to save, on average, around 72,000 kWh of energy; realise £3,650 of savings on fuel costs; reduce CO_2 emissions by 20,500kg. These savings vary, and strongly depend on the dwelling type. The largest anticipated savings are in detached houses and bungalows, which have larger floor areas and higher energy demand.

The overall impact of the Affordable Warmth Scheme to date is estimated to be around 1,053GWh of lifetime energy savings, £53.51M of lifetime fuel cost savings and 302kT of lifetime CO_2 emissions savings. The total measures deployed through Affordable Warmth have to date added 131,000 SAP rating points to Northern Ireland's dwelling stock; with SAP ratings increasing by an average of 17% for the homes participating in the Scheme.

Boiler Replacement Scheme

The Boiler Replacement Scheme is for owner occupiers whose total gross income is less than £40,000 and is to help with the cost of replacing gas and oil boilers, which are 15 years or older with new boilers and controls with a grant of up to £1,000. Householders may also wish to convert from oil to gas or to a wood pellet boiler. In 2018/19, a total of 2,690 boilers were installed at a cost of £1.9m.

During 2018/19:

2,690

Approvals issued

£1.9m

expenditure

EST carried out a similar analysis on the Boiler Replacement Scheme. The first six year analysis estimates that on average household participating in this scheme will save on average around 23,000 kWh of energy, £875 of fuel costs and 8,900 of CO_2 emissions throughout the boiler's lifetime.

They will also achieve about an 8-point increase on average in their SAP rating. Overall, based on total number of boiler installations to date, the total lifetime savings of this scheme will be 745GWh of energy, 27.81M of fuel costs and 285kt of CO_2 emissions and will also raise SAP ratings in the Northern Irish dwelling stock by 257,000 points in total. This scheme improved the average home's SAP score by 18%.

NI Sustainable Energy Programme (NISEP)

The NI Sustainable Energy Programme (NISEP) is a customer funded Programme, which provides energy efficiency, measures to home owners and private tenants. The NISEP, which runs on a year by year financial basis, has been successful in targeting homes with no heating or inefficient heating systems in addition to installing energy saving measures in homes including energy-efficient boilers, heating controls, loft insulation and cavity wall insulation.

NISEP funded £7.4 million of means-tested investment in energy efficiency schemes in 2018/19. Eligibility is based on income bands depending on your circumstances. This funding was given to both private and social housing sectors to provide energy efficiency measures.

The Utility Regulator has announced that the current Programme is now open until 30 March 2022. The NISEP funds come from a levy on electricity bills paid by both Domestic and Commercial customers throughout Northern Ireland.

The Energy Saving Trust NI is the Programme Administrator of NISEP on behalf of Northern Ireland's Utility Regulator, and schemes are delivered by a range of organisations across NI.

Domestic measures installed under NISEP during 2018/19:

2,809

loft insulation

3,109

cavity wall insulation

1,369

heating

Social Housing Development Programme

The Social Housing Development Programme delivered 1,682 completed homes in 2018/19 (against a target of 1,450). 75% of these completions (1,259) were newly constructed units. New build homes are constructed by housing associations in compliance with current Building Regulations, which produce an average SAP rating of approximately 83 (Band B). This level of SAP rating is a contributing factor for the higher mean SAP of 72.63 for social housing in comparison to the mean SAP of 65.11 across all tenures of occupied dwellings.

Energy Efficiency Multiplier

The DfC Housing Association Guide offers an optional Energy Efficiency Multiplier which supports sustainable and energy efficient design beyond the existing statutory minimum SAP ratings for new build homes delivered via the Social Housing Development Programme. This offers benefits both for householders and the environment by providing fabric first solutions and minimising the need for additional mechanical fittings within newly constructed dwellings.

Sustainable Design Standards

Good housing design has a key role in meeting the aspirations of sustainable communities and protecting our environment, stimulating economic growth, maximising wellbeing and achieving social inclusion.

The key objectives for sustainable social housing design are:

- Ensuring homes are liveable, comfortable, healthy, safe and help improve people's overall quality of life
- Protecting the environment and specifically reducing the effects of greenhouse gases and impacts of climate change
- Helping to tackle fuel poverty by reducing resident outgoings on fuel; and
- Leading by example and helping residents live sustainably

Future Homes Standard

Currently, new and existing homes account for 20% of greenhouse gas emissions in the UK. If the government wants to meet its net zero emissions target by 2050, reducing the level of carbon emissions from new homes is vital.

The Future Homes Standard is currently the subject of consultation. It will pave the way for all new homes in England from 2025 to be built with the latest generation clean technology such as air source heat pumps and cutting-edge solar panels, to drastically cut carbon emissions and keep bills low for homeowners. After this date, potentially all new-build homes built in England will be banned from having fossil fuel heating systems such as gas boilers installed.

The UK Housing Secretary said: "Building new homes isn't just about bricks and mortar. I want to ensure everyone, including developers, do their bit to protect the environment and give the next generation beautiful, environmentally friendly homes that local communities can support".

Despite progress reducing emissions from homes, we need to go much further. New homes being built in the next 10 years will still exist in 2050 and therefore we must ensure that the energy efficiency standards we set for them put us on track to meet the 2050 target.

Within the Northern Ireland context, the current focus is to displace oil with natural gas where available, as NI has 68% of houses connected to home heating oil, compared to 4% of homes in England.[1]

Housing Executive Energy Efficiency measures within Planned Maintenance Works

In 2018/19, the Housing Executive invested approximately £24.6 million in energy efficiency measures within its planned maintenance programme across its own housing stock.

£4.1m on **2,461**

double glazing installations
(providing A-rated double glazed units)

£20.5m on **5,232**

heating conversions (energy efficient boilers) which includes zoning where practical and 270mm loft insulation

Housing Executive HEATSMART Initiative

The Housing Executive continues to provide an energy advice service for its tenants, based on need. During the financial year 2018/19 the current provider, Bryson Energy provided 6,300 home visits.

Solar Photovoltaic (PV) schemes within Housing Executive stock

In summer 2016, the Housing Executive completed a solar PV scheme in partnership with Saliis Ltd, to install solar panels into 1,000 homes using private finance based on the 'rent a roof' model. The Scheme was the first large solar PV project for residential properties in Northern Ireland, and has created household savings of £150 - £200 on annual energy bills. Next year the Housing Executive's Research Deptartment will carry out an evaluation of the first three years of the scheme to analyse savings in householder energy bills.

Oil Buying Clubs across the Social and Private Sector

In 2014, the Housing Executive awarded a contract to Bryson Energy to set up a network of 27 Oil Buying Clubs across Northern Ireland. Since its inception, 5,000+ Oil Buying Club members across 27 clubs have purchased cira £11m litres of oil, providing savings of £10-£25 per order per household.

27 Oil Clubs

25m litres delivered
April 2018-March 2019

5,000+
Members to date

11.7%
Savings on a delivery of
300 litres

1. *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817757/EHS_2017-18_Energy_Report.pdf*

Living sustainably - protecting the environment

Housing Executive

The Housing Executive has embarked on a multi-million pound investment programme to improve the energy performance of almost 2,700 of its homes across Northern Ireland.

The Energy Efficiency in Social Housing project has been made possible by funding of €22.951 million secured from the European Regional Development Fund (ERDF) through its Investment for Growth and Jobs Programme for Northern Ireland 2014-2020. A further €22 million in funding is being invested by the Housing Executive.

The six year €45 million programme is expected to be completed by the end of 2023. A number of schemes have already been completed or are currently onsite across South Antrim, Causeway, Magherafelt and Omagh. The schemes include addressing aluminium bungalows. Improvements to the thermal efficiency of these homes include cladding, new double glazing and insulation.

The rest of the programme will see similar works to more aluminium bungalows and over 2,500 No Fines properties all across Northern Ireland.

Aluminium Bungalows

The Housing Executive has undertaken a comprehensive cladding programme to its Aluminium Bungalow stock. This has centred mainly in South Region and commenced on site in April 2016: To date 91 dwellings have benefitted from thermal improvement works in Portadown, Cookstown, Banbridge, Newry, Magherafelt, and Omagh. Two remaining schemes are due to start on site in Lurgan and Bangor this financial year.

The Regional Manager (South) has praised the recent energy efficiency schemes which saw the cladding and upgrade of 91 aluminium bungalows in the South Region. He stated: "These properties have been extremely popular over the years and are a valuable resource for persons with mobility issues.

Cavity Wall Insulation Research Project

In 2017, the Housing Executive commissioned the British Board of Agrément's Consultancy, Investigation & Training subsidiary (BBA CIT) to carry out a research project into cavity wall insulation (CWI) across Northern Ireland. A sample of more than 800 Housing Executive properties and 100 privately-owned dwellings were surveyed. The BBA CIT's report incorporating its findings and recommendations was published in May 2019.

The Housing Executive, is now carrying out further analysis of the survey data in order to apply the same findings across the entire stock and assess whether there are particular ages or types of properties where this is an issue.

This will be included as part of our Action plan that will be issued for consultation later in 2020.

Housing Executive Energy Efficiency strategy

The purpose of the Housing Executive's Energy Strategy for its existing homes is to minimise tenants' heating bills, fuel poverty, and carbon emissions.

70% of the SAP energy cost efficiency scores on the Housing Executive home Energy Performance Certificates fall between 54 (within band E) and 71 (within band C).

The UK government has adopted a target of 'Net Zero' emissions by 2050. This implies that current and new homes, which will be in existence long past this date, must be very well insulated, and that they should primarily use renewable energy for heat and power.

Adopting a 'Fabric First' approach by insulating our dwellings, reduces fuel poverty and works well with a wider range of future heating systems. It will be compatible with an increased use of local renewable energy resources, when we must urgently reduce our burning of fossil fuels.

The Strategy takes into account the likely availability of funds when considering how to 'futureproof' Housing Executive homes, at a time when major changes in NI government energy policy are likely.

Housing Executive/BRE report into Cost to make dwellings in Northern Ireland Energy Efficient (2019)

This report was commissioned by the Housing Executive's Sustainable Development Unit as an exercise to estimate the potential cost of improving all Northern Ireland's housing stock to a standard in line with typical energy efficiency and heating upgrade scenarios commonly used across both the public and private sector.

The report summarises modelling work undertaken by BRE, using data from the 2016 Northern Ireland House Condition Survey (NIHCS). Energy efficiency improvements have been applied to dwellings under eight different scenarios.

- Three scenarios examine heating measures only
- Three examine insulation measures only
- One examines double glazing and
- One is a combination of all these scenarios.

There is no threshold over which a dwelling is considered energy efficient and therefore not in need of additional improvements. A SAP rating of 65 is often used as an indication of an energy efficient dwelling. This report looks at the proportion of the housing stock taken above this threshold by the various improvement scenarios, however it should be noted that the mean SAP rating of all dwellings in Northern Ireland is already over 65 and over 60% of dwellings already achieve this level.

The following table shows the number of improvements installed under each improvement scenario.

- Over 632,000 dwellings received at least one improvement measure.
- Double glazing was the highest single measure to be installed (454,000) with heating scenario 2 being the least utilised improvement measure (21,000).

Scenario Name	Scenario Description
Heating 1	Dwellings with central heating are given a condensing boiler, if one is not already installed. Where a water cylinder is already present in the dwelling, a standard condensing boiler is installed; otherwise a condensing-combination boiler is installed. Where mains gas is available, a gas condensing boiler is installed; otherwise an oil condensing boiler is installed.
Heating 2	Dwellings with non-central heating are given central heating with a condensing boiler, on the same basis as above.
Heating 3	Combines heating scenarios 1 and 2.
Insulation 1	Dwellings with unfilled cavity walls (partial or full) with a U-value of > 0.6 W/m2K are given cavity wall insulation.3
Insulation 2	Dwellings with lofts and <= 150mm of loft insulation are given 270mm of loft insulation
Insulation 3	Combines insulation scenario 1 and 2, to give dwellings cavity wall and / or loft insulation where appropriate.
Double Glazing	Dwellings with single glazing, or pre-2006 double glazing, are improved to modern double glazing, with a U-value of 1.6 W/m2K.
All	Combines heating scenario 3 with insulation scenario 3 and double glazing, to give dwellings all appropriate heating and insulation measures.

Effect on SAP Ratings

The effect of each scenario on the mean SAP rating in Northern Ireland has been estimated. The SAP ratings of dwellings in each scenario have been calculated by adjusting the base dataset to simulate the effect of each energy efficiency improvement, before recalculating SAP. Improvement measures are only included if an improvement of at least 0.95 SAP points is made to the dwelling. Improvement measures that do not achieve this increase in SAP are not considered to be a cost-effective improvement measure and are therefore discounted from the modelling process.

The table across shows the mean SAP rating of the whole stock under each improvement scenario. Including all appropriate improvement measures results in an increase in the mean SAP rating of 8 SAP points; from 65.8 to 73.8 (Band C).

The cost of applying improvement measures has been calculated for each dwelling.

- Mean indicative costs are applied to each improvement measure that a dwelling has received, as is consistent with the methodology used for calculating the cost of improvements in EPCs.
- This differs from the approach used previously for this work, which was based on an annual uprating of commercial price data that is no longer available.

The cost of applying all relevant improvements to the housing stock would be approximately £2.4 billion. Of this, heating scenario 1 has the highest associated total cost of an individual measure, partly due to the high number of dwellings which receive this improvement (56% of the stock).

For full details of the report: https://www.nihe.gov.uk/Documents/Research/You-can-download-the-reports-below/Cost-to-make-NI-dwellings-energy-efficient.aspx

Number of improvement measures installed for each scenario (1,000s of households/£000s)

Improvement measures installed	Heating 1	Heating 2	Heating 3	Ins 1	Ins 2	Ins 3	Double Glazing	All
Gas Central Heating	179	8	187	-		-	187	187
	814,792	38,839	853,631					853,631
Oil Central Heating	257	13	270	-		-	-	270
	669,109	64,145	733,254					733,254
Cavity Wall Insulation	-	-	-	76		76	-	76
				76,312		76,312		76,312
Loft Insulation	-	-	-	-	218	218	-	218
					49,072	49,072		49,072
Double Glazing (from single)	-	-	-	-	-	-	50	50
							49,072	49,072
Double Glazing (from pre-2006 double)	-	-	-	-		-	404	404
							485,164	485,164
Total number (dwellings improved)	436	21	457	76	218	260	455	632
	1,483,902	102,984	1,586,885	76,312	49,072	125,385	731,615	2,443,885

Potential Benefits via Mean SAP rating of stock under each improvement scenario

	Base	Heating 1	Heating 2	Heating 3	Ins 1	Ins 2 (CWI)	Ins 3 (LI)	Double Glazing	All
Mean SAP rating (whole stock)	65.8	71.3	66.4	71.9	66.3	66.5	67.0	67.2	73.8

Energy Efficiency and Renewable Innovation (EU Interreg Project: HandiHeat)

The HANDIHEAT Project commenced in October 2018, with the Housing Executive acting as lead partner together with a range of organisations from Northern Ireland, the Republic of Ireland, Scotland, Finland and Iceland.

Now in the second year of its three year programme, HANDIHEAT is progressing its outputs with a focus on identifying renewable energy solutions, best practice, toolkits, training and road maps for rural communities affected by fuel poverty and fuel inequality due to heavy reliance on imported fossil fuels for the production of energy.

The project's main outputs will have a positive impact on the awareness of energy efficiency opportunities and renewable solutions in housing and public infrastructure in remote and sparsely populated areas.

The feasibility of alternative heating scenarios will be evaluated through two pilot demonstration sites in Finland and Northern Ireland, and will draw on the technical input and expertise of partners including PURE Energy Centre, Shetland and Austurbrùses, Iceland, as well as those associated with the extended network of contacts in each region. Non-technical partners will be updated through regular communication and content produced for rural communities. This work package is being conducted by Clár Irish Centre for Housing, Co Mayo and ARC Healthy Living Centre in Irvinestown.

The pilot demonstrations are primarily designed in response to the reliance on heating oil in rural parts of the NPA region, resulting in polarisation of communities in terms of choice, cost and greenhouse gas (GHG) emissions.

HANDIHEAT
Improving Energy Efficiency For Rural Areas

Karelia University of Applied Sciences (KUAS) will oversee the technical implementation of the first pilot site in Finland, which is due to begin before March 2020, where heating oil will be replaced with compressed biogas (CBG). In addition to this, KUAS will also develop an economically and environmentally sustainable biogas action plan for vehicle fuelling. Demonstrating the feasibility of the CBG model will promote future anaerobic digestion and compressed biogas investments throughout the NPA region. As Lead Partner, the Housing Executive will work closely with KUAS to understand and document implementation stages of the CBG pilot for future deployment in other markets.

The second pilot demonstration being led by the Housing Executive will be achieved through its coordination and collaboration with associate partners and suppliers across Ireland to investigate possible hybrid energy solutions for five houses in Lisnaskea, Co Fermanagh.

The monitoring equipment for the NI pilot site was installed in January 2020 with the data being monitored and evaluated by an appointed PhD student from Ulster University. Both pilots will draw on the experience of the technical input and expertise of partners including PURE, Karelia UAS and Austurbrùses and parties associated with the extended network of contacts in each region. The results of the pilot demonstrations will inform and influence energy policies going forward.

The HANDIHEAT project includes partners from ARC Healthy Living Centre, Co Fermanagh, Clár Irish Centre for Housing, Co Mayo, Karelia University of Applied Sciences, Finland, Luonnonvarakeskus (LUKE) Natural Resources Institute Finland, PURE Energy Centre, Shetland; Austurbrùses, Iceland and associate partners Ulster University and PowerOn.

The focus on Energy Efficiency activity undertaken by local Councils

Derry City & Strabane District Council

Derry City and Strabane District Council secured European funding through the NPA (Northern Periphery and Arctic) programme in conjunction with a number of EU partners to deliver the SECURE, Smarter Energy Communities Project.

This was a three year project to increase energy efficiency and promote renewable energy solutions by designing, developing and implementing pilot projects.

Early in 2019, as part of the pilot projects, the Council installed a 12KW Solar panel array on the roof of the building at the Irish Street Community Centre linked to 3 X 5KW battery units located inside the building.

The pilot project looked at utilising the electricity generated from the PV panels through an intelligent control system to power the building and charge the batteries on a daily basis during daylight hours.

The batteries can be discharged after sundown to power the building, thereby making it self-sufficient from the electricity network.

Data is still being correlated on a monthly basis, but early indications are very positive with the building effectively being continuously powered by the PV/ battery combination for most of summer months. However, a full year's data will be required before actual CO_2 and financial savings can be established.

Causeway Coast & Glens Council

Causeway Coast & Glens Council have committed to reduce their carbon footprint by selecting approved renewable energy systems for their Estates on an affordable business-case basis and also to select more efficient and appropriate technologies that reduce energy consumption as part of the Councils 2015-2025 Energy Management Strategy.

To date, CC&G have installed 19 Solar PV Generators with a total kW generation capacity of 360kW. These systems range in size from 3kW to 50kW.

Causeway Coast & Glens Council have also installed 5 solar thermal systems supplementing fossil fuel heating energy sources for Domestic Hot Water systems with a renewable sourced heating energy system for various Estates premises.

The Council's Annual Solar PV Generation for 2018/19 was 271,000kWhs.

Lisburn & Castlereagh City Council

Lisburn & Castlereagh City Council (LCCC) is currently progressing a number of utility reduction measures; spearheading the process with the implementation of an Automatic Monitoring & Targeting (aM&T) system in council facilities.

This fundamental energy management technique will allow LCCC to gain a better understanding of utility usage in its buildings. aM&T will help LCCC to identify avoidable wastage or other opportunities to reduce consumption and by association, reduce CO_2 (Carbon Dioxide) emissions.

Monitoring will establish the existing pattern of utility consumption, and allow targeting consumption, which can be set as a goal for an energy management programme. The process is broken down into four stages:

1. Data collection
2. Data analysis
3. Reporting
4. Action

The environmental benefits of the aM&T project will include reducing LCCC's carbon emissions and other greenhouse gases. The aM&T system will provide LCCC an accurate payback measure after its investment in energy efficiency measures.

From an energy management perspective it has been well established that energy metering, monitoring and targeting recognises that you cannot manage what you do not measure, and you can manage what is not measured.

Energy Efficiency activity within the Housing Association Sector

Good housing design has a key role in meeting the aspiration of delivering sustainable communities and protecting our environment, stimulating economic growth, maximising wellbeing and achieving social inclusion.

Local housing associations play a central role in the construction of high quality, energy efficient new homes throughout Northern Ireland.

Housing Association Movement: Case Studies

Killynure Green, Carryduff

Choice Housing Ireland Ltd

Choice is one of the largest independent housing associations in Northern Ireland providing high quality homes and care and support services to help meet the diverse needs of a wide range of customers, including older people, families, mature singles and people with complex needs.

Choice understands that energy cost is a concern for tenants and have put various measures in place to ensure that the homes they provide are some of the most energy efficient in the country.

Killynure Green, Carryduff (Phase 2)

This new development of 24 homes is currently under construction and due to be completed early in 2020.

This scheme is unique as it is expected to be the first housing association scheme to meet the higher optional energy requirements which are outlined in the Housing Association Guide.

In meeting the higher energy standard, homes must meet two specific criteria, relating to the energy efficiency of the building fabric and also the achievement of a Band A EPC.

The first phase of this development was completed in 2015 and received significant recognition as a zero carbon scheme and one which met Level 5 of the Code for Sustainable Homes.

This second phase builds on this success with very energy efficient homes, with the small heat load and hot water demand met by a natural gas boiler, and each home benefitting from a small solar PV system which generates renewable electricity.

Existing Homes

Choice HA carry out a programme of improvements to their homes each year and by the end of 2019 are expected to have replaced over 150 oil boilers with new efficient natural gas boilers.

This improvement is expected to deliver a large number of benefits for our tenants, including reduced heating and hot water consumption and collective energy savings of over £20,000 per year.

Choice tenants' impact on the environment is also expected to have reduced by over 200Tonnes of CO_2 per year.

Converting to natural gas also allows tenants to budget more easily going forward, as they don't have to save up for heating oil deliveries, and it removes the potential use of emergency oil drums.

When carrying out heating upgrades Choice seek to also improve building fabric where possible, through measures such as loft or wall insulation.

Some of these improvements have received financial support in the past through the Northern Ireland Sustainable Energy Programme (NISEP).

To have a more equal society

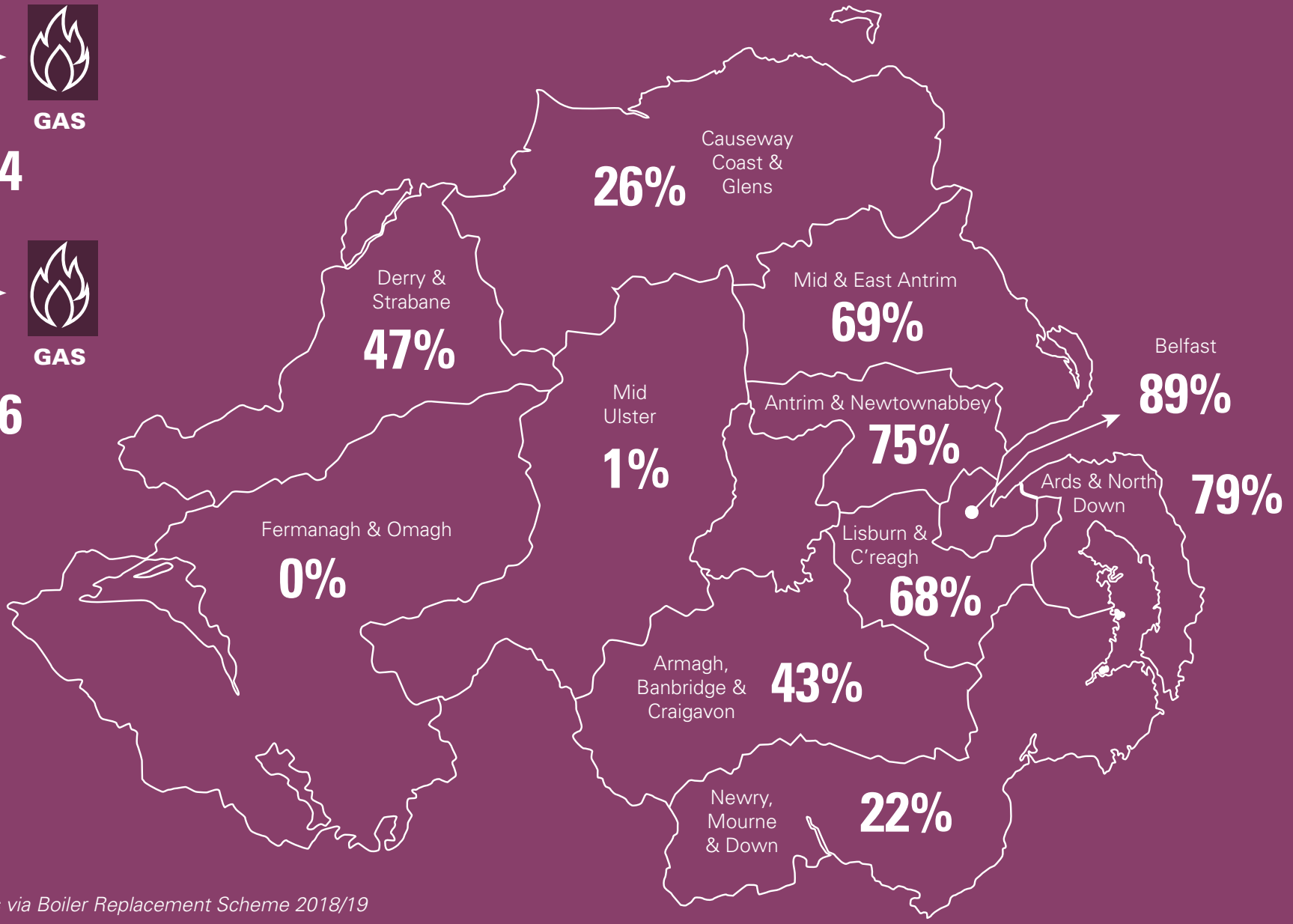
Proportion of gas installations by Council Area

GAS → GAS

1,514

OIL → GAS

1,176



TOTAL 2,690

% = Gas installations via Boiler Replacement Scheme 2018/19

Measures to provide a secure sustainable energy mix

Northern Ireland continues to have amongst the lowest levels of household income across the UK. Taken in conjunction with challenging economic conditions and potential future reductions in welfare expenditure, many families continue to face challenges with meeting their energy costs.

Regarding sustainability, Northern Ireland needs to ensure that any energy infrastructure investment provides regulated energy whilst being cognisant of the net zero energy target for 2020[1], without putting an excessive financial burden on consumers.

At present within its own stock, the Housing Executive installs natural gas, where available, in preference to home heating oil. Although both are fossil fuels, natural gas is preferred with the balance of price security of a regulated energy supply and the least worst option regarding greenhouse emissions.

The Housing Executive recognises the need for low carbon solutions in the short term and net zero options in the longer term. Pilot projects are presently being planned within the HANDIHEAT EU project and similar projects with both academic and research partners.

Phoenix Natural Gas own and operate the gas distribution network in the Greater Belfast, Larne and East Down areas, in Northern Ireland. The Phoenix Natural Gas network makes gas available to some 330,000 properties with around 210,000 of these properties currently connected, and continues to connect around 8,000 new properties per year. They are constructing a new gas infrastructure in the East Down area, making natural gas available to some 25,000 properties in this area over the next number of years.

SGN Natural Gas continues to develop the natural gas network in counties Derry-Londonderry, Tyrone and Fermanagh. Over 200 customers are now connected to the network in Strabane with demand continuing to surpass expectations.

Firmus Energy currently has natural gas available to over 120,000 homes and businesses throughout its network area, which stretches from Newry through the central corridor in NI to Derry-Londonderry.

The Integrated Single Electricity Market (I-SEM)

The Integrated Single Electricity Market (I-SEM) is a new wholesale electricity market arrangement for Ireland and Northern Ireland. The new market arrangements are designed to integrate the all-island electricity market, with European electricity markets, making optimal use of cross-border transmission assets, which, according to the SEM Committee, is expected to "deliver increased levels of competition which should help put a downward pressure on prices as well as encouraging greater levels of security of supply and transparency"[2]

In August 2019 the Utility Regulator for Northern Ireland noted the regulated electric supplier provides annual average bills of £600, compared to £800 in RoI and £700 in GB.[3]

Measuring energy efficiency investment

During 2018/19, the Housing Executive invested approximately £41m in order to improve thermal efficiency, influence and increase strategic action to tackle fuel poverty and improve access to energy efficiency measures and advice across Northern Ireland working with the Department for Communities.

Our indicators show:

2018/19 Energy Efficiency Investment via the Housing Executive	£
Housing Executive Heating Schemes	20,500,000
Housing Executive Double Glazing	4,100,000
DfC Affordable Warmth	14,500,000
DfC Boiler Replacement	1,900,000
Energy Marketing, Energy Advice Line, Oil Buying Clubs & Housing Executive HeatSmart Programme	283,000
Fund NEA	45,000
TOTAL	**41,328,000**

Above does not include the NI Sustainable Energy Programme of £7.4 million for energy efficiency schemes

1. The Climate Change Act 2008 (2050 Target Amendment) Order 2019 is to ensure that the net UK carbon account is lower than the "1990 baseline" (the baseline of net UK emissions of targeted greenhouse gases.

2. A Quick Guide to the ISEM 2016

3. Utility Regulator comments on Power NI's tariff increase

Outcomes: Improving People's Homes and Helping to Transform their Lives				
Area of Activity	**Position at the end of 2017/18**	**Indicators**	**Action**	**Progress during 2018/19**
Improving Domestic Energy Efficiency	SAP 65.83 (Mean) rising to 66.32 for occupied dwellings, based on 2016 HCS 68% of Households dependent on home heating oil (per 2016 HCS) Based on 2016 HCS, a 29.1% improvement in the energy efficiency of NI's (occupied) housing stock was recorded between 1996 and 2016	Initiatives/ Measures to improve energy efficiency	Evaluate/ Review data	Preparatory work for the 2020 House Condition Survey (HCS) is on-going. SAP ratings; the extent of home heating oil dependency; and the energy efficiency of NI's housing stock will be all be re-assessed as part of the new HCS in 2020.
	Housing Executive Sustainable Development Staff provided energy efficiency advice & assistance at the Balmoral Show, the Self-Build Show and the Energy Saving Week event Energy advice provided to 7,008 households via the 0800 Freephone Energy Advice Line 6,300 Housing Executive tenants received HeatSmart energy efficiency advice Energy advice provided to 160 primary schools National Energy Action provided energy advice to a range of voluntary organisations	Improved access to energy efficiency advice (number of customers)	Market the energy efficiency message	Housing Executive staff promoted energy efficiency measures at the following public events/exhibitions: SelfBuild Live Belfast Show, 22-24 February 2019 The Balmoral Show, 15-18 May 2019 Love Your Home exhibition, 11-13 October 2019 Housing Executive partnered the Energy Saving Trust in the delivery of its 'Energy Saving Week' campaign 18-22 November 2019 Housing Executive participated in National Energy Action's (NEA) UK-wide Fuel Poverty Awareness Day 15 February 2019 Bryson Energy provided energy efficiency advice to c. 7,000 households via the 0800 Freephone Energy Advice Line 6,300 Housing Executive tenants received HeatSmart energy efficiency advice Energy advice provided to 130+ primary schools via the Schools Energy Efficiency Awareness Programme Home Energy School Poster Competition launched in May 2019 & completed in June 2019 National Energy Action provided energy efficiency advice to a range of voluntary organisations 17 Housing Executive staff trained by NEA to Level 3, City & Guilds 6281-01 Energy Awareness qualification.

Outcomes: Improving People's Homes and Helping to Transform their Lives

Area of Activity	Position at the end of 2017/18	Indicators	Action	Progress during 2018/19
Reducing Fuel Poverty	22% of households (160,000) in NI were in fuel poverty (under the 10% Definition, per 2016 HCS). This was a decrease of 20 percentage points compared to the 42% recorded in the 2011 HCS. 3,061 replacement boilers installed (£1.9m Investment) Installation measures for NISEP funding of almost £7m toward energy efficient measures	Measured within NI House Condition Survey Increase of affordable warmth for disadvantaged energy consumers (NI Housing Condition Survey Fuel Poverty average)	Provide fuel purchasing opportunities for low income families	BRE's Fuel Poverty Update indicated that (by 2018) an estimate of 18% of households (131,000) in NI were in fuel poverty (based the 10% Definition used in the 2016 HCS). This was a decrease of 4 percentage points compared to the 22% recorded in the 2016 HCS. 2,690 replacement boilers installed through the Boiler Replacement Scheme £1.9m investment. NISEP contributed funding of almost £7.4m towards the installation of energy efficient heating systems and insulation measures.
	27 oil clubs have been established since the inception of Oil Buying Clubs in 2014 5,000+ oil buying club members acquired 3.5m litres of home heating oil Savings of 7% below NI average price	Implement energy efficiency schemes within social and private housing sectors	Provide fuel purchasing opportunities for low income families	Number of Oil Buying Clubs remained static at 27 during 2018/19 5,000+ oil buying club members purchased 2.5m litres of home heating oil during 18/19 Savings of 11.7% below NI average price
	8,232 Affordable Warmth measures in 4,148 homes	Increase of affordable warmth for disadvantaged energy consumers (NI Housing Condition Survey Fuel Poverty average)	Implement energy efficiency schemes within social and private housing sectors	6,063 Affordable Warmth Measures in 3,205 homes. Reduction in budget from previous years.

B

Outcomes: Improving People's Homes and Helping to Transform their Lives

Area of Activity	Position at the end of 2017/18	Indicators	Action	Progress during 2018/19
Living Sustainably - Protecting the Environment	Housing Executive external Wall Insulation with High Rise Construction; Carnet House and Whincroft House. Housing Executive external cladding for 118 aluminium bungalows. Newry Retrofit Scheme for 5 dwellings complete. Research on cavity wall complete, awaiting the final report.	Increased innovation in sustainable energy efficiency	Research & install innovative measures to create more efficient homes	Housing Executive invest £45 million in energy efficiency works to Aluminium Bungalows and No Fines properties between 2020-2023 (50% funding came from European Regional Development Fund) Housing Executive external cladding for over 91 Aluminium bungalows. Cavity Wall Research published and field trails are ongoing to inform future strategy and policy
	Housing Executive applied for EU Interreg funding as Lead Partner with 6 EU partners to research energy efficiency and renewable energy solutions for dwellings in rural communities ISO 14001:2015 accreditation secured for the Housing Executive's Headquarters building in Adelaide Street.	Increased innovation in sustainable energy efficiency	Seek to increase electricity consumption from renewable resources	EU Interreg project (€2m) was secured in July 2018 and commenced on 1st Oct 2018 as the HANDIHEAT Project, with the Housing Executive as Lead Partner, investigating improved energy efficiency and renewable technologies for rural communities. ISO14001:2015 accreditation for the Housing Executive's Headquarters building in Adelaide Street was reconfirmed in June 2019.

Outcomes: Improving People's Homes and Helping to Transform their Lives

Area of Activity	Position at the end of 2017/18	Indicators	Action	Progress during 2018/19
To have a More Equal Society	Progress of Gas to the West, East Down and Newry via Phoenix, Firmus and SGN Gas companies.	No change with 68% household reliant on oil based heating systems (HCS)	Provide measures to secure energy mix	New natural gas connections. Phoenix 8,000 SGN 500 Firmus 13,000

Conclusion

This has been a positive year within the Northern Ireland energy efficiency sector.

The analysis from the most recent House Condition Survey model estimates indicate the cost of unregulated home heating oil has reduced, a small increase in houses converting to natural gas and increased energy efficiency measures within households.

These factors collectively contributed to a downward pressure on fuel poverty to 18% in 2018.

Investment from the Department of Communities and the Utility Regulator has continued to support much needed energy efficiency schemes and programmes during the past year.

The current national and international debate regarding the Climate Emergency and the UK Government's changes to the Climate Change Act to achieve 'net zero' by 2050 has crystallised the need for sustainable green energy and improved energy efficiency to reduce the extent of household energy demand.

The Housing Executive's recently commissioned report 'Cost to make dwellings in Northern Ireland energy efficient' which considered heating and insulation measures and modelling work to estimate the cost associated with improving the energy efficiency of dwellings in the Northern Ireland housing stock, using data from the 2016 Northern Ireland House Condition Survey (NIHCS).

Energy efficiency improvements have been applied to dwellings under eight different scenarios; three scenarios examine heating measures only, three examine insulation measures only, one examines double glazing and one is a combination of all these scenarios. The cost of applying all relevant improvements to the housing stock is around £2.4 billion.

Upgrading standards to SAP Band C has been discussed at national level as a target for energy efficiency after major improvements to existing residential dwellings by 2030; however this ambition may soon be eclipsed by a desire for higher standards of energy efficiency in future years.

The Housing Executive welcomes the recent publication of the Department for the Economy's consultation document Energy Strategy - Call for Evidence, which will provide clear direction for a transition to a zero carbon and climate resilient society in future years.

The Housing Executive will continue to work in partnership with the Department for Communities, the Utility Regulator, local Councils and other key stakeholders, to secure further reductions in energy consumption; deliver improvements in energy efficiency and conduct research to assist in the development of de-carbonised heating solutions which will assist in the on-going effort to alleviate Fuel Poverty in Northern Ireland.

References

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BRE/Housing Executive Estimates of Fuel Poverty in Northern Ireland in 2017 and 2018 (May 2019)

BRE/Housing Executive Cost to make dwellings in Northern Ireland energy efficient (March 2019)

Acknowledgements

The Housing Executive would like to express its gratitude to all those involved in production of the Home Energy Conservation Authority Progress Report, 2019.

This document is available in alternate formats.

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RS/291/02/20