Norwich City Council Home Energy Conservation Report 2019 - 2021

Section 1 - Foreword:

Reducing energy use has important environmental, social and economic benefits and therefore clearly contributes to Norwich city council's corporate priorities. It also helps to meet both national and international targets to reduce carbon dioxide emissions.

Increasing the energy efficiency of homes can also work to reduce fuel poverty. Over recent years steep increases in fuel prices have, in part, resulted in a rise in fuel poverty nationally and so emphasise the importance of reducing the impact of this issue locally.

The council has been working hard to try to combat fuel poverty across the city and to mitigate the effects of fuel poverty wherever possible. While fuel poverty has not increased since 2011, we have seen an increase from 2015-2016, due to rising fuel prices and decreasing central government support for home energy efficiency improvements. Clearly there is still more to do.

There appears to be a disconnect between the government's ambition to improve the energy efficiency of all fuel-poor homes to a decent band C level and the amount of money being spent on the issue. However, as government funding has dwindled over time we continue to work tirelessly to pursue alternative funding options to enable us to continue to deliver this important work and ultimately to reduce fuel poverty in Norwich. We must, however, remain realistic in our aspirations with what we can deliver with decreased resources.

The reduction of fuel poverty is vital to improve the health of the local community, enhance prosperity and improve the housing stock. Our programme of activities will, we hope, be assisted by a combination of government funding, other ad hoc funding schemes and our own funding. We will continue to work to improve the housing stock in Norwich (both private and social), in order to increase energy efficiency across Norwich.

Since the introduction of the Home Energy Conservation Act we have run a wide range of programmes and projects to promote energy efficiency to our residents. This report outlines how we will continue to develop this work over the next two years.

Add Portfolio Holder for Social Inclusion (Picture)

2 - Executive Summary:

Aim:

The Home Energy Conservation Act 1995 (HECA) recognises that local authorities are well placed to use their position to seek to improve the energy efficiency of residential accommodation within their local communities. HECA updates are required bi-annually and this report provides an update on the work undertaken since the publication of Norwich City Council's 2017 HECA report.

This HECA report is written in accordance with the HECA guidance published by the Department of Business, Energy and Industrial Strategy (DBEIS) in January 2019, titled: Guidance to English Energy Conservation Authorities issued pursuant to the Home Energy Conservation Act 1995. The full report submitted to DBEIS can be found in Appendix I.

Structure of the report:

Firstly the report considers the age and condition of the city's housing stock, both privately and council owned.

Section 6 considers carbon emissions and energy consumption in the city, before moving to review Fuel Poverty levels and an exploration of the complex factors which make pinpointing causes of fuel poverty challenging in different areas of the city in Section 7.

Section 8 reports the various initiatives that the council has undertaken to help reduce both carbon emissions and fuel poverty across Norwich.

The report concludes by considering progress against actions set over the past 4 years and finishes by detailing future plans to continue to reduce fuel poverty and carbon emissions in Norwich, alongside the need to be realistic in our aspirations in financially challenging times.

Contents

Section 3 - Introduction:

Norwich city council is responsible for approximately 60% of the urban area of greater Norwich, including the historic city centre and a population of approximately 140,400 residents.

Norwich is an innovative, creative and vibrant city, with big ambitions for both the place and the people who live here. The first UNESCO City of Literature in England, Norwich is flourishing. It is home to the headquarters of many global companies, in the top thirteen shopping destinations in the country and is the regional employment and cultural capital. Its economic, social cultural and environmental influence is out of all proportion to its size, and extends far beyond its boundaries.

However, Norwich is a 'tale of two cities'. Whilst the city has many positive features, it nevertheless experiences many of the tough challenges that urban centres can suffer. A significant proportion of city residents suffer deprivation, poor educational attainment and poor health. Norwich is also a growing city, which puts demands on ever diminishing public sector resources, both now and in the future.

A significant proportion of Norwich residents have low-literacy levels and are lacking basic digital skills or internet access. All of which can impede access to some of the most competitive deals on a range of products from car insurance, mobile telephones and energy tariffs. The impact of financial recession and welfare reforms has only served to increase the challenges for disadvantaged residents.

Our new corporate priorities include 'People living well', which includes a commitment to 'build on progress made over recent years in tackling fuel poverty in the city'. Under the priority 'Great neighbourhoods, housing and environment' we looking to 'ensure our services mitigate against any adverse effects of climate change and are efficient to reduce carbon emissions' and 'improve the quality and safety of private sector housing'. This HECA report provides a framework to bring together in one document a number of housing improvement activities which will help to reduce fuel poverty, improve health and increase the energy efficiency of city homes.

12.3% of all Norwich households still live in fuel poverty, which equates to over 7,800 households. In the past 7 years we have experienced a credit crunch, a global recession, an extended period of limited economic growth and, for many, a stagnation of wages, resulting in a failure for wages to keep up with cost of living increases.

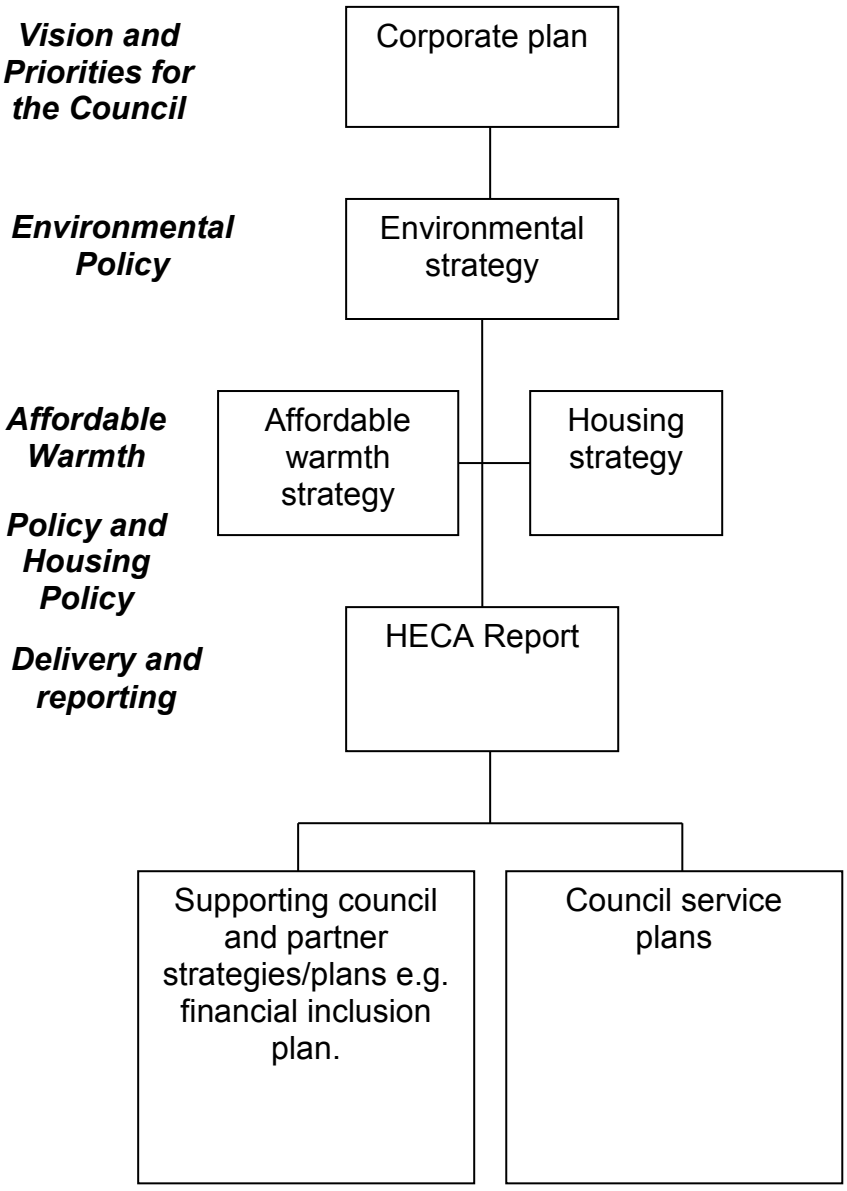
The Secretary of State for Business, Energy and Industrial Strategy requires all English authorities to prepare an update on HECA reports by 31 March 2019, setting out the energy conservation measures that the authority considers practical, cost-effective and likely to result in significant improvements in the energy efficiency of residential accommodation in the city.

This report will be a living document and will be updated as we continue our work to improve the energy efficiency of residential accommodation in Norwich over the coming months and years.

Section 4 - Strategic framework:

The diagram below sets out how the HECA reports fit in with other key strategies, policies and plans:

Strategic framework for HECA report



Our current Environmental Strategy is available on our website: https://www.norwich.gov.uk/downloads/file/1092/environmental_strategy

Section 5 - Current position in Norwich

Properties and condition of the housing stock

In 2014 the council commissioned the Building Research Establishment Ltd (BRE) to provide information on key housing and domestic energy variables, with a focus on private sector housing. The information has been derived from a series of models which make use of the Experian UK Consumer Dynamics database using a range of statistical methods. This supersedes the traditional private sector stock condition survey published in 2006.

The tables below show the years in which Norwich properties were built, both council stock and privately-owned stock:

Council Stock	Total
Pre 1918	48
1918 - 1929	519
1930 - 1949	4,703
1950 - 1963	3,969
1964 - 1974	4,017
1975 - 1982	1,607
1983 - 1990	774
1991 - 1997	27

Private Stock	Total
Pre 1919	14,867
1919 - 1939	7,740
1940 - 1963	5,371
1964 - 2001	10,426

In total, 54,068 properties were built between 1919 and 2001; 15,664 council dwellings and 38,404 in the private sector. The largest majority of council stock being built between the 1930's to the 1970's, whilst in the private sector 38.7% of stock was built pre-1919, or before the introduction of cavity walls to housing design.

The 2014 BRE stock modelling highlights the following key facts shown in the maps and table below:

Condition of Private Stock:

The Housing Health and Safety Rating System (HHSRS) identifies 29 potential housing hazards and their health effects. If a hazard is a serious and immediate risk to a person's health and safety, this is known as a Category 1 hazard. If a hazard is less serious, or less urgent, this is known as a Category 2 hazard.

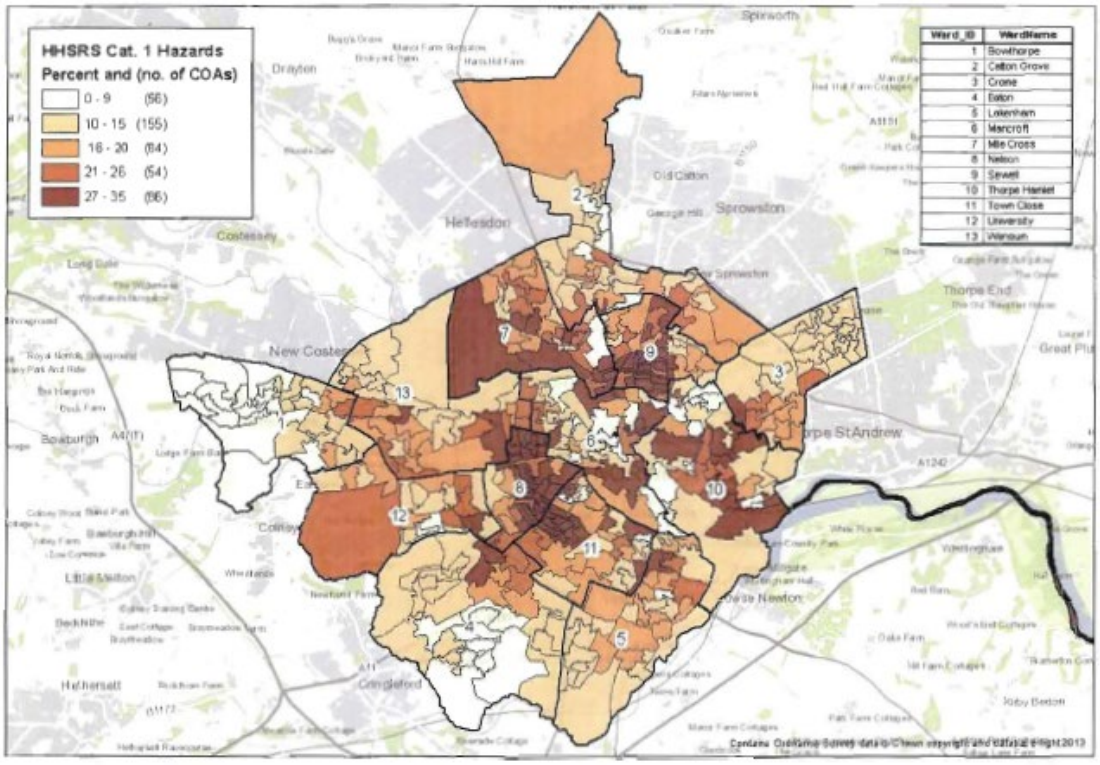
One of the potential housing hazards has been identified as Excess Cold which relates to threats to health from cold indoor temperatures. It is known that Excess Cold can bring about respiratory conditions such as: flu, pneumonia and bronchitis and cardiovascular conditions such as heart attacks and strokes.

We estimate to have 1,676 private sector dwellings with a Category 1 level of Excess Cold. Or, of the 7,981 private dwellings predicted to have a Category 1 hazard, one fifth of them will have a serious and immediate risk to the tenants' health due to excess cold.

This is borne out by the average Private Sector Standard Assessment Procedure (SAP) rating of 52 across Norwich. SAP ratings and their purpose will be discussed in more detail later in the report.

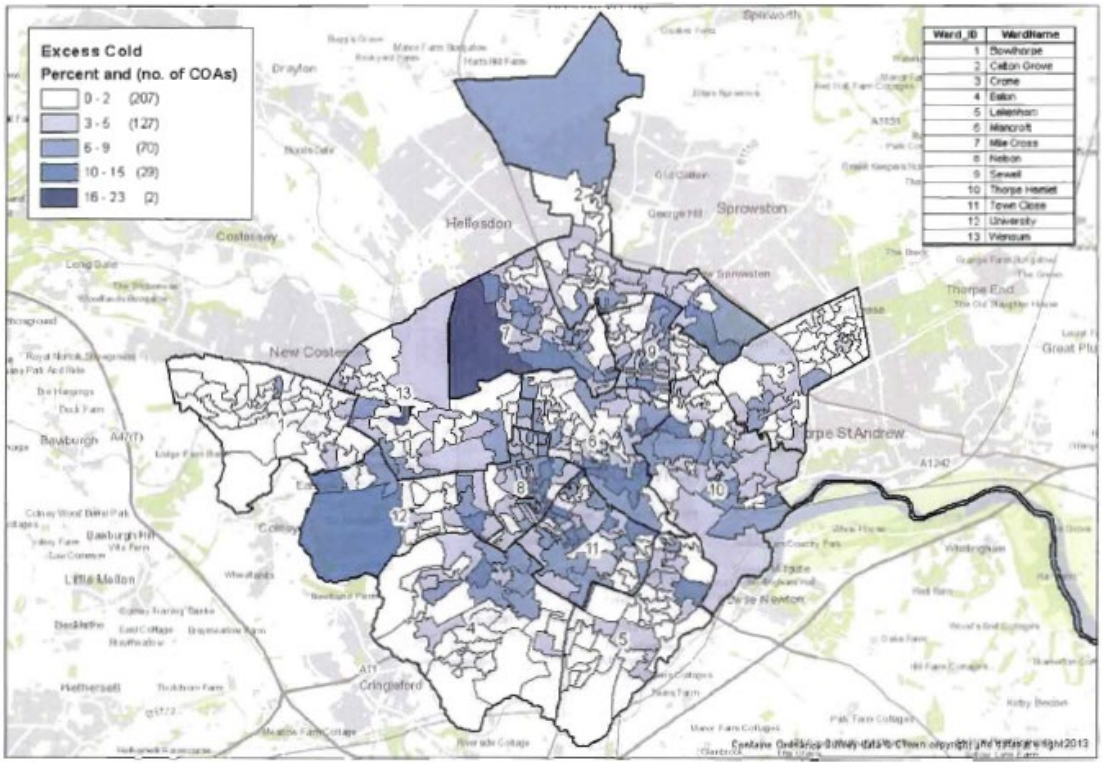
Map 1 (below) highlights the areas of the city where Category 1 hazards have been identified. The darker the colour, the greater the concentration of properties.

Map 1 – Category 1 hazards:



Map 2 (below) highlights specifically where Category 1 Excess Cold hazards have been identified. The darker the colour, the greater the concentration of dwellings.

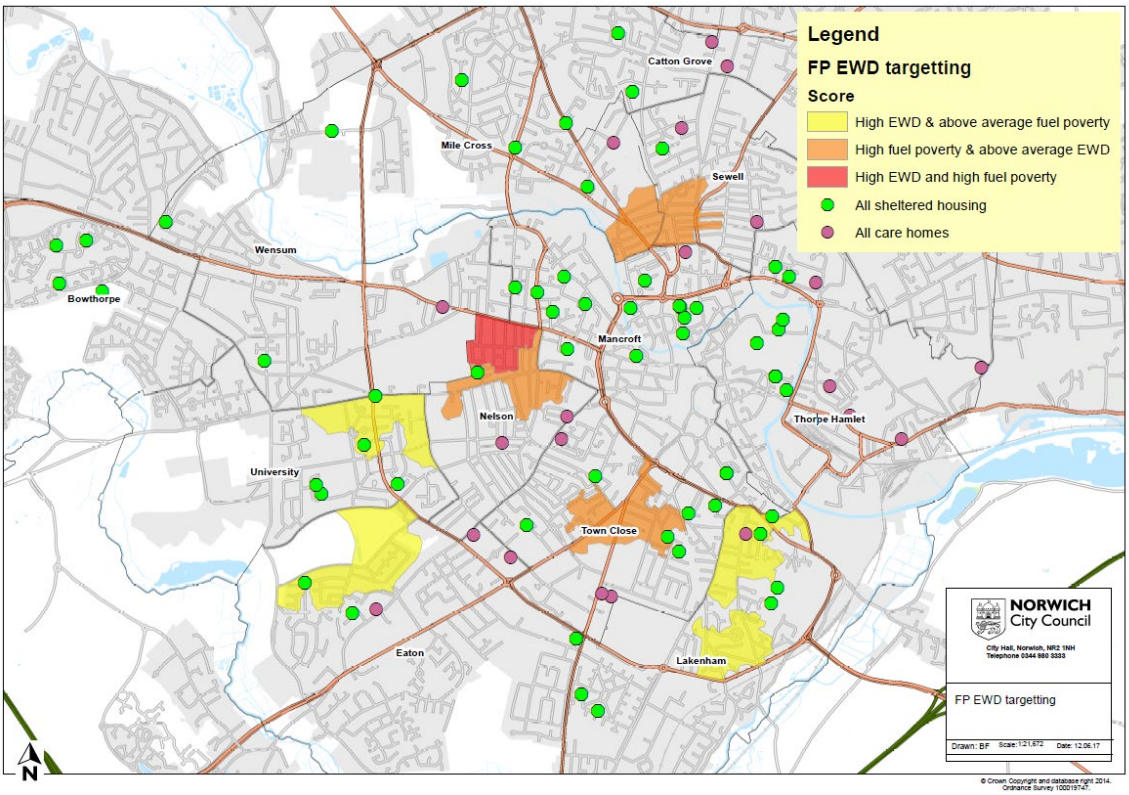
Map 2 – Excess cold:



We are able to use this data to target cold homes for home energy efficiency improvements and help with heating costs.

We have also mapped fuel poverty and excess winter death data for Norwich (Map 3, below), allowing us to identify areas with the highest risk of negative health outcomes due to cold. We have used this to target these areas with appropriate fuel poverty focused advice, including information about our switching service, making sure residents are not trapped on expensive standard tariffs.

Map 3 – Fuel Poverty and Excess Winter Deaths in Norwich



The table below shows the energy efficiency rating of the private sector stock across the city. A is the most energy efficient category, with G being the least energy efficient. 13.7% of private sector properties are F&G rated. To set some context, in England 4% of properties are rated as EPC F&G[1] (across all tenures).

Energy Efficiency Rating (Based on SAP) private sector stock

	Count	Percent
(92-100) A	0	0%
(81-91) B	122	<1%
(69-80) C	4,281	10%
(55-68) D	13,726	32%
(39-54) E	18,846	44%
(21-38) F	5,424	13%
(1-20) G	478	1%

Source: BRE Stock modelling data (2014)

[1] DCLG: Energy Efficiency of buildings certificates in England and Wales: 2008 to December 2016 (2019)

Council stock:

The council stock consists of approximately 15,000 dwellings.

In December 2010 the council's housing stock achieved the decent homes standard and we have continued to build on this good work developing the 'Norwich Standard'. The Norwich Standard is a commitment to ensure that no individual component goes beyond its life expectancy, for example, no kitchen will be older than 20 years, no bathroom older than 30 years and no boiler older than 15 years. Currently 98% of our properties meet this standard.

The average SAP rating across council housing stock is 70.3. This equates to an Energy Performance Certificate (EPC) rating of C.

To set some context, in 2017 the average SAP rating across 22.5 million English dwellings, regardless of tenure, was 62 points, or an EPC rating of D. This was an improvement on the 1996 figure of 45 points, or an E rating. However, the increase appears to be slowing – with no change in the average SAP rating between 2016 and 2017[2]. From this we can see that whilst Norwich's private sector housing SAP rating (52) is lower than the national average SAP rating (62), the SAP rating for council stock (70.3) is significantly higher.

[2] DCLG: English Housing Survey Headline Report (2019)

Section 6 - CO_2 emissions from across the city

The national picture[3]:

UK primary energy consumption increased from 1970 to a peak in 2001. Since then levels have decreased by 19%. This is thought to be due to a number of factors, including (at a national level) the decrease in 'dirty energy' from coal and petroleum going into the national electricity grid and the increase in 'clean energy' such as renewable technologies. In addition wage stagnation more generally has contributed to a need to reduce energy consumption.

In 2017 domestic energy consumption made up 28% of the total UK energy requirement. Since 1970 the number of UK households has increased by 49% from 18.8 million to 28.0 million households, however domestic energy consumption has only increased by 8.8% over the same period.

Heating is the main energy requirement of most UK homes. Gas is the dominant fuel used in the domestic sector. In 2016, 80 per cent of energy use in homes was required for space and water heating. However, this means that domestic gas consumption figures are profoundly influenced by the outside temperature.

The local picture:

Table 1 and Graph 1 both show that between 2005 and 2016 the population of Norwich increased each year, in total by an additional 14,300 residents over the 11 year period.

The per capita emissions dropped consistently and then levelled out in 2010, followed by a significant drop in 2011, a rise in 2012, then a continued decrease. From 2014 to 2016 we have seen another significant decrease in industrial emissions (50% since 2005), while domestic emissions have decreased by 35% since 2005. The Transport sector by comparison continues to be relatively stable with a steady decrease of 11% over the period.

These trends reflect the volatile nature of the energy required for space heating. The domestic and industrial sectors require energy for heating living and business spaces and both were obviously influenced by the significant cold snap in 2010, shown by the noticeable peak in carbon dioxide emissions in this year.

The peaks observed in 2010 and 2012 are due to an especially cold and extended winter in 2010 (average of 8 degree Celsius per day) and a warmer than expected 2011 (average 9.6 degree Celsius per day), followed by a typical 2012 (average of 8.8 degree Celsius per day).

[3] DBEIS: Energy consumption in the UK (2018).

2013 was also very close to the average (8.8 degree Celsius per day), followed by 2014, which was the hottest UK year on record at the time (average 9.9 degree Celsius per day), reflected in the sharp drop in carbon emissions that year, at least in part due to less energy being required for heating purposes both in the Industrial and Domestic sectors. 2015 (average 9.2 Celsius per day) and 2016 (average 9.3 Celsius per day) both saw a mild winter, which may help explain why emissions continued to fall[4].

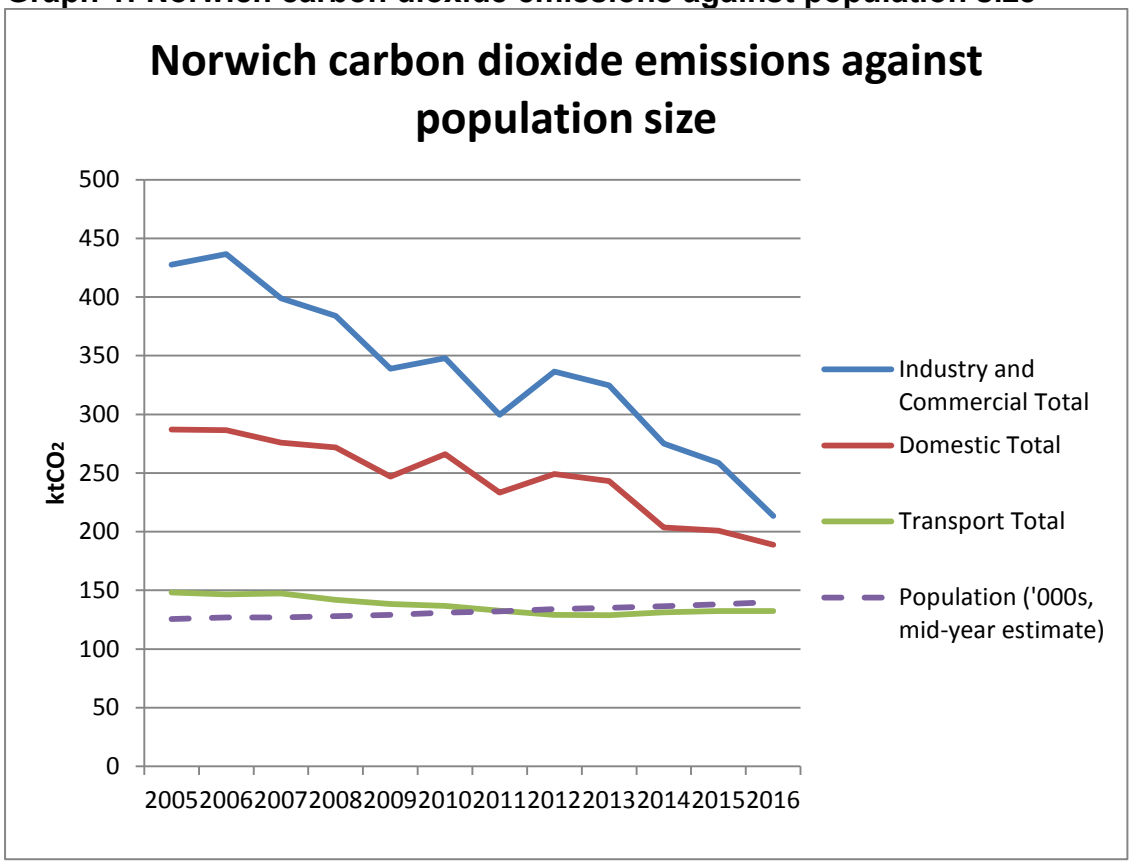
Table 1: Norwich carbon dioxide emissions 2005-2016

LA Region Name	Year	Industry & Commercial Total	Domestic Total	Transport Total	Grand Total	Population ('000s, mid-year estimate)	Per Capita Emissions (t)
Norwich	2005	427.5	287.1	148.2	866.2	125.6	6.9
	2006	436.5	286.5	146.7	873.1	126.8	6.9
	2007	399.1	275.8	147.5	825.7	126.9	6.5
	2008	383.9	271.7	141.9	800.7	128	6.3
	2009	339	247	138.3	727.5	129.2	5.6
	2010	348	266.2	136.7	754	130.9	5.8
	2011	299.6	233.4	132.7	668.8	132.2	5.1
	2012	336.5	249.2	129	717.6	133.9	5.4
	2013	324.8	243.1	128.7	699.5	135.1	5.2
	2014	275	203.5	131.2	612.5	136.6	4.5
	2015	258.7	200.9	132.4	594.8	138.1	4.3
	2016	213.4	188.9	132.3	537.3	139.9	3.8

Source: DECC: UK local authority and regional carbon dioxide emissions national statistics: 2005-2016 (June 2018)

[4] Met Office: UK Weather Summaries (2018)

Graph 1: Norwich carbon dioxide emissions against population size



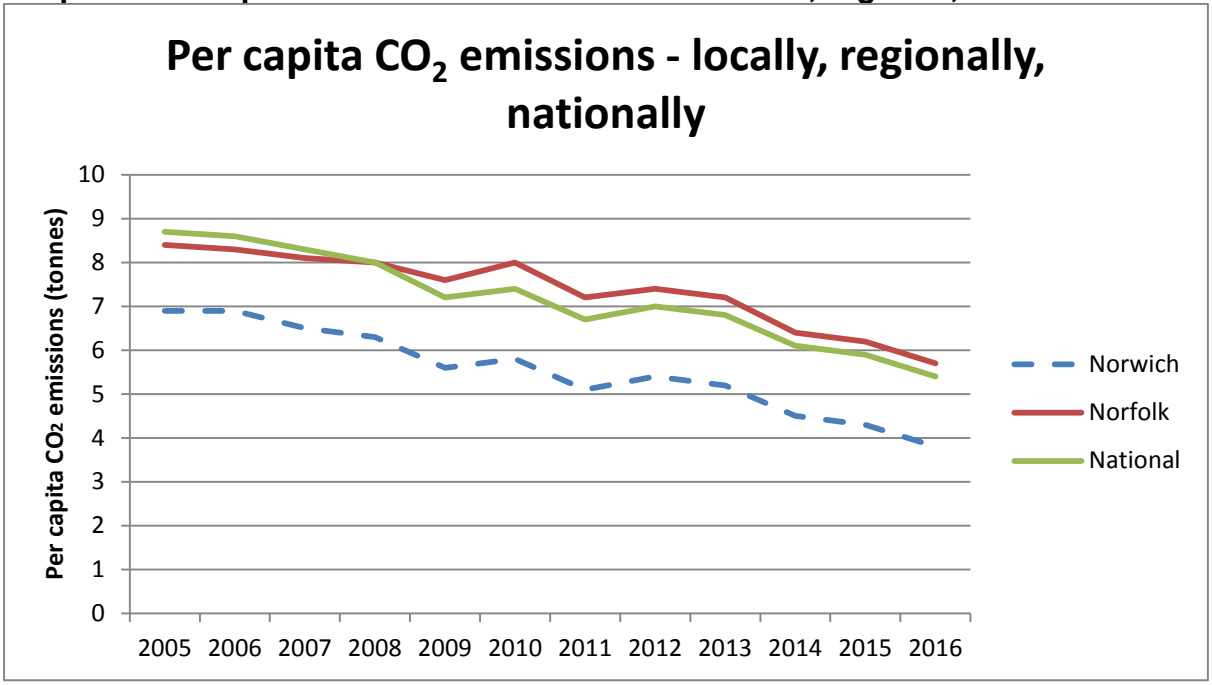
Source: DECC: UK local authority and regional carbon dioxide emissions national statistics: 2005-2016 (June 2018)

Between 2005 and 2016 Norwich reduced its carbon dioxide emissions by 45% (taken across all 3 sectors), whilst experiencing an increase in its population of 11%.

Graph 2 (below) shows Norwich's per capita carbon dioxide emissions between 2005 and 2016 were considerably lower than those at both a county and a national level. Local, regional and national levels largely follow the same peaks and troughs associated with a cold period in 2010, a warm 2011 and an even warmer 2014. The overall trend is a significant reduction with Norwich dropping from 6.9 tonnes per capita of CO_2 in 2005 to 3.8 tonnes per capita 11 years later.

The figures for tonnes of CO_2 produced by sector vary too widely at a local, regional and national level to be able to present them graphically in a meaningful way. Only the per capita emissions are directly comparable. This is shown in Graph 2, below.

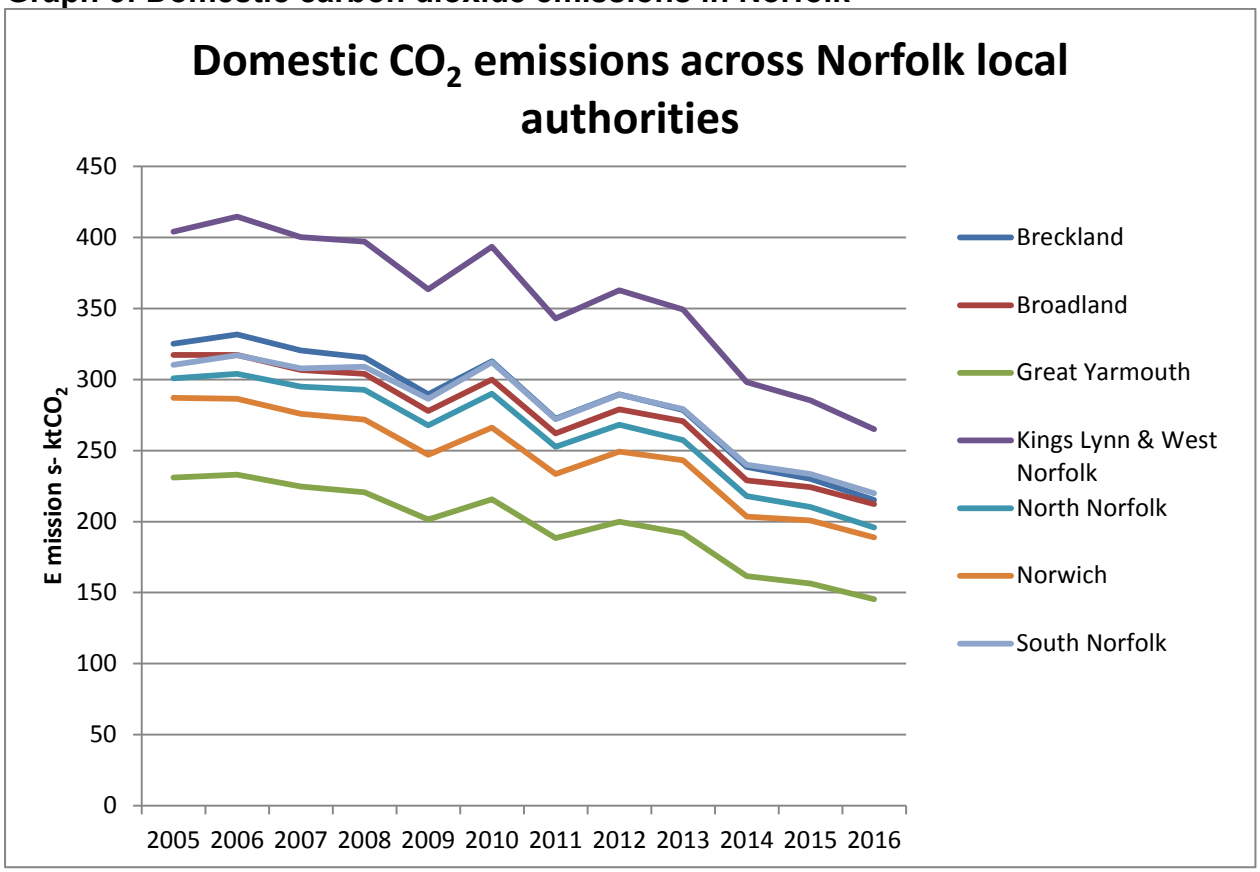
Graph 2: Per capita carbon dioxide emissions – local, regional, and national



Source: DECC: UK local authority and regional carbon dioxide emissions national statistics: 2005-2016 (June 2018)

It is possible to compare Norwich with its nearest neighbouring local authorities, as in shown in Graph 3, below. Again, broadly similar pattern of peaks and troughs are seen for all Norfolk local authorities.

Graph 3: Domestic carbon dioxide emissions in Norfolk



Source: DECC: UK local authority and regional carbon dioxide emissions national statistics: 2005-2016 (June 2018)

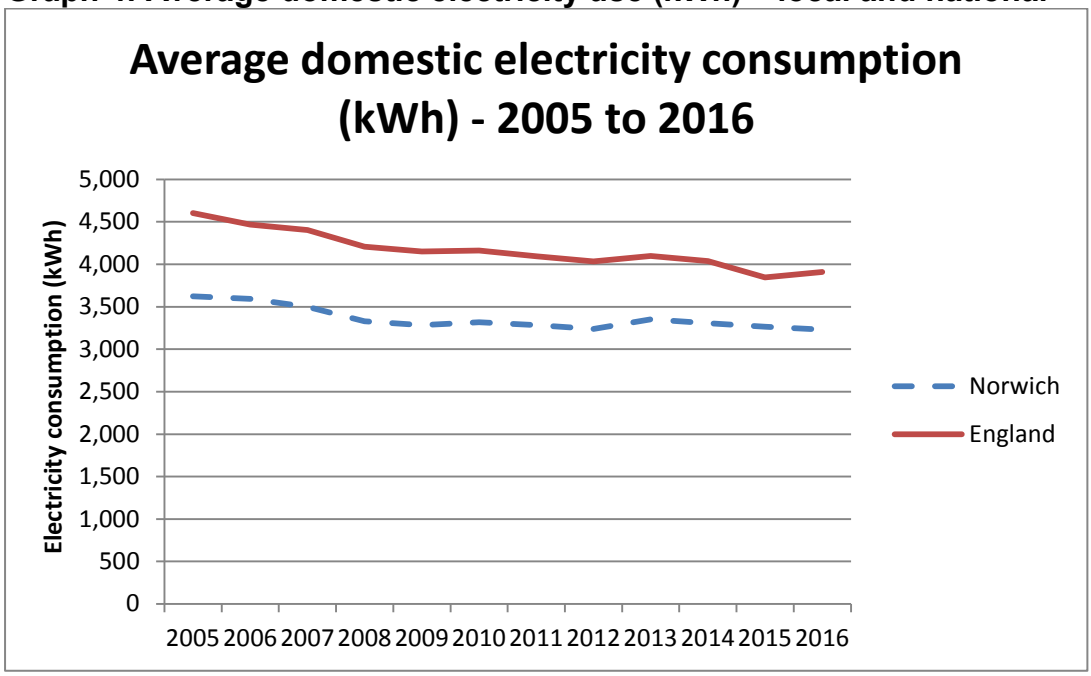
Carbon dioxide emissions have fallen across the county over the period 2005-2016, with a rise in 2010 due to extended periods of cold weather and snow. The Norwich local authority area created the lowest level of carbon dioxide emissions, behind Great Yarmouth. This is thought in part to be due to the city being well connected to the national gas grid for mains heating when compared to more rural areas which rely on more carbon dirty forms of energy such as coal or oil. This graph represents all energy types.

Domestic energy use:

The following graphs (4-7) show the trends in electricity and gas use in Norwich as compared to the national average. Both the national average and Norwich figures show an overall decrease in gas and electricity consumption over the 11 year period to 2016, with Norwich average domestic electricity consumption being significantly lower than the national average.

Domestic electricity use in Norwich:

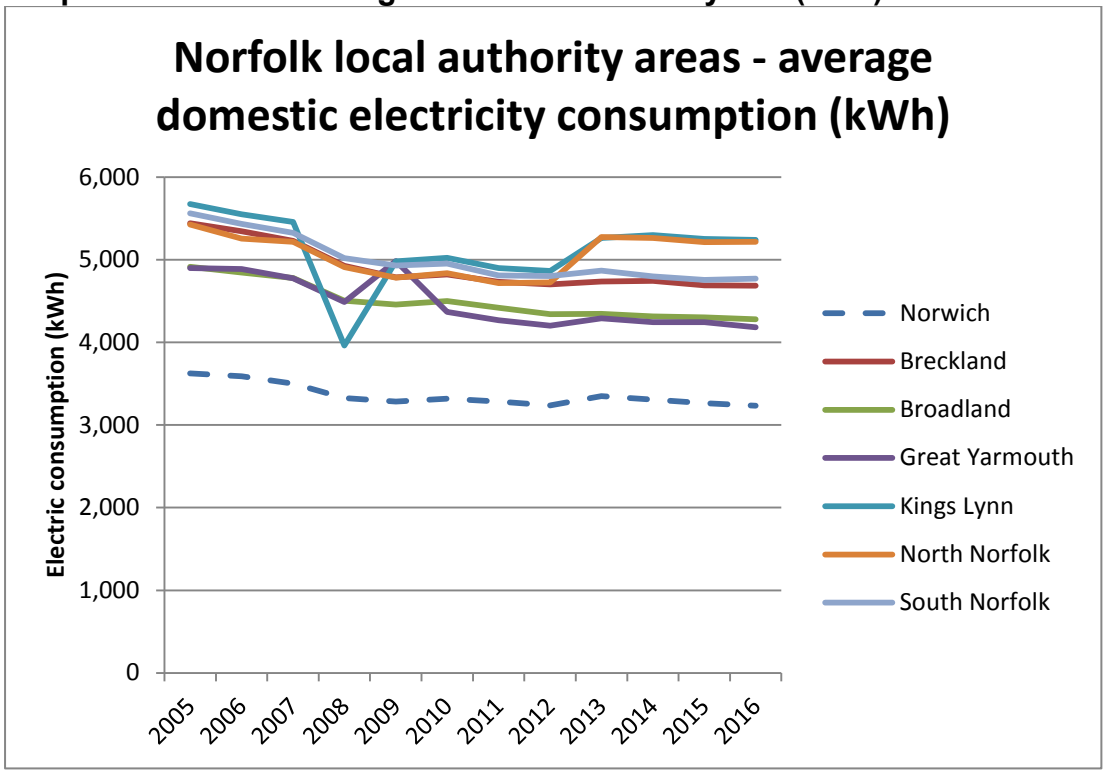
Graph 4: Average domestic electricity use (kWh) – local and national



Source: DBEIS: Regional and local authority electricity consumption statistics: 2005 to 2016 (2018)

At a regional level, compared with neighbouring Norfolk local authorities average electricity use is by far the lowest in the county. This is likely due to the larger number of off-gas homes in other local authority areas, who rely on electric heating and solid fuels for heating.

Graph 5: Norfolk – average domestic electricity use (kWh) across Norfolk

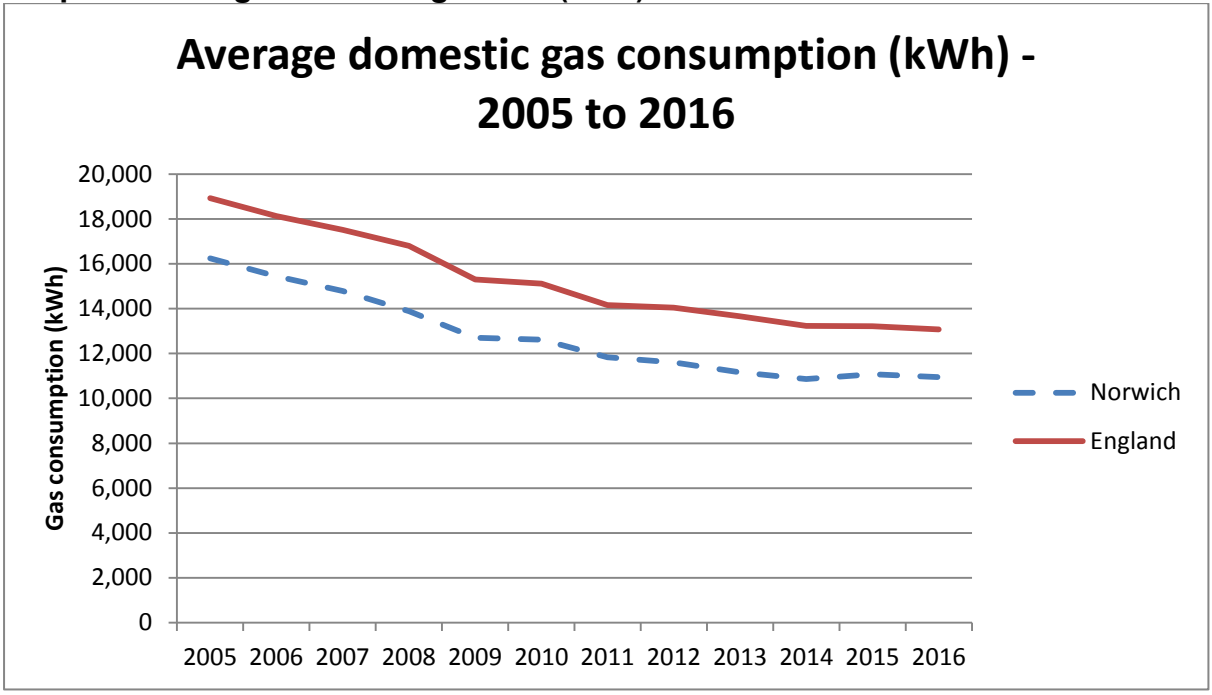


Source: DBEIS: Regional and local authority electricity consumption statistics: 2005 to 2016 (2018)

Domestic gas use in Norwich:

Graph 6 shows gas consumption in Norwich and again shows a similar trend to domestic electricity use in the city, that of significant reduction over the 10 year period. Of particular interest is the large difference between domestic gas consumption in Norwich and the national level gas consumption. This could be due to a range of factors including; household income levels, energy efficiency of housing and how many hours a day homes are occupied for.

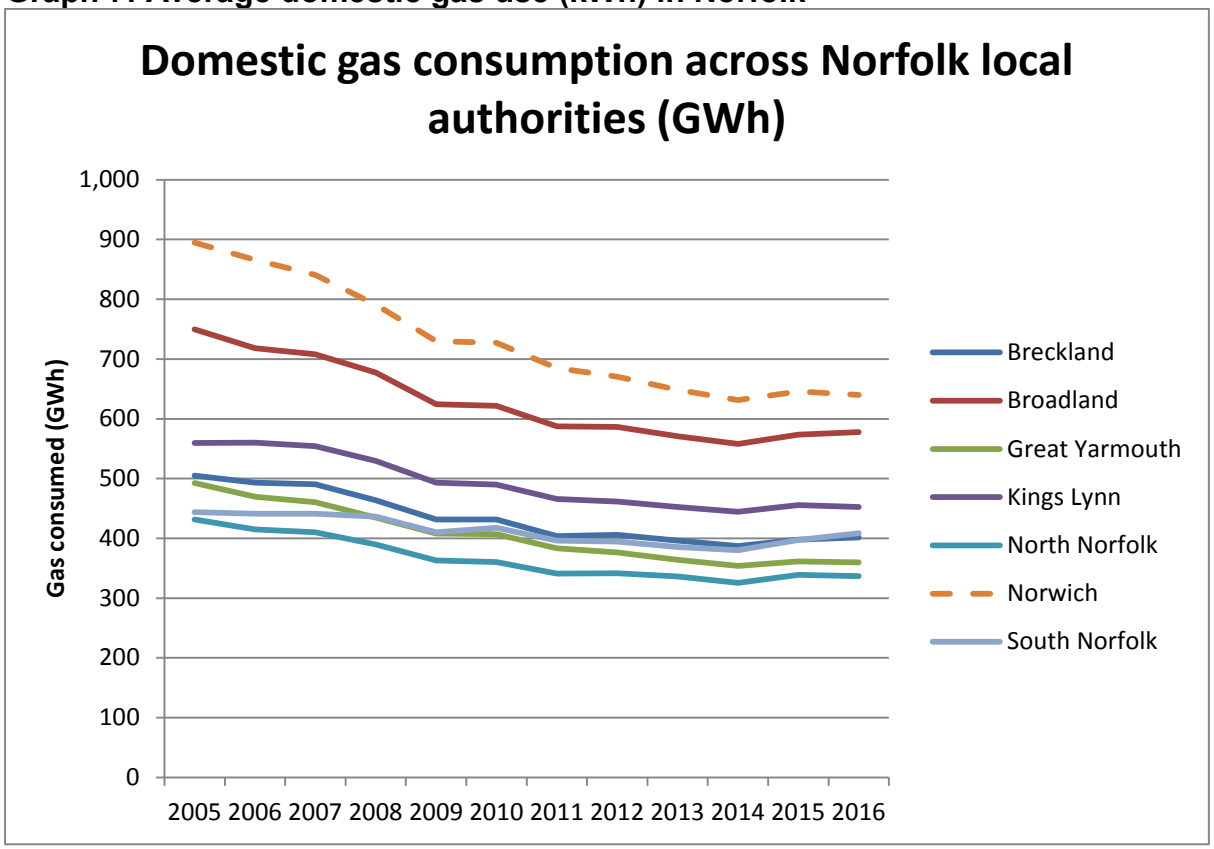
Graph 6: Average domestic gas use (kWh) – local and national



Source: DBEIS: Regional and local authority gas consumption statistics: 2005 to 2016 (2018)

Graph 7 shows how Norwich compares at a regional level. Norwich is by far the largest consumer of domestic gas in Norfolk. However, this is most likely to be because there are large parts of Norfolk which remain 'off-gas' and are reliant on other forms of domestic energy such as oil fired central heating. This is likely to play a part in the higher electricity consumption seen across the rest of the county as some households who are 'off-gas' will use electric heating as an alternative.

Graph 7: Average domestic gas use (kWh) in Norfolk



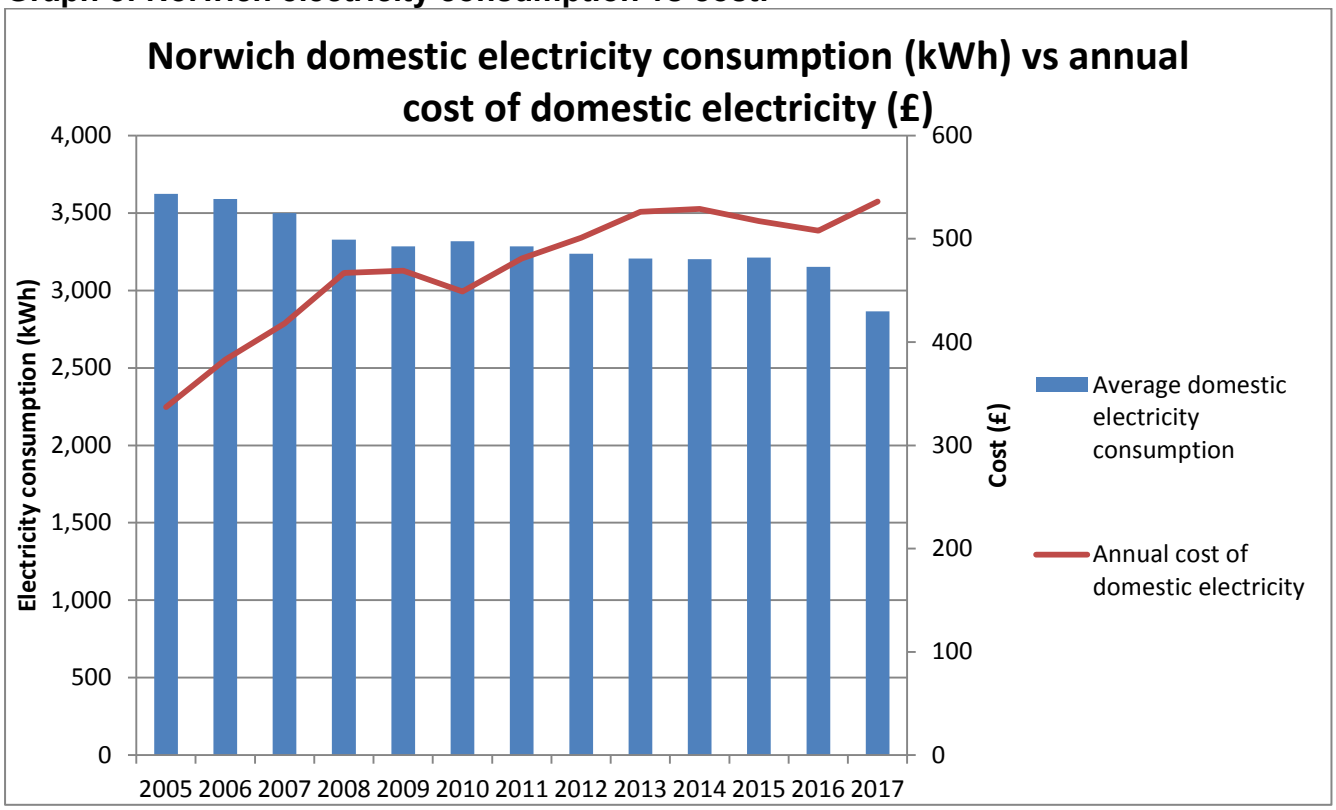
Source: DBEIS: Regional and local authority gas consumption statistics: 2005 to 2016 (2018)

While energy efficiency measures do have a positive impact on reducing gas consumption, the increase in fuel prices over this period, is also likely to be a factor, causing more households to reduce the amount time they heat their homes for, even if this has a negative impact on their health and wellbeing.

Gas consumption falls more sharply at a local level than electricity consumption and this may reflect the fact that, in the city at least, a majority of homes will be heated using gas central heating. The decision to 'heat or eat' is sadly a reality that many households facing fuel poverty may have to make.

The rising cost of energy:

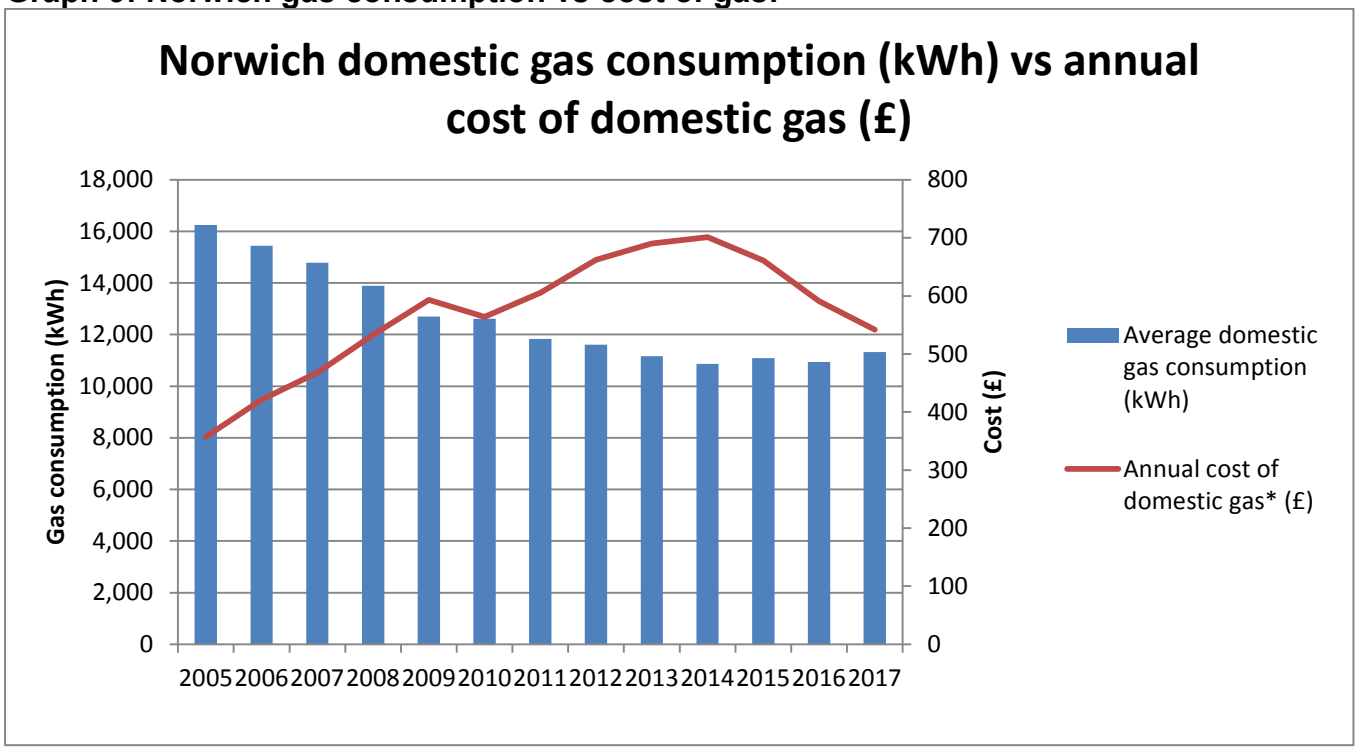
Graph 8: Norwich electricity consumption vs cost:



Source: DBEIS: Regional and local authority electricity consumption statistics: 2005 to 2016 (2018)/ DBEIS: Annual domestic energy bills (2018)

Graph 8, perhaps unsurprisingly, appears to show a close relationship between the cost of electricity and electricity consumption. Note in 2010 where the cost of electricity dips for the first time since 2006 electricity consumption increases. And again in 2012 when electricity prices increase once more consumption drops once again. This relationship can be seen very strongly in 2017, where a sharp increase in cost led to a considerable drop in consumption.

Graph 9: Norwich gas consumption vs cost of gas:



Source: DBEIS: Regional and local authority gas consumption statistics: 2005 to 2016 (2018)/ DBEIS: Annual domestic energy bills (2018)

Graph 9 shows the relationship between domestic gas consumption in Norwich and the price of gas. The overall trend is for a reduction in gas use, although this drop slowed in 2009/2010 with the drop in gas prices, and continued until gas prices reached their peak in 2014, when consumption rose slightly with the drop in gas prices. Despite the annual cost of domestic gas dropping dramatically since 2014 consumption has stayed fairly flat, with a small increase in 2017. This may suggest that energy efficiency improvements have meant people need to consume less regardless of price.

Although it would seem there is a relationship between the two factors, to suggest that the cost of energy is the only contributing factor to energy consumption would be to over-simplify the complexity of this situation.

The increases in the levels of home insulation e.g. loft and cavity and solid wall insulation, will also serve to reduce the amount of energy required to heat domestic properties. In addition, the number of properties producing their own renewable energy e.g. from photovoltaic panels will also result in a reduction in the amount of energy consumed from the national grid. Both the installation of home insulation and domestic renewables require the ability to be able to afford the investment in these technologies, which can be considerable. The rate of take up of both home insulation and renewables will be considered later in this report.

Section 7 - Fuel poverty:

Following the recommendations contained in the John Hills report 'Getting the Measure of Fuel Poverty' (March 2012) central government scrapped the 10% fuel poverty indicator, and the way that fuel poverty is measured was re-defined with the introduction of the Low Income High Costs (LIHC) indicator.

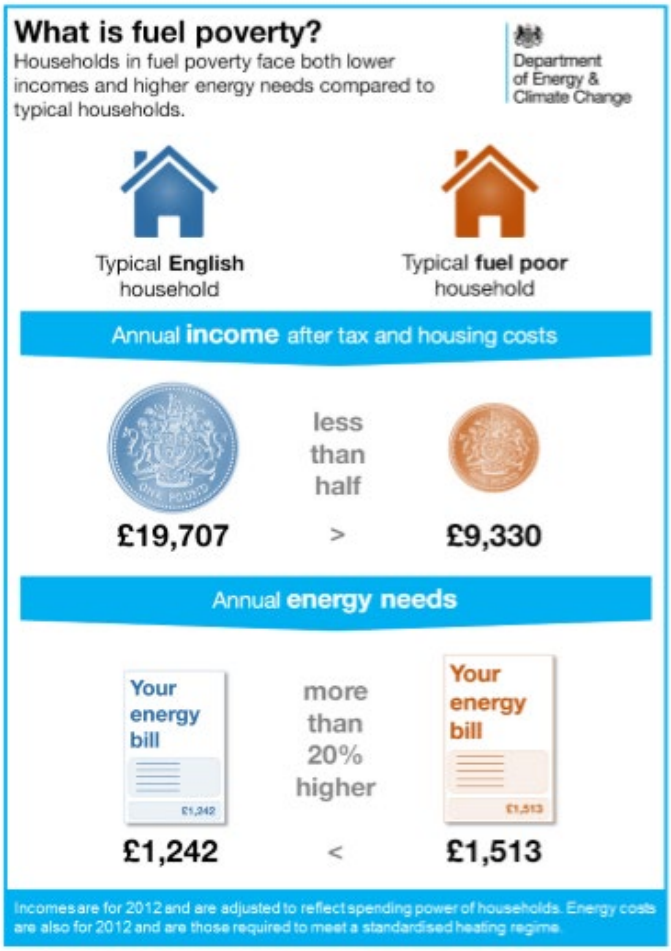
Under the LIHC indicator a household is considered to be in fuel poverty if they have required fuel costs which are above the national average (national median level) and were they to spend that amount, they would be left with a residual income below the official poverty line.

The current definition of the poverty line, or relative poverty, is defined as 60 per cent of the median UK household income. If a household's income is less than 60 per cent of this average, they are considered to be living in relative poverty. Professor Peter Townsend, a leading authority on UK poverty, defines relative poverty as when someone's "resources are so seriously below those commanded by the average individual or family that they are, in effect, excluded from ordinary living patterns, customs and activities".[5]

To put it more broadly, a fuel poor household is one which cannot afford to keep warm at a reasonable cost.

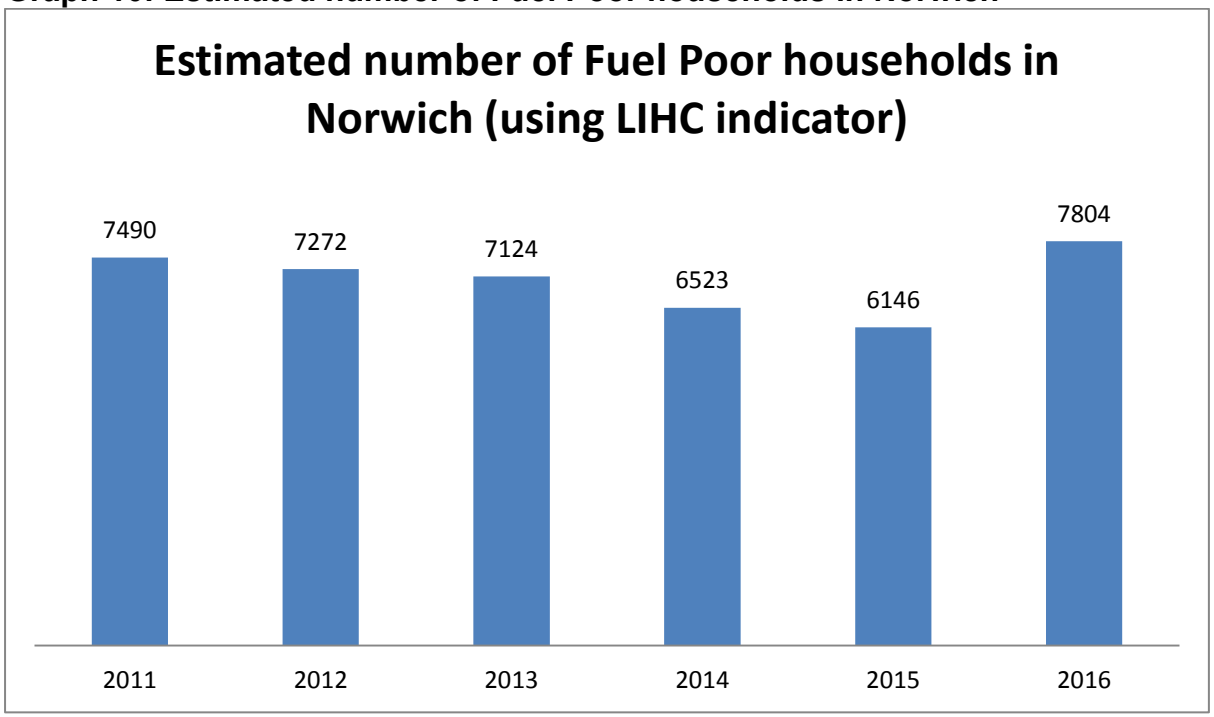
The government infographic below attempts to explain what fuel poverty is in real terms under the LIHC indicator.

[5] JRF: Reporting Poverty in the UK: a practical guide for journalists 2009



Source: DECC: Cutting the cost of keeping warm – a fuel poverty strategy for England (2015)

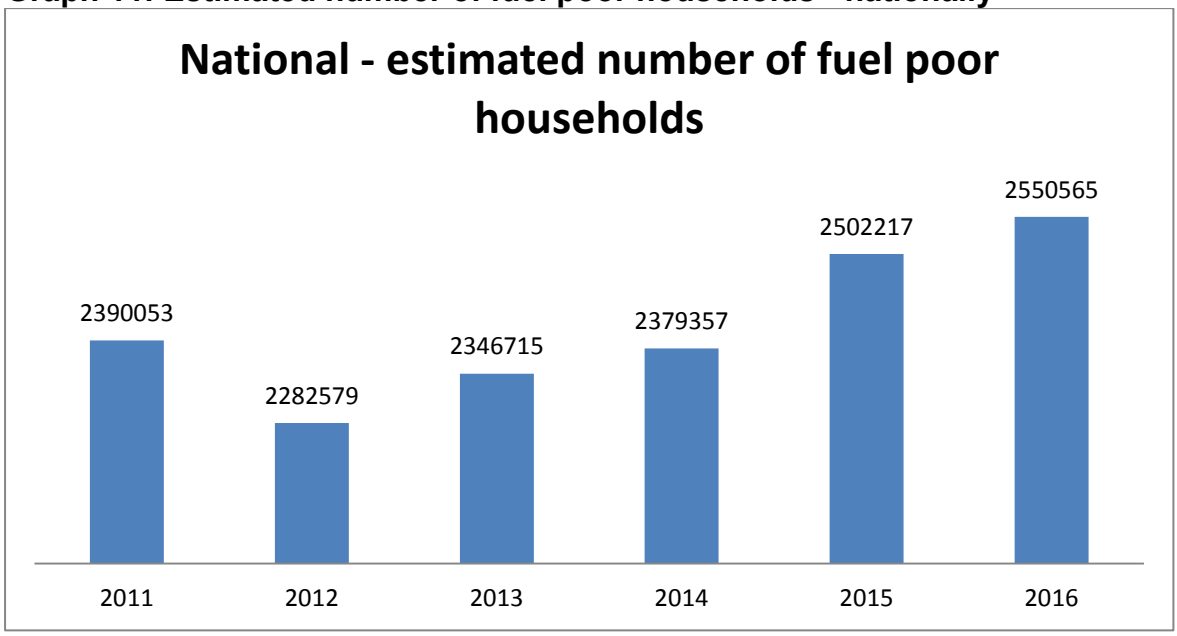
Graph 10: Estimated number of Fuel Poor households in Norwich



Source: DBEIS: 2016 sub-regional fuel poverty data: low income high costs indicator (2018)

What does it show? In Norwich fuel poverty has unfortunately increased since the HECA was previously published, with levels now at 7,804. This mirrors a rise both nationally and regionally, and is set against a backdrop of rising energy costs.

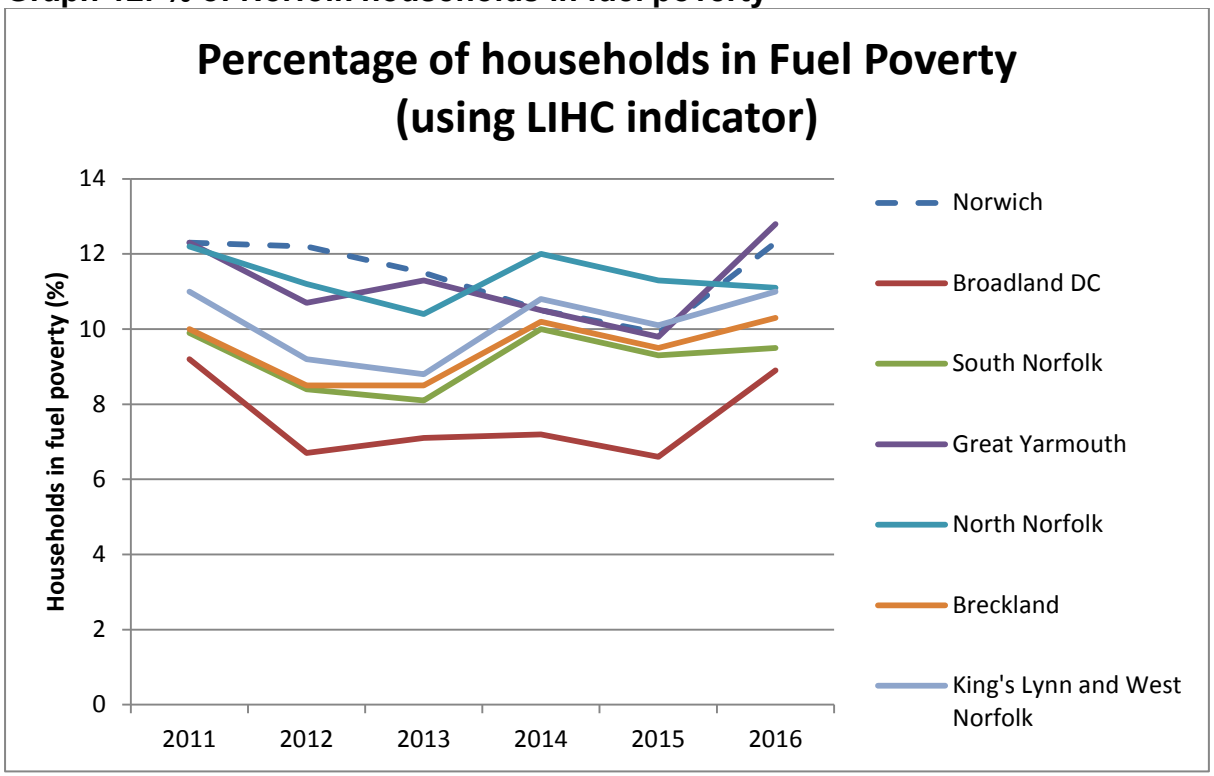
Graph 11: Estimated number of fuel poor households - nationally



Source: DBEIS: 2016 sub-regional fuel poverty data: low income high costs indicator (2018)

What does it show? At a national level, following the introduction of the LIHC indicator in 2012, the number of fuel poor households dropped, but has increased every year since then to over 2.55 million households.

Graph 12: % of Norfolk households in fuel poverty



Source: DBEIS: 2016 sub-regional fuel poverty data: low income high costs indicator (2018)

What does it show? In 2011 Norwich experienced one of the highest levels of fuel poverty in the county. Although levels of fuel poverty dropped from 2012-15 we, like many other local authorities, saw an increase in 2016. The regional increase in 2016 mirrors the national trend.

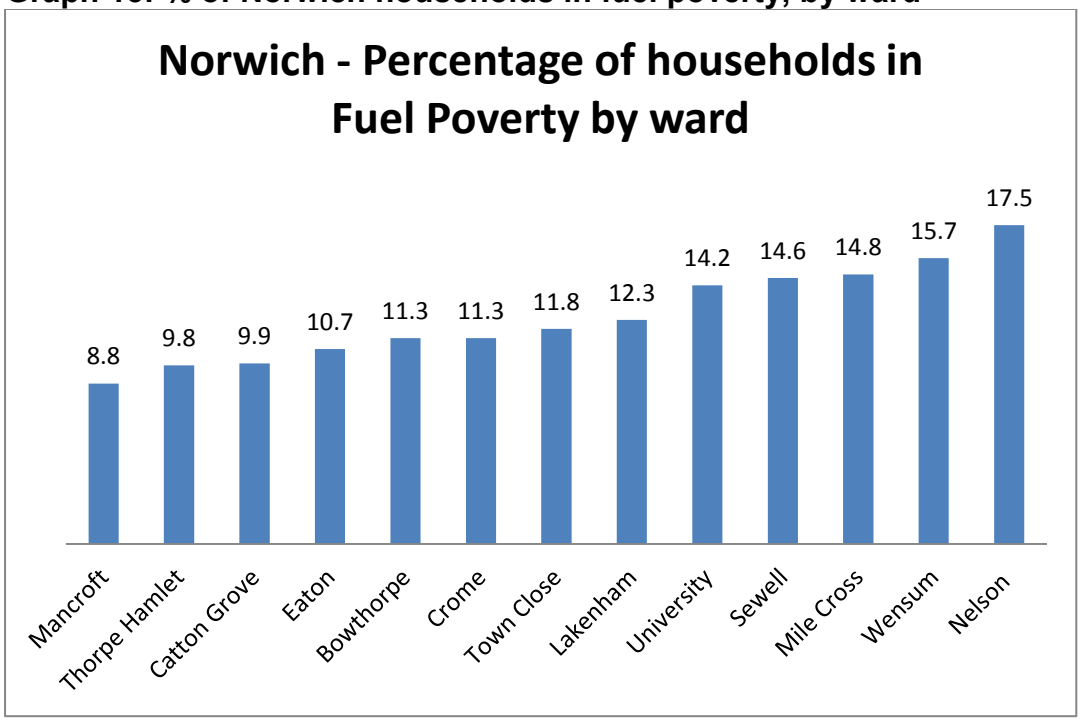
Norwich City Council have invested considerable resources into supporting those households in fuel poverty through a range of initiatives including: the Cosy City scheme supporting residents to utilise Energy Company Obligation (ECO) funding for home insulation, the Big Switch and Save collective energy switching scheme, our Warm and Well work both with stakeholders and the public, Home Improvement team work, work with the Private Sector landlords around category 1 hazards and ongoing improvements to our housing stock. Fuel poverty is complex and we are not complacent about the need to continue our work.

Our Affordable Warmth Strategy can be found here:
https://www.norwich.gov.uk/downloads/file/2241/affordable_warmth_strategy

This strategy covers the whole of Norwich and encompasses partnership working both within Norwich City Council and with external partners. It is delivered as part of our overall environmental strategy and works to reduce fuel poverty, for example through increasing home energy efficiency, will also reduce the carbon footprint of the city.

There are significant pockets of fuel poverty within the city. Graph 13 shows the fuel poverty figures for the city broken down to ward level.

Graph 13: % of Norwich households in fuel poverty, by ward



Source: DBEIS: 2016 sub-regional fuel poverty data: low income high costs indicator (2018)

What does it show? These figures are the most recent figures released by central government and relate to fuel poverty levels in 2016. Fuel poverty levels in the city vary from ward to ward and the reasons for this are complex. Nelson is the ward with the highest percentage of households experiencing fuel poverty at 17.5%, whilst Mancroft experiences the lowest levels at 8.8%.

Measuring fuel poverty is complicated. When gauging fuel poverty levels the government uses 3 factors:

- household income,
- household energy efficiency and
- fuel prices

This seems quite straightforward, but other factors to consider are:

- How the dwelling is occupied – what is the 'standard heating regime' - are the residents out of the house for much of the day, or are they predominantly home-based with medical problems.
- How old is the dwelling? Is it a house or a flat, does it have a pitched or flat roof, does it have a cavity wall?
- Who owns the dwelling – the resident, a private sector landlord or the council?

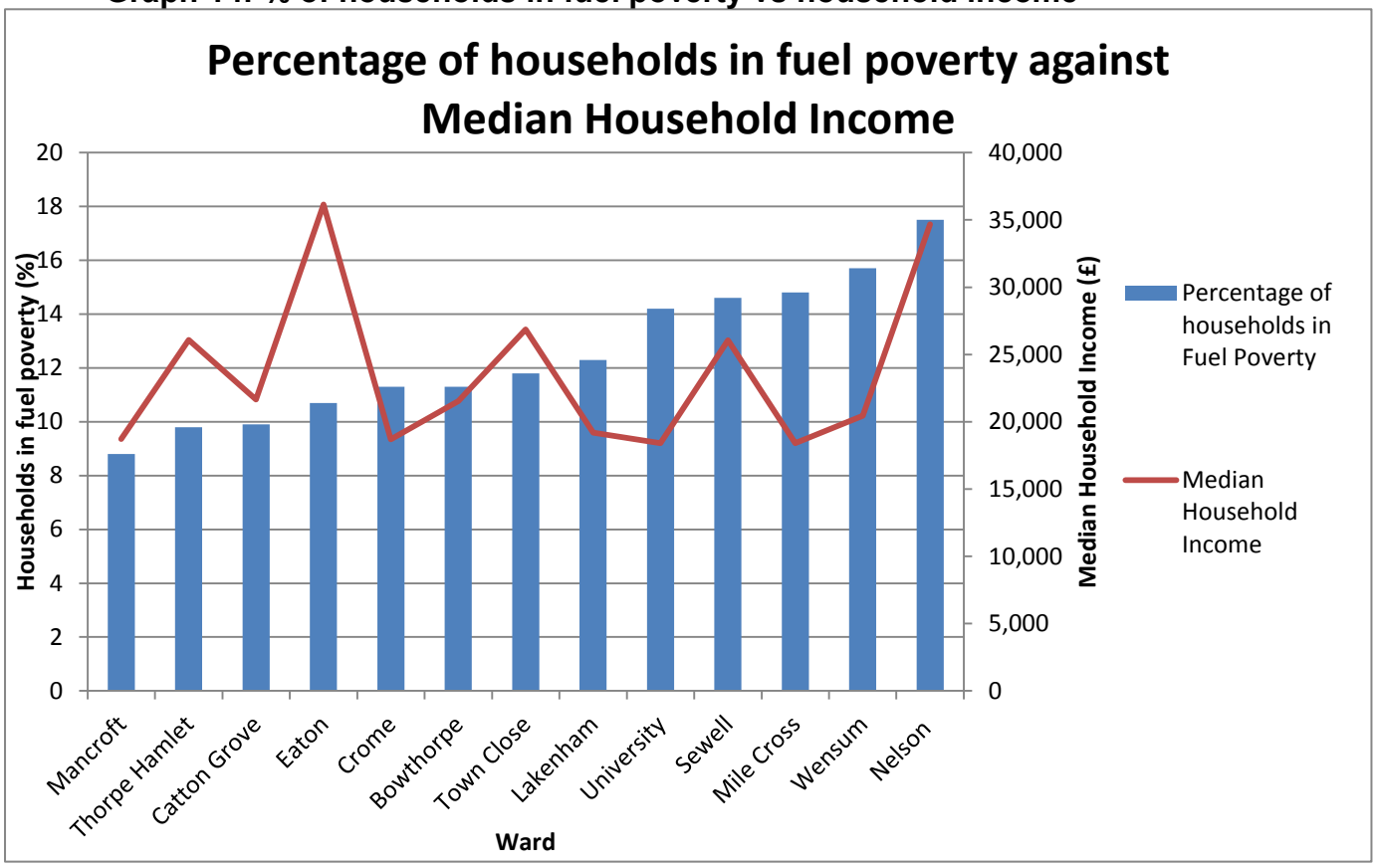
In order to identify the types of household who are in the most need government has suggested that the following factors may be involved in identifying those most in need: a. Low income, b. Old dwelling (pre-1945), c. Larger dwelling, d. Private rented sector, e. Old/inefficient boiler (or no heating system), f. Non-gas heating[6]

In addition, within fuel poor households there are those who have increased vulnerability such as the very old or the very young and those with long term health conditions. Everyone can be negatively impacted by living in a cold home, but these vulnerable groups are particularly at risk of the cold exacerbating underlying health conditions such as respiratory and cardiovascular problems. It has been recognised that children who are "living in cold homes are significantly more likely to suffer from chest problems, asthma and bronchitis"[7]. Cold homes can slow down recovery following discharge from hospital, when people are already at risk, and can lead to repeat admissions due to unsuitable housing. It has been estimated that housing-related ill health costs the NHS £2.5bn per year[8].

The following graphs (14-19) attempt to consider various factors which may contribute to fuel poverty levels in a ward. Firstly, median household income. This is the mid-point income figure for all the households' incomes within a ward.

[6] DECC: Fuel Poverty – a framework for future action (2013)
[7] DECC: Fuel Poverty – a framework for future action (2013)
[8] Public Health England: Local action on health inequalities – fuel poverty and cold home-related health problems (2014)

Graph 14: % of households in fuel poverty vs household income



Source: DBEIS: 2014 sub-regional fuel poverty data: low income high costs indicator (2016)/ CACI Paycheck data (2016)

What does it show? This data shows that Nelson and Eaton have the highest median household income, despite Nelson ward having the highest amounts of fuel poverty in the city. Therefore we must turn to the other factors in determining fuel poverty.

Another measure to consider is the Standard Assessment Procedure (SAP) rating. The SAP works by assessing how much energy a dwelling will consume, when delivering a defined level of comfort and service provision. The assessment is based on standardised assumptions for occupancy and behaviour. This enables a like-for-like comparison of dwelling performance. Related factors, such as fuel costs and emissions of carbon dioxide (CO_2), can be determined from the assessment.This gives an indicator of the energy efficiency of a property. Following assessment a SAP calculation is given from 1 to 100+ for the annual energy cost. The higher the score the lower the energy running costs, with 100 representing zero energy cost. Dwellings with a rating in excess of 100 are net exporters of energy.

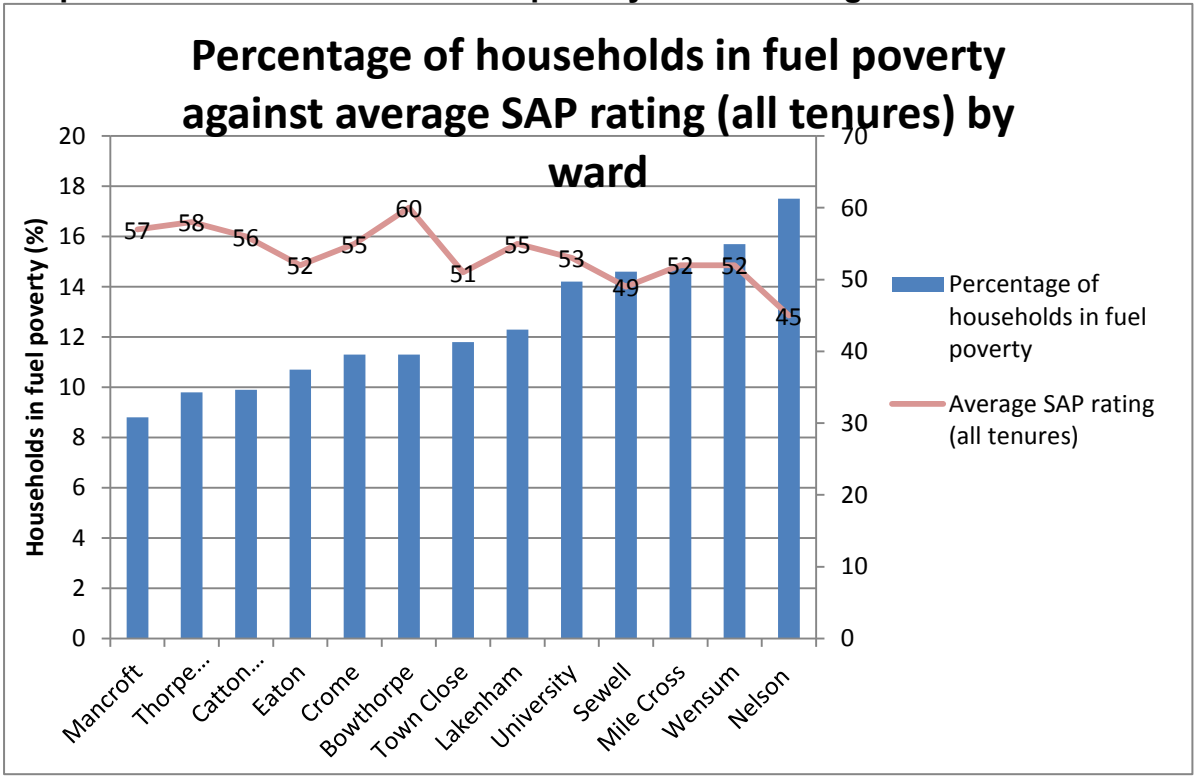
The energy efficiency of housing is measured using a SAP rating and when houses are sold they are awarded an Energy Performance Certificate (EPC) rating. Table 2 (below) shows how these two property energy efficiency ratings compare.

Table 2: EPC and SAP ratings – a comparison

EPC band	SAP rating Points
A	92-100 SAP points (Most efficient)
B	81-91 SAP points
C	69-80 SAP points
D	55-68 SAP points
E	39-54 SAP points
F	21-38 SAP points
G	1-20 SAP points (Least efficient)

Graph 15 shows the percentage of fuel poor households against the average SAP rating in each ward across all tenures: owner occupied, private rented and social housing.

Graph 15: % of households in fuel poverty vs SAP ratings



Source: DBEIS: 2016 sub-regional fuel poverty data: low income high costs indicator (2018)/BRE Stock Condition Survey (2014)

What does it show? Generally speaking, Graph 15 shows that as the SAP rating decreases that the percentage of households in fuel poverty increases. However, this is across all tenure types. SAP ratings vary widely across tenure type. Historically SAP ratings have been lower in the private rented sector. Figures suggest that at a national level 19% of private rented properties are in fuel poverty compared to 7.7% in the owner occupied category[9]. Fuel poverty is the highest in the private rented sector.

With housing costs continuing to rise and wages not keeping pace the private rented sector looks set to continue to grow. There are now 4.5 million households in the private rented sector, which has doubled in size since 2002[10].

Fuel poor households privately renting a G EPC rated home would need, on average, to spend over £1,200 more on energy to heat their homes properly, and those renting EPC band F homes would need to spend over £700 more. This compares to less than £370 for those in bands E and above[11].

Since April 2018 there has been a requirement for any properties rented out in the private rented sector to achieve a minimum energy performance rating of E on an Energy Performance Certificate (EPC). The regulations are currently in force for new lets and renewals of tenancies only, and will come into effect for all existing tenancies on 1st April 2020. It is unlawful to rent a property which breaches the requirement for a minimum E rating, unless there is an applicable exemption. A civil penalty of up to £4,000 will be imposed for breaches.

This should have the effect of raising the energy efficiency of these properties and so helping to lower fuel poverty in the Private Rented Sector. In 2014 2171 (or 16%) of Norwich houses had an F and G band EPC rating. Therefore the forthcoming legislation could have the potential to have a beneficial effect on many cold households. However, when the legislation was written it was expected that the Green Deal would be a tool to ensure that landlords were not faced with high upfront expenses and that through the Green Deal tenants would pay for the cost of energy efficiency installations through their energy bills. Now that the Green Deal has been scrapped, and ECO funding decreased, the rented sector awaits an update on what impact this will have on the implementation of this legislation. As well as this landlords whose costs exceed £3,500 will be exempt from this legislation, despite recommendations from fuel poverty groups for the cap to be set at £5,000. This means some of the worst performing households are unlikely to see the level of investment required to improve their energy efficiency, and may still continue to suffer from the negative consequences of cold.

Norwich City Council is aware of these minimum efficiency standards, and our private sector housing team leads on enforcement. We provide general guidance about our standard on our website. We are developing our approach to enforcement and expect to take an intelligence-led approach to targeting in the future. We will very probably use EPC ratings, along with other indicators, to help us do this.

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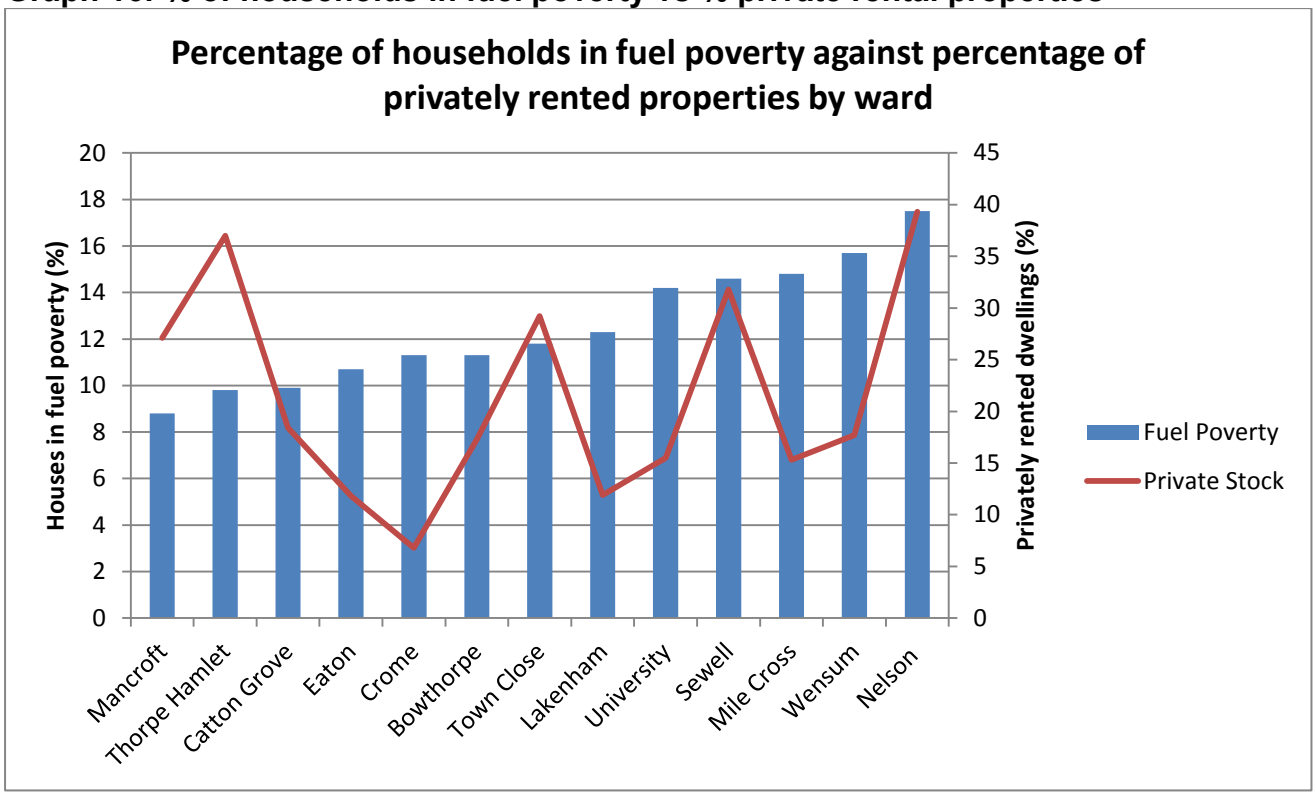
[9] BEIS: Fuel Poverty detailed tables (2018)
[10] DCLG: English Housing Survey headline report (2019)
[11] DECC: Private Rented Sector Energy Efficiency Regulations (Domestic) (England and Wales) (2014)

Currently, however, we do not directly target landlord with lower rated properties. This is because the team is very small and is mostly dealing reactively to complaints or to the requirements of the HMO licensing scheme.

Graph 16: % of households in fuel poverty vs % private rental properties

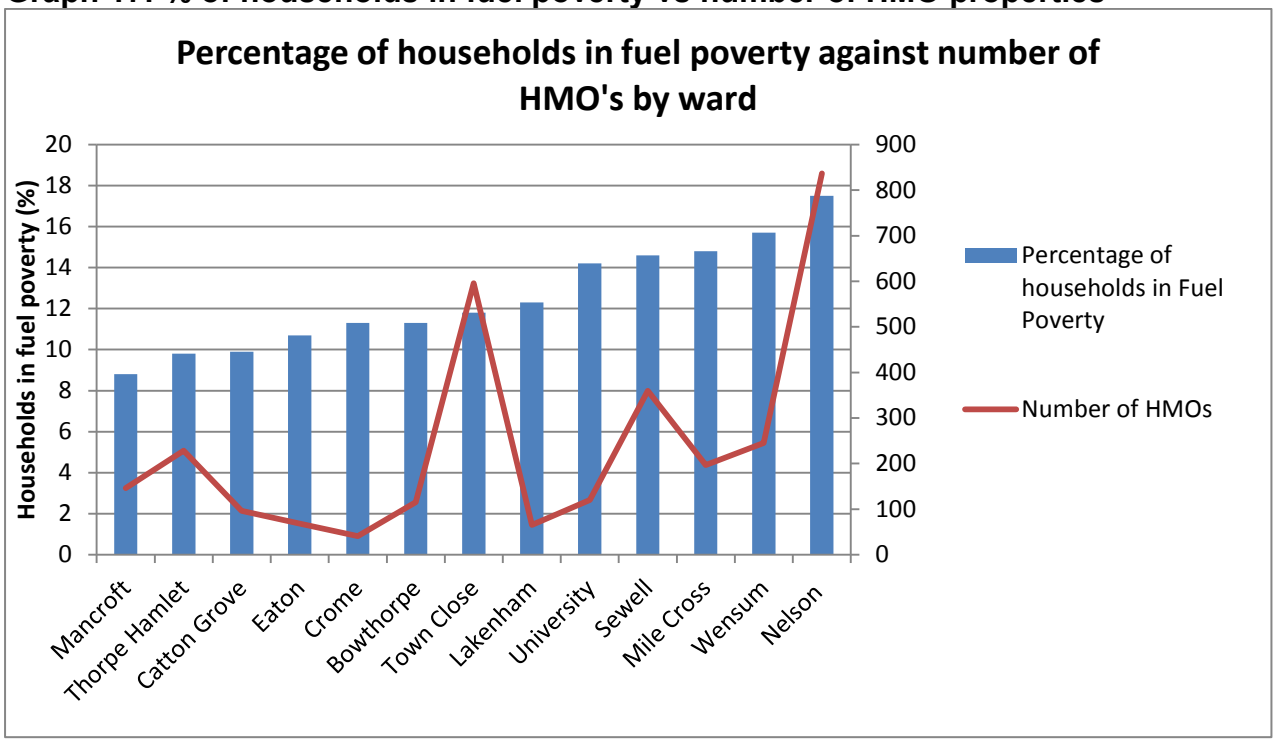


Source: DBEIS: 2016 sub-regional fuel poverty data: low income high costs indicator (2018)/ BRE Stock Condition Survey (2014)

What does it show? Graph 16 (above) shows the percentage of households in fuel poverty against the percentage of privately rented properties by ward. There is no unequivocal relationship across all wards.

Norwich is a university town and as such has a disproportionately high number of Houses of Multiple Occupation (HMO's) which are often in the private rented sector, with rooms being let out on an individual basis. The graph below shows the percentage of households in fuel poverty against the number of HMO's in that ward.

Graph 17: % of households in fuel poverty vs number of HMO properties

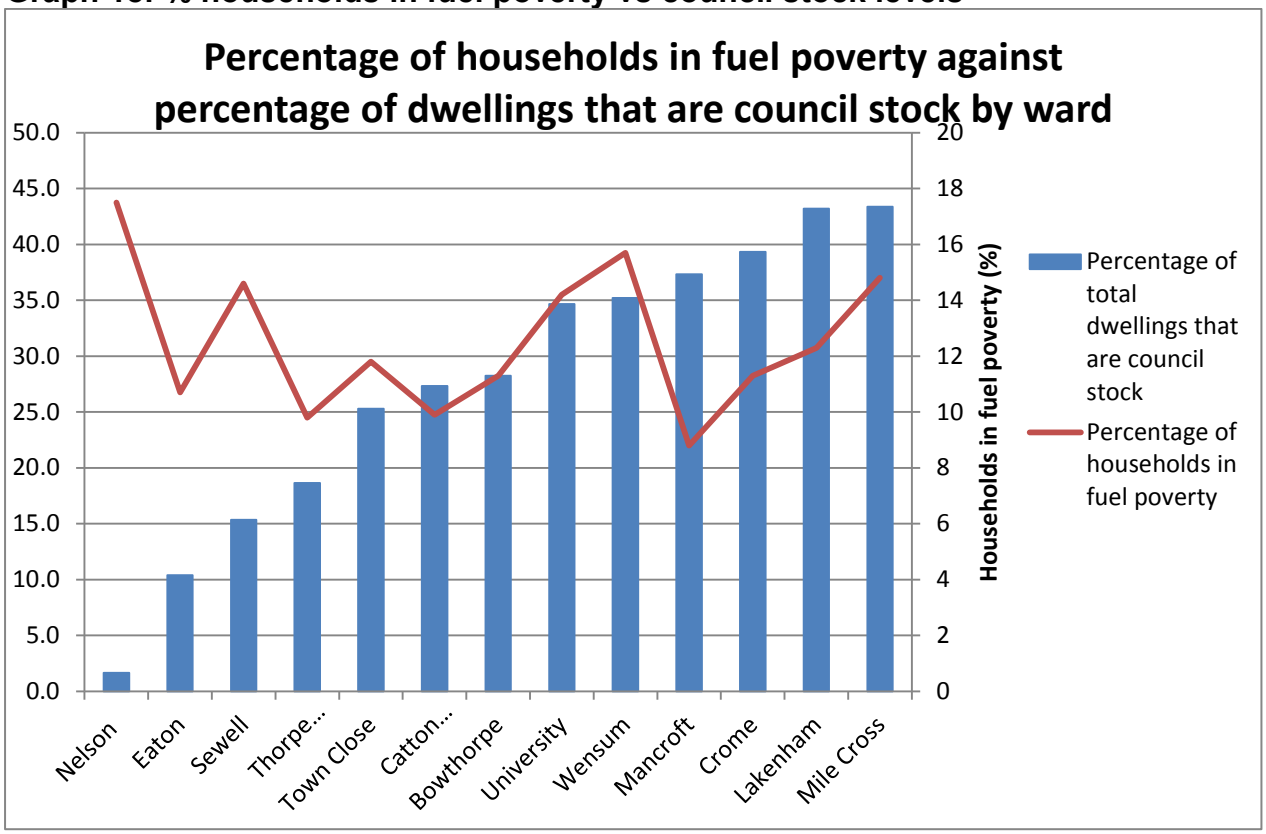


Source: DBEIS: 2016 sub-regional fuel poverty data: low income high costs indicator (2018)/ BRE Stock Condition Survey (2014)

What does it show? As with the previous graph, Graph 17 shows no unequivocal relationship between HMO's and fuel poverty at a ward level. It is however interesting to note that the highest levels of HMO's fall in Nelson wards where the highest percentage of fuel poor households lie.

Finally, Norwich City Council has retained its housing stock of approximately 15,000 properties. Local Authorities are required to maintain their properties to a good living standard and as such the average SAP rating across the council housing stock is high at 70.3, or a mid-range C EPC rating. These higher levels of energy efficiency will be helpful in staving off fuel poverty amongst some of the most vulnerable of the city's residents, particularly those on a low income. The graph below shows fuel poverty against levels of council housing stock at a ward level.

Graph 18: % households in fuel poverty vs council stock levels



Source: DBEIS: 2016 sub-regional fuel poverty data: low income high costs indicator (2018)/ BRE Stock Condition Survey (2014)

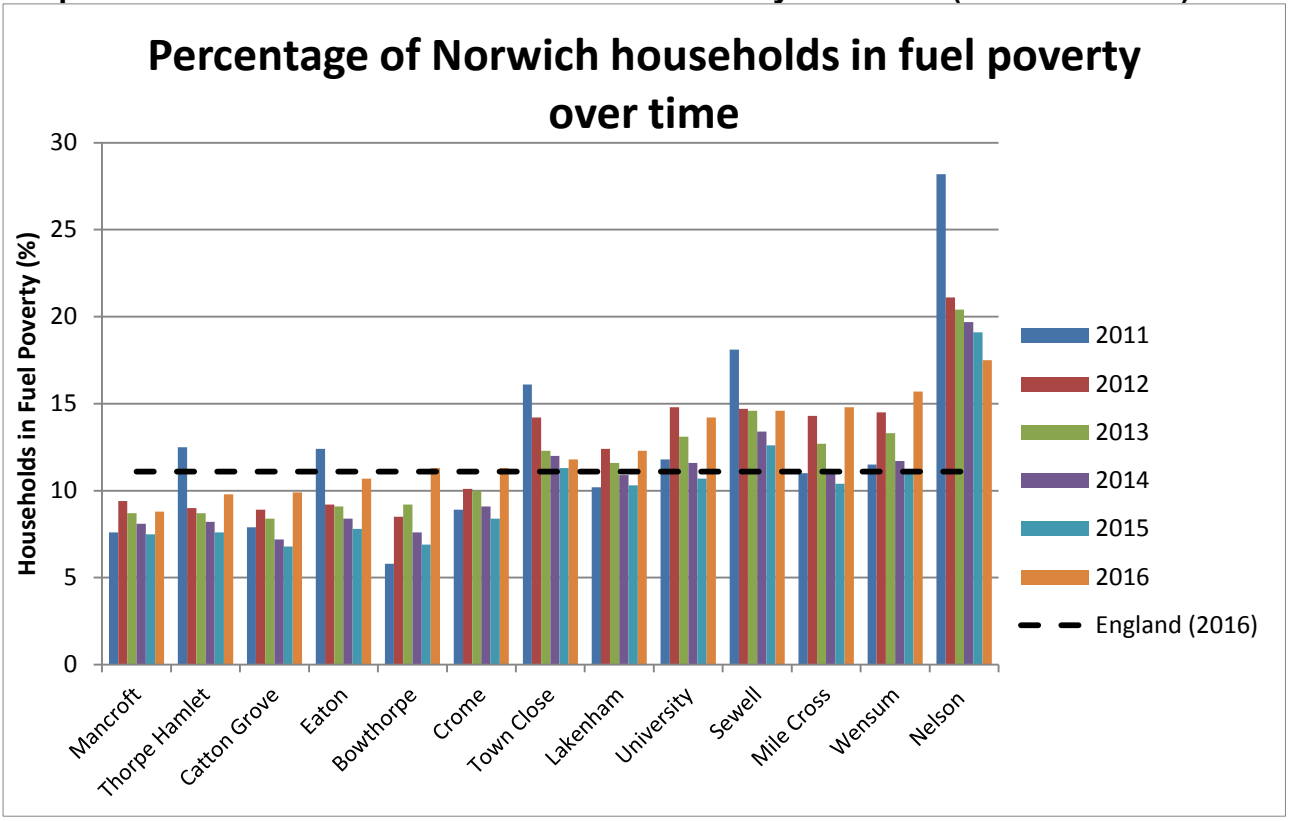
What does it show? The highest levels of council stock dwellings fall in Lakenham and Mile Cross wards where some of the lowest median levels of income are experienced. This is not surprising given the purpose of the council stock to support some of the most vulnerable residents. Equally the lowest levels of council stock are found in Eaton and Nelson wards, which experience the highest median level of income in the city.

The data would suggest that the high SAP ratings experienced in council owned properties is in fact supporting areas of low income which might be forced into fuel poverty if the fabric of their homes was not of such a high standard. Where there are low council stock levels the resulting fuel poverty is quite stark, despite higher income levels.

We believe that the data supports the council's decision to retain our housing stock at a time when many other local authorities chose not to. The average SAP rating of Norwich's 15,000+ council homes is 70.3 which is significantly higher than the private sector at 52. Without the decision to retain this important social asset we believe that the number of homes experiencing fuel poverty in Norwich would be considerably increased.

Fuel poverty is a shifting picture and should be considered over time. Graph 19 (below) shows fuel poverty across all wards since 2011.

Graph 19: % of Norwich households in Fuel Poverty over time (LIHC indicator):



Source: DBEIS: 2018 sub-regional fuel poverty data

What does it show? The graph above shows the fuel poverty picture across the city since 2011. 6 out of 13 wards are below the England national average for fuel poverty. Interestingly, although Nelson ward still has the highest level of fuel poverty in the city it is the only ward to register a decrease in fuel poverty from 2015-16. This may be due to ongoing efforts by the council to target this ward. We are not complacent and we will continue to work to try to understand the individual fuel poverty picture in each ward, the factors that contribute to that picture and how we can best work to alleviate fuel poverty wherever we can.

At a national level the government is projecting a decrease in fuel poverty for 2017 and 2018[12], and we will need to wait to see how this plays out in Norwich. In the meantime we continue to work to reduce fuel poverty at every opportunity.

The graphs contained in this section are an overview of *some* of the factors which can influence whether a ward is in fuel poverty or not. Fuel Poverty is a complex problem and there is no single simple solution or quick fix.

The next section of this report give further details of the initiatives we have implemented to date to help lower energy costs, increase energy efficiency and support those most in need, including the fuel poor.

[12] DBEIS: Annual Fuel Poverty Statistics report – England (2018)

Section 8 – Council initiatives – what are we doing?

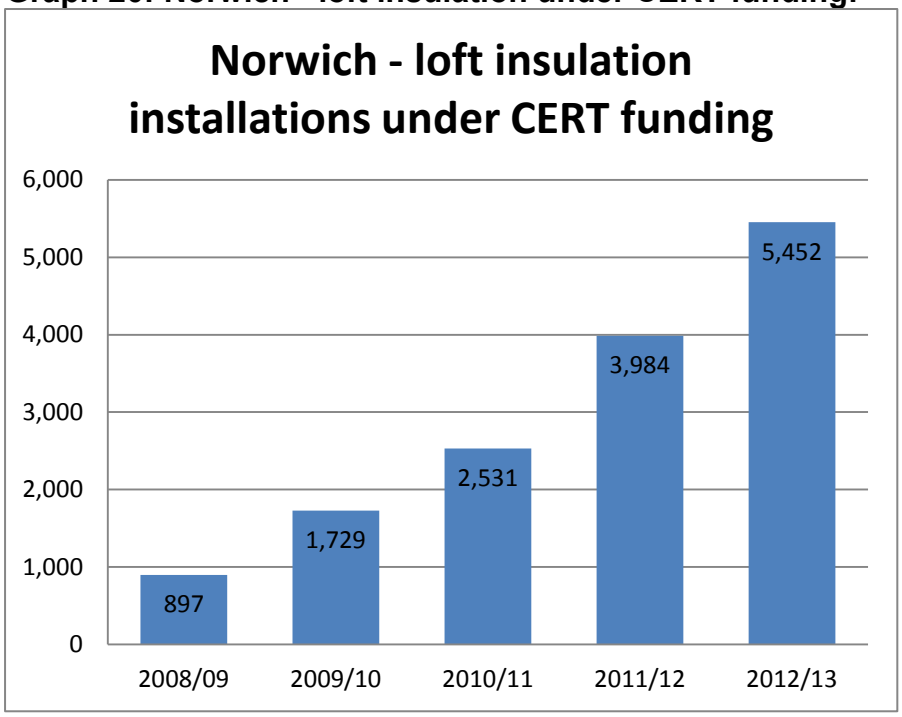
Energy efficiency measures:

As well as the effect of rising energy prices, some of the drop in domestic energy use can be attributed to an increase in energy efficiency in properties. In particular Norwich City Council has been working to install loft and cavity wall insulation across Norwich.

Loft insulation has historically been a more popular measure in Norwich, than cavity wall insulation, which may be indicative of the large number of Victorian terraces, built before cavity walls became popular in the UK. Therefore, not all properties in Norwich have cavity walls. Cavity wall insulation also requires specialist equipment to install, so unlike Loft Insulation, is not a job for the diy-er. However, take up of loft insulation can also be impeded due to residents storing belongings in their loft space, which restricts the necessary access.

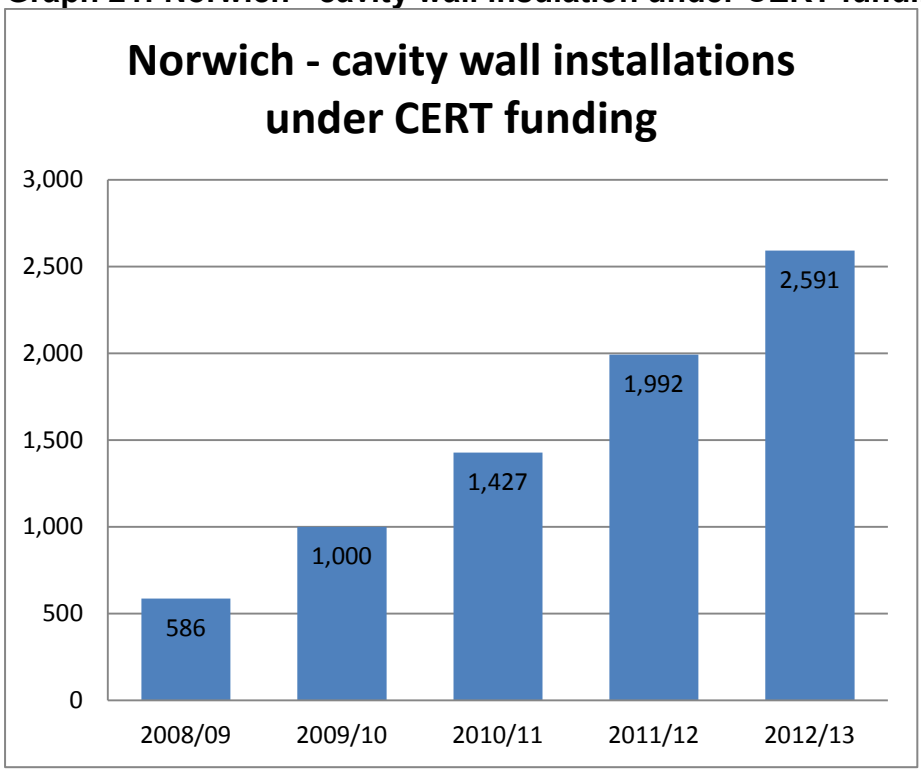
Within the private sector a significant proportion of properties are rental properties, which can restrict the take-up of home improvement measures since the landlord may be reluctant to pay to improve the thermal efficiency of the property when they will not benefit directly from a decrease in fuel bills, paid by their tenant.

Graph 20: Norwich - loft insulation under CERT funding:



Source: DECC: Interactive maps

Graph 21: Norwich - cavity wall insulation under CERT funding:



Source: DECC: Interactive maps

In 2013 CERT/CESP funding was scrapped and replaced with the Green Deal and Energy Company Obligation (ECO) funding. The Green Deal was a loan against the property which paid back directly from the savings made on energy bills. In principle it seemed advantageous to home owners who could not afford the initial up front capital to undertake energy efficiency works. However, in reality, loan rates were relatively high for homeowners when compared to the cost of mortgage-related borrowing and the Green Deal scheme has also been scrapped.

In April 2013 the Energy Company Obligation (ECO) was launched. This is a scheme which energy companies pay into and is used to improve households' energy efficiency. The first iteration of ECO funding had three elements to it; CSCO, CERO and HHCRO funded installations. Loosely speaking, the three elements funded different types of installations – HHRCO replacement boilers in privately owned households; CERO loft Insulation and cavity wall insulation in privately owned properties and CSCO solid wall, cavity wall and loft Insulation on social housing.

ECO2 (April 2015 – September 2018) then followed. This focused more on fuel poverty with HHCRO increasing from 36% of the funding to 70% and CSCO no longer being available. ECO2 introduced the 'flexible eligibility' mechanism, which allowed local authorities to determine eligible homes, representing up to 10% of suppliers Affordable Warmth Obligations. However, ECO2 saw the funding be reduced to £620 million per annum from £840 million per annum.

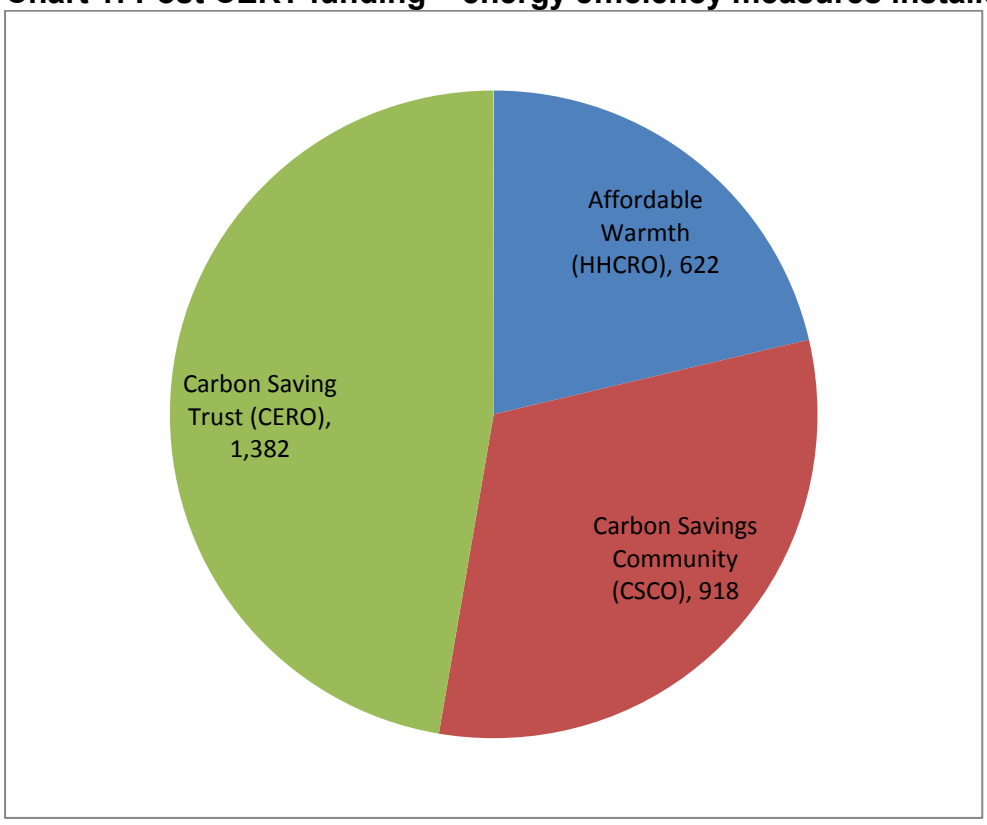
Our statement of intent, which allows the criteria for flexible eligibility, can be found here: https://www.norwich.gov.uk/downloads/file/3974/eco_flexible_eligibility_-_statement_of_intent

ECO3, the current iteration, was launched in autumn 2018. The scheme now focuses entirely on Affordable Warmth rather than carbon savings, with the CERO funding also being removed. The local authority flexible eligibility component has been increased to 25%. Although the majority of previous ECO works in Norwich has come from the CERO commitment we are hopeful that the increase in LA flex will allow us to deliver continued ECO works in the city.

Norwich City Council employs a dedicated Affordable Warmth Officer who is able to act as a lynch-pin between residents in fuel poverty and accessing the relevant funding for dependent on their needs and situation. The Affordable Warmth Officer works closely with the Private Sector Housing team and in particular the Home Improvement team, sharing information and providing assistance to vulnerable residents.

Chart 1 (below) shows the figures to date for these types of installations fitted in Norwich.

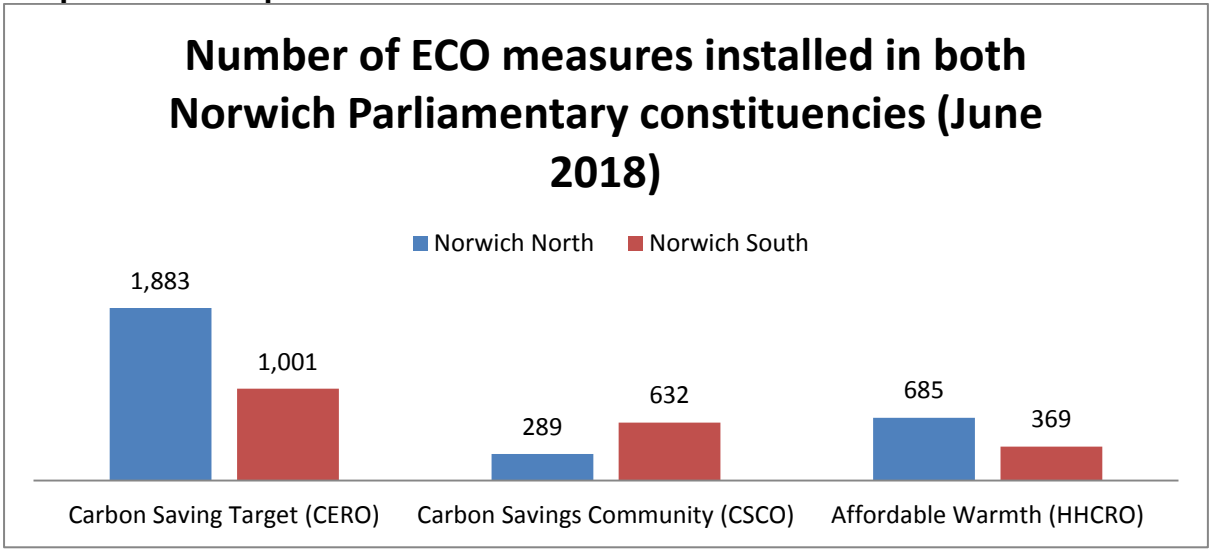
Chart 1: Post CERT funding – energy efficiency measures installed:



Source: DBEIS Household energy efficiency national statistics headline release (June 2018)

To date the majority of the ECO funding utilised has been from the CERO fund, predominantly funding loft and cavity wall insulation. This is the cheapest type of insulation and easiest to access. Therefore changes to ECO3, such as removal of the CERO obligation, may have an adverse effect on delivery. We will continue to monitor this and promote ECO funding to residents of Norwich.

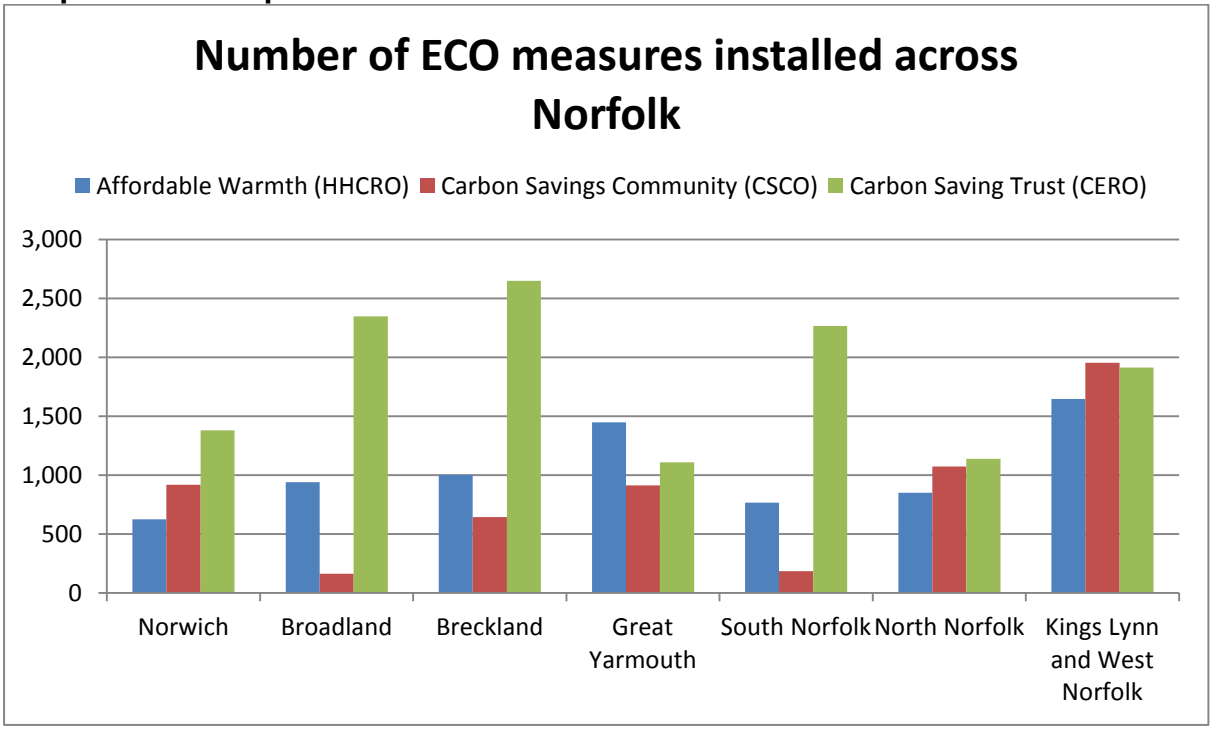
Graph 22: Take up of ECO measures in Norwich North and Norwich South:



Source: BEIS: Household Energy Efficiency National Statistics, detailed HEE tables (December 2018)

Graph 22 (above) shows that take-up of CERO funding has been far greater in the Norwich North as compared to Norwich South, whereas CSCO funding has been more predominant in Norwich South.

Graph 23: Take up of ECO measures across Norfolk



Source: BEIS: Household Energy Efficiency National Statistics, detailed HEE tables (December 2018)

Graph 23 (above) compares measures installed across the region. As you can see Norwich has some of the highest levels of CSCO installations in the county. This is probably due to the high occurrence of terraced housing in Norwich.

However, the rest of the county sees, on the whole, a higher take up of the CERO commitment than Norwich. As such, the impact of the CERO removal may impact local authorities across the county. This discrepancy may be because Norwich has a higher social housing stock, and therefore funding was split across these tenures, whereas other local authorities in Norfolk have very low social housing stock and so have focused on the private sector.

Norwich's Cosy City project:

The Cosy City Project:

Cosy City is Norwich City Councils project to deliver ECO measures, in partnership with Aran Services Ltd, focusing particularly on cavity wall and loft insulation. This scheme works to improve energy efficiency, and reduce carbon emissions, across Norwich.

We have used benefit data to send (anonymised) letters advising residents that they may be eligible for ECO measures, through the Cosy City scheme.

Measures delivered via Cosy City project:

GDAR and EPC assessments	350
SWI	68
Boiler replacements	72
Cavity wall and Loft insulation	220
Heating Upgrades	9
Boiler repairs	8
Small insulation measures	297
Total	**1024**

There is a high level of pre-1920's housing in Norwich with many rows of red-brick Victorian terraced houses. Unfortunately housing of this age does not have a cavity wall and the only way to provide effective insulation is via Solid Wall Insulation (SWI). SWI is an expensive means of insulating a property when compared to loft and cavity wall insulation and requires a specialist contractor. As part of the Cosy City project we helped to fund 67 properties to install SWI, providing grants of £5,800 towards the cost.

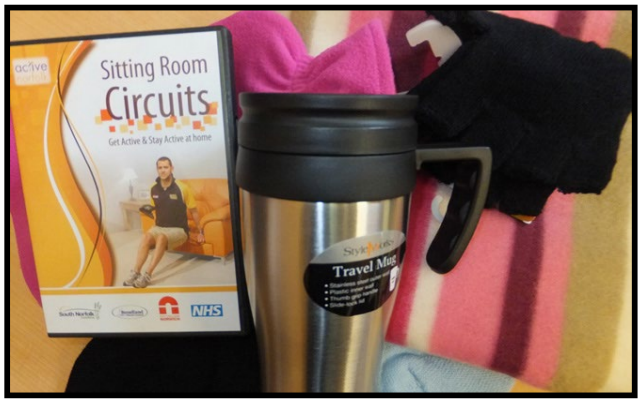
Cosy City has provided help to 89 residents to access funding for boiler replacements, repairs and heating upgrades. The majority of these residents are amongst the most fuel poor and vulnerable residents in Norwich. Cosy City has also provided help to insulate lofts and cavity walls in over 200 properties.

Over time we hope to see SAP rating improvements within the private housing sector but we are aware that domestic energy efficiency funding is limited, with the removal of the Green Deal Finance Company and the Green Deal Home Improvement Fund and the reduction in ECO funding. We will still continue to help residents access available funding and work to increase SAP ratings across the city.

Warm and Well:

The Norwich Tradesmen's Benevolent Fund is a small pot of funding which the council has been fortunate to have been awarded in recent years. The funding has been used to help the most vulnerable Norwich residents to weather the cold winter months.

It is used for urgent heating need, winter packs and repairing heating breakdowns. Combined with the switch and save revenue it has helped many residents in desperate heating need. Our warm and well packs include thermal clothes, blankets and soup.



Example Warm and Well pack

The fund is also used to provide small energy efficiency measures such as draught proofing and radiator foil, which help reduce the resident's fuel bills by 5%. In 2017/18 we provided these small measures, and warm and well packs, to over 200 residents. We also provide emergency heating in the form of radiator loans to residents without central heating.

We work to help residents access appropriate funding for their heating repairs including grants to prevent admission to hospital due to cold homes and home improvement loans, however these are subject to availability and eligibility.

Advice and Support:

In addition to the above projects the council continues to support residents with fuel poverty advice. This includes the annual Winter Wellbeing event that brings together affordable warmth groups to promote their services to stakeholders.

Warm and Well stakeholder event 2016

Our Affordable Warmth Officer advises residents on how to save energy within the homes, including benefit advice and trust funds for fuel debt, as well as supporting any dispute the resident has with a supplier. We work with residents to reduce fuel debts. We also work with teams within the council, including specialist support and private sector housing, to provide 1:1 support where appropriate. We communicate this advice in a variety of ways, including energy saving packs with information on reducing fuel bills, face to face advice and targeted letter campaigns. These packs have been sent out directly to residents in our most fuel poor wards, and are given to residents when we undertake roadshows. All of our tools, schemes and support are coordinated by our Affordable Warmth Officer.

Big Switch and Save:

Norwich City Council was the second local authority in the UK to introduce collective energy switching in 2012 and since then we have promoted 11 tranches of this scheme. The scheme works to secure lower energy tariffs for switchers by harnessing the power of collective purchasing. Different suppliers bid against each other in a reverse auction, to be able to access the registrants, driving prices down.

To date we have supported over 3,000 switches to cheaper energy tariffs, with average savings of over £200 per household per year. For each switch the council receives a small switching fee which is ring-fenced to affordable warmth work and enables us to support the most vulnerable households at times of extreme need.

This scheme is open to all residents in the city, including those without access to the internet, who may be unable or unsure of how to find the best deal, and those on pre-payment meters, who may be struggling with high bills.

Our team is able to register offline residents who are unable to access many tariffs. This scheme encourages residents to move away from high cost standard tariffs to more affordable fixed price tariffs.

The Big Switch and Save is a partnership between Norwich City Council and iChoosr, a business specialising in reverse auctions and collective switching.

Resident Switch and Save feedback:

“The Norwich Switch and Save has made me feel more confident when dealing with the energy company. Just knowing that there is support out there makes me feel reassured. I had never switched before and I was scared with dealing with my fuel bills but now I switch every year with the council. They have made it easier for me. I now feel more confident in my home when I use electricity and gas.”- **Mrs B**

‘I’m definitely less worried about my bills now. Switching with the council was easy because the work gets done for you. I’ve been inspired to switch with some of my other bills too’ – **Mr H**

‘I couldn’t be more pleased with it. Something came through my door to tell me about it. I’d never switched my energy provider before but I thought I would give it a go. I haven’t got a computer so I rang up and someone helped me register I was surprised how easy it was. – **Mr K**

‘The process was easy to follow from the entering of details through to the changing of energy contracts, saving us money on both our gas and electricity’ – **Mr W**

‘The process was made very easy from the start. I would highly recommend the service which I received’ – **Mr M**

Smart meters:

Norwich City Council has previously used funding from Smart Energy GB to promote smart meters in the city through community events and workshops. We specifically targeted vulnerable residents and offered residents confused by their smart meters additional in-home support from our trained smart meter champions. While we do not actively promote smart meters as part of our fuel poverty work we do provide advice and information when requested.

If further funding becomes available for smart meter work we will use this to promote smart meters across Norwich. Our planned white label energy company will offer smart meters.

We currently have a contract with British Gas to supply our void properties. This does not include an agreement to install smart meters.

Working in partnership with the health sector:

Norwich City Council works with the Norwich Clinical Commissioning Group and Norfolk County Council's public health team through the Healthy Norwich partnership to target fuel poverty support at vulnerable households, particularly those where people are suffering from health conditions which make them more susceptible to the cold.

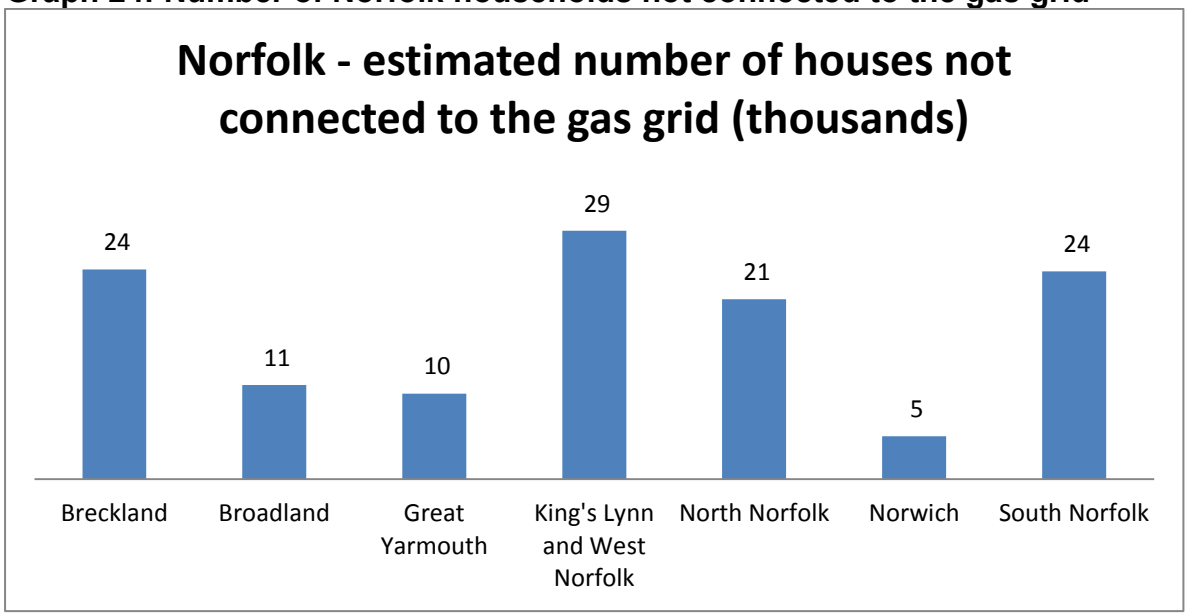
Through this partnership we have engaged a range of health professionals and voluntary and community organisations to promote the affordable warmth and wider healthy homes services that the council offers.

Working in partnership with the Warm Homes Fund:

In 2018 a joint bid by Norfolk County Councils, led by Broadland District Council, was awarded £3.1 million by Affordable Warmth Solutions to install first time central heating in residences across Norfolk. The goal of this project is to install 533 systems measures across Norfolk before August 2020. Central heating, particularly from gas boilers, is much more cost effective than off-gas alternatives such as electric storage heating, due to lower unit rates. Therefore this scheme will hopefully reduce fuel bills across Norfolk. The Warm Homes team will also be helping people switch suppliers onto better deals and access certain benefits, such as Attendance Allowance, to maximise people's income.

Norwich City Council is working with Broadland District Council to help deliver this project and is focusing on the Templemere estate in Norwich, which has over 100 households without a connection to mains gas. As we have significantly less off gas households than other Norfolk councils (see Graph 24, below) we have decided to focus on this large project rather than targeting individual households. Nevertheless we are still connecting eligible residents to this fund when appropriate. These installations will all be funded by Affordable Warmth Solutions.

Graph 24: Number of Norfolk households not connected to the gas grid



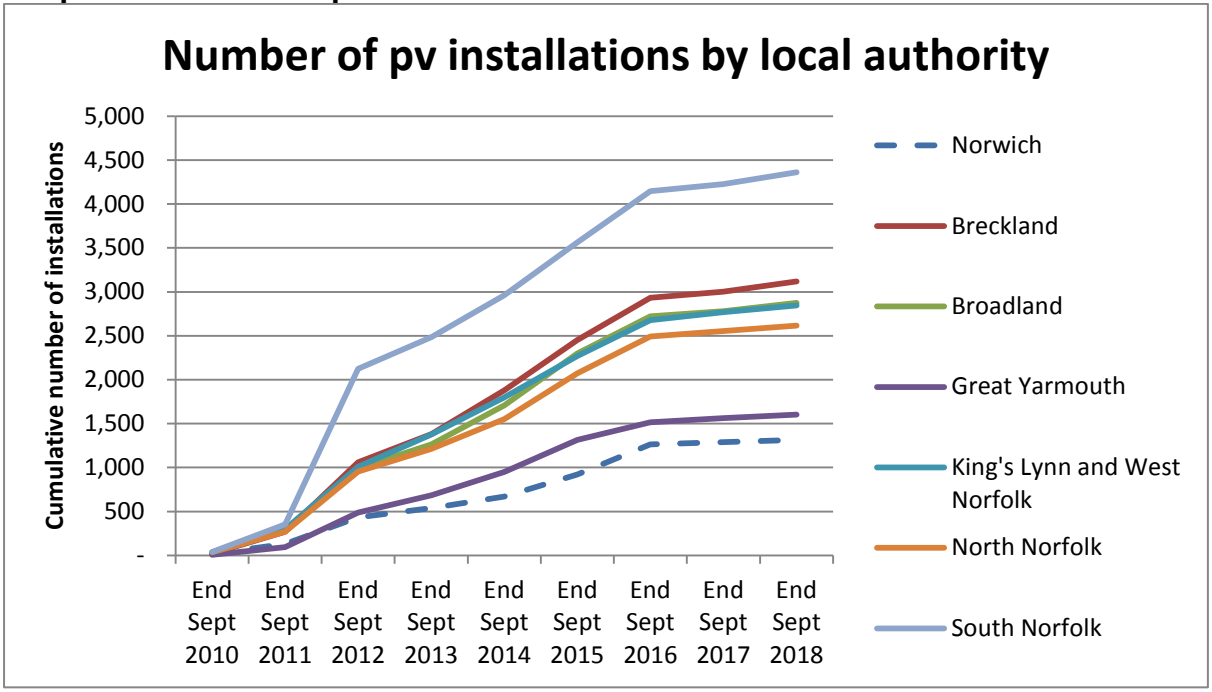
Source: DBEIS: Sub-national estimates of households not connected to the gas network (2018)

Renewable energy:

In the city renewable energy on domestic properties largely takes the form of photovoltaic (pv), or solar panels on rooftops. There is some uptake of air source heat pumps and solar thermal panels for heating water, but these are the exception rather than the rule. Norwich is predominantly on the gas grid and therefore compared with the installation of either air source heat pumps or ground source heat pumps (which require sufficient land to lay the pipework) connecting to the gas grid, whilst not renewable, is comparatively cheap.

This is not the case in many rural local authorities in Norfolk, which are predominantly off-gas grid properties and must therefore source their heat via open fires, electrical heaters or oil-fuelled central heating. Properties that rely on oil for their heating have seen oil prices spiral over recent years and it has begun to make better financial sense to invest in alternative technologies such as renewables. Consequently the uptake of renewables in rural local authorities has far outstripped the uptake in the city; this can be seen in Graph 25 which shows the uptake of pv cells across the county.

Graph 25: Number of photovoltaic installations across Norfolk

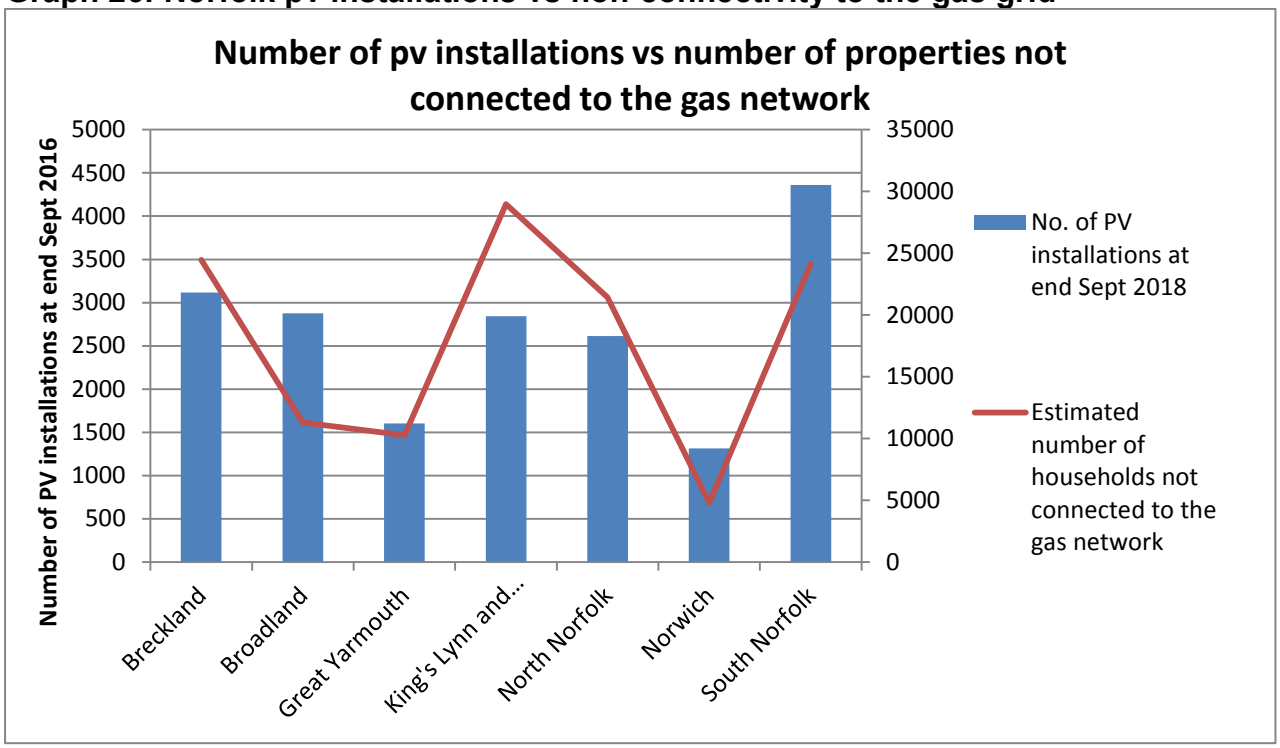


Source: DBEIS: Domestic Solar Photovoltaic Installations by Local Authorities (2018)

What does it show? Solar power has been slow to take up in the city for a number of reasons and we have fallen behind the rest of the county. Norwich is a historical city and some properties in conservation areas are not suitable for solar panels, in addition there are pockets of deprivation where the technology is prohibitively expensive and there are a high percentage of residents living in rented accommodation where pv installation is not an option.

Graph 26 (below) shows both South Norfolk and Breckland have the highest levels of pv installations in the county, with King's Lynn and West Norfolk lying in 4th place, with significantly more pv installations than in Norwich. This largely mirrors the pattern of non-connectivity across Norfolk.

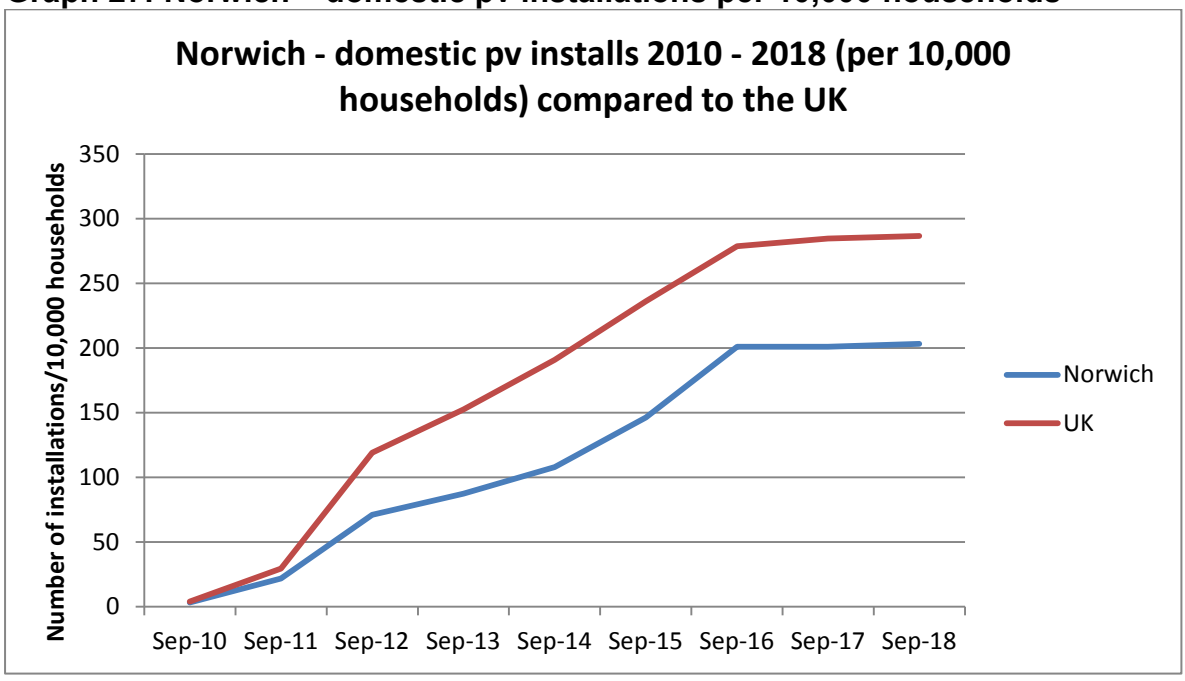
Graph 26: Norfolk pv installations vs non-connectivity to the gas grid



Source: DBEIS: Domestic Solar Photovoltaic Installations by Local Authority (2018)/ DBEIS: Sub-national estimates of households not connected to the gas network (2018)

In Norwich the number of domestic pv arrays has been steadily increasing over time, but it is still below the rest of the county or the UK average. Graph 27 shows the rate of uptake of pv cells in Norwich as compared to the UK average.

Graph 27: Norwich – domestic pv installations per 10,000 households



Source: DBEIS: Domestic Solar Photovoltaic Installations by Local Authority (2018)

What does it show? Norwich has fallen well behind the national average number of pv installations. We believe this may be due to a number of factors, including: the historically high cost of installations, the historical nature and conservation status of some of the buildings in the city, the high level of rental properties in the city and the high number of properties in the city already serviced by the gas grid. There is a slight upturn in pv installation numbers in the city in 2015/16. This may in part be influenced by the council's successful Solar Together project and the proposed decrease in the Feed in Tariff (FIT) as homeowners scramble to make the most of the higher rate. However this was followed by a significant slowdown in installations – which may be due to the large reduction in the FIT.

Now we wait to see what the impact of the complete removal of the FIT will have on PV installation, the rate of which had already significantly slowed in response to previous reductions in the FIT.

Solar Together:

In May 2015 Norwich City Council in partnership with Broadland, South Norfolk and North Norfolk local authorities, joined forces with iChoosr to run the UK's first ever collective solar scheme. A reverse auction process was held and Job Worth Doing were chosen as the successful contractor. Due to the competitive bidding process the prices secured on panels and installation was lower than the going market rate for the same work. Consequently 613 installations were completed by the end of 2015, with nearly 8,000 panels being fitted and a potential of 2MW of solar pv energy. Over 900 tonnes of CO_2 will be avoided annually due to this project.

Unfortunately, in August 2015 central government went out to consultation to reduce the (then) Feed in Tariff rate from 12.47pence/kWh to a proposed 4.39 pence/kWh rate. Whilst the scheme was successful for the 7 months in which it ran, it was felt that the severe cut to the FIT was such that the business model was no longer a viable one. Graph 25 begins to show an upturn in the take up of pv installations around September 2015. This is likely due to a combination of an increase in demand in the city due to the Solar Together scheme and as a result of the proposed decrease in the FIT rate.

Following the government decision to remove the FIT entirely it was decided to run a second Solar Together scheme in Summer 2018, in order to give homeowners a final opportunity to take advantage of the FIT. For this iteration of the scheme we worked in partnership with iChoosr and Broadland District Council. Without South and North Norfolk we were not able to access a lot of the most suitable properties in Norfolk. However we still saw 790 registrations (85% from Norwich City Council), with 114kw of power installed, saving 32 tonnes of CO_2. With the FIT now being removed we unfortunately do not see any scope for another Solar Together scheme.

CO_2 emissions from our own estate (National Indicator 185):

Norwich City Council has reduced carbon dioxide emissions across its operations and estate for the past 10 years through our carbon management programme. To date we have reduced our emissions by 57% against a 40% target. A copy of the 2017/18 Carbon Footprint report can be found here: https://www.norwich.gov.uk/info/20240/sustainable_living/1604/carbon_footprint.

Our asset portfolio is wide and varied containing a brand new purpose built multi-storey car park where energy efficiency was built in to the design, to a 15th century Grade II Listed monastery (now used a premium event space), where we have needed to sensitively retro-fit energy efficient technologies.

This has been achieved through a variety of methods including:

- Voltage optimisation
- PC powerdown
- Server virtualisation
- Installation of variable speed drives
- LED lighting upgrades
- Boiler valve and pipework insulation
- Staff behaviour change campaign
- Photovoltaic arrays
- Community engagement

In 2018/19 we plan to investigate the possibility of further solar pv arrays on council assets, and implement the following technologies: landlord lighting projects at various assets, district lighting projects at various sites, further insulation work at sheltered housing schemes and boiler upgrades at sheltered housings scheme.

We expect administration costs for our carbon management work to be met from existing staff budgets.

While delivering the scheme we have learnt that in order to make the biggest difference close monitoring of your energy data is vital. Technology is always changing and we have needed to revisit energy saving projects from as recently as five years ago in the light of new technology. Our car park lighting is a case in point where we are looking to install smart LED lighting which will dim up and down according to need. Unfortunately it is not always possible to be as proactive as we might like when reactive work, such as a boiler breakdown in sheltered housing, takes priority over planned, proactive work, such as insulation.

In 2015 we introduced the One Planet Norwich work-stream. The aim of One Planet Norwich is look further afield than the council's own estate and to actively engage with Norwich residents about ways they can make small changes to their lifestyles to reduce their carbon emissions through a variety of ways. One of these is through raising awareness of energy use and the savings that can be made through fitting energy efficiency measures to their housing and where funding might be available to help with this. The project aims to engage in a fun and accessible way. We utilise social media and our annual One Planet Norwich festival to raise awareness in Norwich. To date we have organised four One Planet Norwich festivals with a total attendance of over 30,000 visitors. The next festival is planned for June 2019.

HOME
RECYCLING
TRANSPORT
FOOD
WATER
NATURE
PLACE
HEALTH
ONE PLANET
NORWICH

Photo: Eco Snakes and Ladders – Having fun and challenging perceptions around resource use

Photo: Recycled plastic fashion show – A fun way of showing what can be done with old fabric

CO_2 emissions from our Council housing stock

We strive to maintain the council's housing stock to levels which help to ensure that our tenants have warm and comfortable homes. As part of this drive we continue to look for opportunities to increase the energy efficiency of the housing stock. Table 3 (below) lists some of the technologies we have employed to date to assist this.

Table 3: Renewable technologies in council stock

Applied Renewable Technologies	Total Installations to date	What the technology does
Photovoltaics	139	Free electrical power from the sun
Solar Thermal	8	Free hot water from the sun
Voltage Optimisation	363	Lowers domestic electrical consumption
Air source heat pump	2	Creates energy efficient central heating
Loft insulation (over 200mm)	6220	Helps to stop warmth escaping through the loft
External Wall Insulation	426 installed, 472 programmed	Helps to stop warmth escaping through the walls of a house, where there is no cavity in pre 1920's houses
Gas condensing boilers	10846	Energy efficient gas fired central heating boilers
Thermal dynamic hot water systems	547	Provides very low cost, energy efficient 24 hour a day, every day, hot water.

The current average SAP rating of the council's housing stock is 70.3 across over 15,000 homes. This equates to a solid C rating and compares favourably with the private sector SAP rating of 52, or a high level E EPC rating.

Since the removal of grant assisted funding regretfully less homes have been able to benefit from the installation of loft and cavity wall insulation, boilers and controls and external wall insulation (EWI).

Renewable Heat Incentive and Feed in Tariff (FIT):

The council has installed 139 photovoltaic arrays across our housing stock. This means the tenant benefits from the free electricity produced, whilst the contractor benefits from the FIT as payback for the works. The FIT has been significantly cut in the past year, making payback slower and this model less commercially attractive. With the FIT now being cut completely this is no longer commercially viable.

To date we have also installed 8 Solar Thermal Water heaters on our housing stock and 2 Air Source Heat pumps. We have no current intention to install more systems. This equates to 10 claims for the Renewable Heat Incentive payments.

Council Homes – new build:

Since 2015, we have completed 33 homes, all of which were delivered to Code for Sustainable Homes level 4.

In addition, we have constructed 10 Passivhaus dwellings at Hansard Close (April 2017). We are constructing 93 Passivhaus dwellings at Goldsmith Street, to be completed May 2019. 112 of our properties at the Three Score development in Bowthorpe will be designed to the Passivhaus standard, which we hope to complete by Spring 2019.

Council Homes – adapting our stock:

The council is adapting to changing tenant needs and strives to maintain and improve our housing stock. As old energy-inefficient stock is disposed, so new energy efficient stock is built or purchased. Family dynamics are changing over time with more smaller family units being required. To reflect this changing need we have converted some of our 3 bedroom homes into more suitable flats. We are working to anticipate and accommodate the changing needs of today's family groups using a housing stock predominantly built between 1930 and 1970 which contains a high percentage of 3 bedroom semi-detached properties. We are also exploring the possibility of converting commercial assets into residential properties.

Contractor responsibilities:

All contractors working on a contract over £300,000 are required to have a SWMP. This is a legal document and the company can incur large fines if there is not a SWMP in place on a contract. The contractor is also responsible for maintaining an audit trail of what percentage of waste is disposed and recycled. There are also Green Travel plans which enforce the need to use a minimal number of vehicles when on site and to use those vans most effectively to ensure there are enough materials contained within the vehicles to complete the jobs for the day in order to minimise the number of journeys. All our current contractors have SWMPs in place.

High-value contracts contractors are also required to report their carbon emissions to the council annually which are then reported into central government as part of the council's overall carbon footprint.

CO_2 emissions from Private Sector Housing

Private sector housing – enforcement work

Norwich City Council tackles excess cold in privately rented accommodation through enforcement. The private sector housing team comprises of three private sector housing officers (one of which is the team leader). The majority of cases are in response to complaints; however, the address-level information from our stock condition survey enables us to target this enforcement activity more effectively. Proactive work includes:

- Rolling programme of inspections
- Area based inspections

Home improvement team

In addition to the enforcement work of the private sector housing team, our home improvement team is also able to tackle excess cold. The team receive referrals from home owners, private tenants and housing association tenants, as well as health and social care providers, requiring disabled adaptations, our handyperson service, access to our hospital discharge grants and home improvement loans.

Our case workers and handyperson engineers carry out a home risk assessment to identify any other issues in the property, including inadequate heating, poor insulation etc. Through our financial assistance policy which offers a number of grants and loans, we are able to help clients to improve their property and remove excess cold hazards.

Section 9 - What did we achieve?

Progress against 2013, 2015 and 2017 Action Plans:

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
Building relationships	Networking with the Big 6 Energy Providers	Ongoing	Investigating opportunity for tower block to be upgraded through funding via Big 6 energy company	Currently this has not come to fruition due to changing Eco targets. But we continue to monitor for opportunities and have ring-fenced £800,000 for work on Normandie Tower flats.	Tower block upgrades, focussing around fire safety, were started following recent horrific events. The council are installing updated fire doors to all homes within tower blocks including to leasehold homes.
	Working alongside Income Assistants to find tenants who may be in poverty Working with vulnerable residents to assist them to get them the best energy deals, even on pre-payment meters		Improve links to other services that could benefit from this information too.	We continue to improve links across our services to ensure comprehensive support to those in most need.	We continue to improve links across our services to ensure comprehensive support to those in most need.
	Assisting with reports and supplying data to the Environmental Strategy team	Ongoing	Continuing to work across council services and with major contractors to assimilate energy data	Continuing to work across council services and with major contractors to assimilate energy data	Continuing to work across council services and with major contractors to assimilate energy data
	Tenant involvement by producing documentation on energy saving,		Documentation completed and handed out at fun events.	Ongoing	Ongoing

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
	tenant fun days & liaising with tenants regarding their energy bills		Continued liaising with tenants regarding energy saving measures.		
Building relationships cont.	Digital inclusion project – enabling residents to make use of lower energy tariffs and deals via online billing	2017 onwards	n/a	n/a	Continuing to work with the digital inclusion team to promote our switching scheme and helping residents' access online billing. Our fuel poverty officer sits on the Digital Inclusion working group.
New equipment	Replacement of our asset database and upgrade. Our current database runs RdSAP 2005. Upgrading will allow us to use RdSAP 9.91.	2013/14	Database now using up to date RdSAP 2009 methodology, and in a position to easily update when required.	Upgrade completed bringing additional benefits such as mobile data collection and opportunities for smarter working.	n/a
	Purchasing of additional thermal imaging camera and data loggers	2013/14	Data loggers bought. An additional thermal imaging camera has not been required.	Completed. Thermal imaging camera purchased to aid training and accurately identify heat leakages.	n/a
Trial projects	**IWI** – 8 properties to be involved in a trial		Assets and tenants benefitting from	Currently no budget available for this work. If	This methodology for insulating homes is very

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
			application of technology. Reviewing and planning for future installs.	this changes we will identify further opportunities.	difficult and costly to achieve effectively.
Trial projects cont.	**Damp Trial** – 6 month trial to reduce spend and investigate alternative methods alleviate damp within our homes. The trailing out of new products such as single, whole house ventilation and continuous running extractor fans working with the market leaders.		C. 1.2 million saved through trial. Programmed works for 15/16 modified to accommodat e measures found, such as 'french drains' and bin/meter cupboard insulation (to specific assets). New extract fans being installed with continuous then boost as required features.	The Materials Selection Group have selected the Cy-Fan and it has been installed where required. This solution will be fitted during responsive and planned works where appropriate.	n/a
	Air source heat pumps – to carry out a trial		Applied where practicable.	Trialled 2 units. Research concluded that this technology was most efficient where gas connectivity was available and dependent on the tenants demand for heat during the day.	We currently have one unit within the housing stock (one sold through right to buy), and do not have any further plans for this to increase due to the type of control over the heating produced. With all housing stock being on-

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
Trial projects cont.					grid, there is little need to consider this heating approach.
	Thermodynamic hot water – potential trial of this technology that can provide hot water 365 days of the year, using a local company.		Trialled x 4 units. Feedback 100%. Contracted to install an additional x 28 units 14/15 with nearly 100% satisfaction from tenants. Assigned budget for 15/16 for additional units and shall investigate economies of for even wider application for future programmes.	148 units installed to date and ongoing. Where homes too small for tank required some airing cupboard expansion has been carried out. Currently trialling loft-space system for smaller properties.	547 units have been installed 641 homes in total benefit from this technology. This technology is proving very effective at reducing tenant expenditure on hot water requirement and presenting tangible benefits to reduce fuel poverty.
Projects	95 homes on district oil heating. Exploring and investigating renewable options.	Ongoing	Solution being investigated – no works currently planned.	Normandie Tower flats – £800,000 ring-fenced when opportunities for partnership funding become available.	n/a
	Upgrading of old pipework, underground pipes from district boiler to be super insulated.	2013/14	This work was completed at one Sheltered Housing bungalow scheme	Seabrook Court Sheltered Scheme also completed.	This work has been completed in full.

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
			(2013) and is scheduled to go ahead at a second site in Spring 2015		
Projects cont.	**PVT (photovoltaic thermal)** – to install to c. 10 properties.	2013/14	Research concluded that technology is not currently reliable enough, plus cost prohibitive. Review in future.	Cost-prohibitive and new Thermal Dynamic technology now filling this need.	n/a
	Voltage Optimisation – to install c.500 units into our housing stock	2013/14	Completed with limited stock remaining. VO no longer traded. Investigation continue to find residential alternative.	363 installations completed. Unfortunately, supply chain has currently run-dry, but we await update.	We investigated alternative units, after the voltage optimisation company no longer traded, however the impetus for such technology was not forthcoming.
	Council vehicle fleet refresh and reduction	2017 and reviewed regularly	n/a	n/a	The council's fleet has been reviewed and rationalised, it is now smaller and cleaner with electric hybrid vehicles replacing some petrol and diesel vehicles.
	EWI – installation to c.82 properties with potential to deliver up to 200 properties by accessing ECO funding.	2013-18	Completed. Specification change to include relocation of gas meters has increased	489 installations of EWI completed. The most energy inefficient homes are	The delivery programme will include a further 173 houses but they require structural improvements

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
			unit rates impacting future rates. Work set to proceed targeting poorest performing assets, or those in the areas of highest deprivation.	targeted at a rate of approximately 50 installations per year.	before this work can be carried out.
	IWI – following the trial, investigate opportunities to complete the block using ECO funding	2013-18	Ongoing review of methodology before committing to programme.	No funding available unfortunately.	This methodology for insulating homes is very difficult and costly to achieve.
Funding Streams –	**ECO -** Investigating ECO funding opportunities to deliver EWI, IWI, new boilers, loft insulation and cavity wall insulation	2013-18	None present.	We continue to access ECO funding where individual households meet the criteria.	We continue to access ECO funding where individual households meet the criteria.
	Green Deal - Investigate a wider whole city approach to Green Deal and the role the council should play	2013	Cosy City launched Spring 2014. DECC Greener Communities bid successful Summer 2014. On target to deliver.	The Green Deal was stopped in 2015. NCC successfully delivered 688 measures using the DECC Greener Communities funding.	The Green Deal was stopped in 2015. NCC successfully delivered 688 measures using the DECC Greener Communities funding.
	Seeking new funding opportunities for energy reduction projects	Ongoing	We continue to seek out funding opportunities	We continue to seek out funding opportunities	We continue to seek out funding opportunities
Collective	Working to	2013-18	1500+	Over 3,000	Over 5,000

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
Switching	promote Norwich Big Switch & Save. Leaflets and advice given when carrying out stock surveys, visits etc. also assisting offline registrants by offering paper-based registration.		residents have successfully switched so far with an average saving of £250. The most successful local authority in the country.	residents have successfully switched to date with average savings of over £200.	residents have successfully switched to date with average savings of over £200.
Tackling Excess Cold	To identify privately-owned homes where an excess cold hazard exists and to take appropriate action to remove the hazard. This may include the use of improvement notices in the case of privately-rented accommodation and financial assistance for vulnerable owner-occupiers.	Affordable Warmth action plan (ongoing)	38 homes identified and 32 improvement notices served since 2013.	27 improvement notices served and 12 cases resolved informally. (N.B. No council stock homes have failed the HHSRS due to excess cold.)	*Awaiting update* (N.B. No council stock homes have failed the HHSRS due to excess cold.)
Private sector housing energy efficiency information	To commission private sector stock condition research to identify the extent and distribution of excess cold hazards, poor thermal efficiency and fuel poverty.	2013-14	Report and stock modelling database received in January 2014.	Completed. Still using BRE 2014 Stock modelling data.	Completed. Still using BRE 2014 Stock modelling data.
Private sector housing renewals strategy	To introduce a new strategy, based on information provided by the stock condition	2013-15	A number of initiatives and policies have been implemented instead of an	Our private sector financial assistance policy has been	Working with health colleagues across the community and acute services

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
	research, which will address the problem of excess cold and poor thermal performance in owner-occupied and privately rented homes in the city.		overarching strategy which include: Private sector financial assistance policy which has been extended to offer help to private landlords Empty homes policy. Private rented sector property registration scheme (launch due 2015) where minimum standards will be required including energy efficiency.	extended to offer help to private landlords. Private rented sector Property registration scheme launched (May 2016). Minimum standards are required including energy efficiency. Continue to identify clients, through the council's Home Improvement Team, to help improve their properties. Participating in the corporate strategy team's Lakenham social project, prescribing pilot projects to help identify properties that can be improved. Working with health colleagues across the	to promote the help the council can offer people living in poorly heated homes. Continue to identify clients, through the council's Home Improvement Team, to help improve their properties and help them access appropriate funding streams. Our housing strategy includes a commitment to improving the energy efficiency of all homes in Norwich.

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
				community and acute services to promote the help the council can offer people living in poorly heated homes.	
Building relationships/ changing behaviours	Working to identify opportunities for 'habit discontinuity' where tenants and residents can be encouraged to change their habitual behaviour	2015-16	n/a	Ongoing	Ongoing
	Once 'habit discontinuity' opportunities are identified work to promote energy efficiency and sustainable lifestyle changes when people move home through the use of tenancy packs etc. Seeking new ways to effectively engage with the public re: energy reduction	2015-16	n/a	Tenant packs produced. Switch and save packs produced. One Planet Norwich workstream created and public engagement activities planned and delivered using events and social media.	One Planet Norwich workstream continued and public engagement activities planned and delivered using events and social media. A Plastic Free July campaign was held in 2018 through our One Planet Norwich campaign.
	To develop an open-homes online network to enable residents to learn from one another on how to improve their home's energy	2015-17	n/a	NCC became part of the CSE Open Homes network in Summer 2015.	n/a

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
	efficiency				
Building relationships/ changing behaviours cont.	To raise awareness and encourage skills development in the local construction industry in the green deal and the installation energy savings measures through the council's Cosy City service and other activities	2015-17	n/a	To date 5 NVQ's fully funded with 'Building Futures' via the Cosy City Greener Communities project. The Green Deal is now finished and funding is not available, but we continue to look for future opportunities.	n/a
	To implement initiatives to raise awareness and create action at a local neighbourhood level about energy efficiency, managing energy use and the benefits of installing renewable energy by providing information, advice and education Supporting the rollout of smart meters in the city	2015-17	n/a	The introduction of the One Planet Norwich brand has seen us engage with over 18,000 residents and visitors to Norwich at the first 2 One Planet Norwich festivals, on a range of sustainability issues. We are also promoting the rollout of the Smart Meters and are engaging with tenants at a range of community	The One Planet Norwich festival has continued, engaging with over 15,000 visitors during the two subsequent festivals. Where budget allows we continue to seek new opportunities to engage with residents and tenants to increase awareness of energy use. We continue to engage with residents around smart meters and energy saving.

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
				events in novel ways including 'Energy Efficiency Bingo'. Where budget allows we continue to seek new opportunities to engage with residents and tenants to increase awareness of energy use.	
Research/ Projects	Investigating opportunities for heat from rivers via the DECC HNDU project	2015-17	n/a	We have researched this project and been successful in drawing down some funding allow for a scoping exercise to be carried out.	n/a
	Investigating the country's first Collective PV auction with switching partner iChoosr.	2015-16	n/a	Successfully delivered nearly 8,000 pv panels. Unfortunately due to reductions in the FIT this business model is now not commercially viable. We continue to monitor for opportunities and the project is ready to pick up again should the	A second auction scheme was carried out in Summer 2018. Unfortunately due to the FIT scheme now ending this business model is no longer commercially viable.

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
				opportunity arise.	
Research/ projects cont.	Investigate the feasibility of running a White Label energy company	2017 onwards	n/a	n/a	We have awarded the White Label energy contract to ENGIE.
	To explore with partner organisations the potential for a district heating scheme for the City and other options for the development of renewable energy for the future	2015-17	n/a	A feasibility study for district heating was completed but it was found not to be viable so this project has been paused.	n/a
	To explore the development and delivery of a large scale PV scheme on council housing across the City in consultation with tenants and review other opportunities for micro- generation	2015-17	n/a	A pilot study has been completed. However, with the large cut to the FIT it is not felt to be financially viable. However, we continue to seek further opportunities.	n/a
	To ensure the council's private landlord accreditation scheme promotes energy efficiency	2015-16	n/a	n/a	The private landlord accreditation scheme was closed in 2018
	To continue to lobby OFGEM for a standard for renewable energy tariffs so that this can be included within the council's switch and save scheme.	2015-17	n/a	We continue to lobby.	We continue to lobby.
New Homes	To explore the potential use of	2015-17	n/a	Planning policy	We encourage all developers

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
	Passivhaus or Sustainable Homes level 4 for all new build			requires all new dwellings to meet CSH4 water and energy. We encourage all developers and Housing Associations to explore energy efficiency options where viable.	and Housing Associations to explore energy efficiency options where viable.
	To develop new homes for the City Council that conform to Sustainable Homes Level 4 or Passivhaus	2015-17	n/a	Ten dwellings at Hansard Close are all Passivhaus and due for completion April 2017. 105 dwellings at Goldsmith Street are all Passivhaus and due for completion Summer 2018.	Goldsmith Street and Hansard Close construction completed
	To ensure the Threescore phase 2 development is planned to provide 75% dwellings to Passivhaus standards			112 of the 172 dwellings at Three Score have been designed to Passivhaus which equates to 65% of the total. Taking into account orientation of the site and financial viability, this was the highest percentage	n/a

Priority	Proposal	Timescale	2015 Update	2017 Update	2019 Update
				possible for Passivhaus dwellings at this location	
Affordable Warmth	To continue to deliver an affordable warmth strategy and programme to reduce fuel poverty and increase wellbeing	2015-17	Ongoing	Second Affordable Warmth Strategy published. Programme of fuel poverty reduction and warm and well work planned. 11th tranche of the Big Switch and save completed with more tranches planned for the future.	Third Affordable Warmth Strategy published. Programme of fuel poverty reduction and warm and well work planned. 13th tranche of the Big Switch and save completed with more tranches planned for the future.
Affordable Warmth cont.	Organising warm and well workshops with stakeholder professionals to discuss best practice	Ongoing			Six workshops have now been held.

Section 10 - Future Actions:

We are proud of the progress we have made so far in reducing both Norwich's carbon emissions and the level of fuel poverty in the city and we are committed to continuing this valuable work in the future. However, we recognise that we need to be realistic and understand that we are operating in times of financial insecurity where future funding streams are not guaranteed. Whilst we continuously seek new opportunities we cannot be complacent that current funding streams will continue to be available to us. We therefore present our aspirations for the future, but are mindful that these may need to adapted, in order to reflect future available resources.

Future Action	Timescale
Continue to work with the digital inclusion project to enable residents to make use of lower energy tariffs and deals via online billing	Ongoing
Continue to utilise available ECO funding	Ongoing
Working with other local authorities to deliver collective energy switching across Norfolk	Ongoing
Launch and run our White Label energy company	2019 onwards
Working with vulnerable residents to assist them to get the best energy deals, even on pre-payment meters	Ongoing
Organising warm and well workshops with stakeholder professionals to discuss best practice	Ongoing
Seeking new ways to effectively engage with the public re: energy reduction	Ongoing
Seeking new funding opportunities for energy reduction projects	Ongoing
Work with Broadland District Council to identify households eligible for funding first time central heating installation	2018 – 2020

More widely, Norwich City Council is part of the Local Energy East Network. This energy strategy aims to increase energy efficiency and improve energy affordability in the region. The Greater Norwich Partnership of Broadland District Council, Norwich City Council and South Norfolk Council, representing 400,000 residents, plans to build over 30,000 new homes in the next 13 years and is implementing a network of electric vehicle charging points.

Appendix I - Submission to DBEIS

Name of Local Authority: Norwich City Council
Type of Local Authority: • City Council
Name and contact details of official submitting the report: Rachel Sowerby. rachelsowerby@norwich.gov.uk 01603 212112
Job title of official submitting the report: Affordable Warmth Officer
Names of teams working on policy areas covered by this reporting tool: Two
Total number of staff working in above policy areas (by FTE) broken down by team if possible: Environmental Strategy: 3 ½ (until end March 2019, then 2 ½) Private Sector Housing: 3

Headline and Overview Questions

1. Does your Local Authority have a current strategy on carbon reduction and/or energy efficiency for domestic or non-domestic properties? **YES**
2. If yes, please provide a link to your current strategy here:

https://www.norwich.gov.uk/downloads/file/1092/environmental_strategy
(Environmental Strategy)

3. If no, are you planning to develop one? **N/A**
4. Energy saving/carbon reduction
    a. What scheme(s) has your local authority implemented in support of energy saving/carbon reduction in residential accommodation (such as owner-occupied, privately rented and social housing) or non-domestic properties since 2017? (200 words)

Carbon reduction across our estate has been achieved through a variety of methods including voltage optimisation, PC power down, server visualisation, installation of variable speed drives, LED lighting upgrades, boiler valve and pipework insulation, photovoltaic arrays and community engagement. We have recently completed 10 Passivhaus dwellings at Hansard Close (April 2017).

Our Cosy City scheme helps residents access ECO funding to install loft and cavity wall insulation, therefore increasing energy efficiency in homes and reducing carbon emissions. We also have our successful Solar Together scheme, which uses the power of collective purchasing to drive down solar prices. We have ran this scheme twice and installed over 2MW of solar pv energy. Unfortunately with the removal of FIT this business model is no longer viable.

    b. What scheme(s) is your local authority planning to implement in support of energy saving/carbon reduction in residential accommodation (such as owner-occupied, privately rented and social housing) or non-domestic properties in the next two years? (200 words)

In the year 2018-19 we plan to investigate the possibility of further solar pv arrays on council assets, and implement the following technologies: landlord lighting projects at various assets, district lighting projects at various sites (upgrades to LED lighting), further insulation work at sheltered housing schemes and boiler upgrades at sheltered housing schemes.

We are constructing 93 Passivhaus dwellings at Goldsmith Street, to be completed May 2019.

In 2018 a joint bid by Norfolk County Councils, led by Broadland District Council, was awarded £3.1 million by Affordable Warmth Solutions to install first time central heating in residences across Norfolk. The goal of this project to install 533 systems measures across Norfolk before August 2020.

Norwich City Council is working with Broadland District Council to help deliver this project and is focusing on the Templemere estate in Norwich which has over 100 households without a connection to mains gas. As we have less off gas households than other councils we have decided to focus on this large project rather than targeting individual households.

112 of our properties at the Three Score development in Bowthorpe will be designed to the Passivhaus standard (Spring 2019).

5. What has been, or will be, the cost(s) of running and administering the scheme(s), such as the value of grants and other support made available, plus any other costs incurred (such as administration) as desired? Please provide figures and a brief narrative account if desired. (100 words)

Administration costs will be met from existing staff budgets.

Funding for first time central heating will come from the Warm Homes Fund.

6. What businesses, charities, third sector organisations or other stakeholders do you work with to deliver the scheme(s)? (100 words)

High-value contracts contractors are required to report their carbon emissions to the council annually. Our Cosy City scheme is run with local installer Aran Services.

7. What has been the outcome of the scheme(s) (e.g. energy savings, carbon savings, economic impacts such as job creation and/or increased business competitiveness, societal impacts such as alleviation of fuel poverty and/or improved health outcomes etc.)? This does not have to be measured against national data or benchmarks, but rather focuses on the local authority's own monitoring and evaluation. (200 words)

Norwich City Council has made a 57% carbon reduction in the previous ten years of its carbon management scheme, compared to a target of 40%.

Our Solar Together scheme has led to over 900 tonnes of CO_2 being avoided annually.

The average SAP rating across council housing stock is 70.3. This equates to an Energy Performance Certificate (EPC) rating of C. To set some context, in 2017 the average SAP rating across 22.5 million English dwellings, regardless of tenure, was 62 points, or an EPC rating of D. Whilst Norwich's private sector housing SAP rating (52) is lower than the national average SAP rating (62), the SAP rating for council stock (70.3) is significantly higher.

In 2011 Norwich experienced one of the highest levels of fuel poverty in the county. Although levels of fuel poverty dropped from 2012-15 we, like many other local authorities, saw an increase in 2016. The regional increase in 2016 mirrors the national trend.

8. What lessons have you learnt from delivering this scheme(s)? (100 words)

In order to make the biggest difference close monitoring of your energy data is vital.

Technology is always changing and we have needed to revisit energy saving projects from as recently as 5 years ago in the light of new technology. Our car park lighting is a case in point where we are looking to install smart LED lighting which will dim up and down according to need.

It's not always possible to be as proactive as we might like when reactive work, such as a boiler breakdown in sheltered housing takes priority over planned, proactive work, such as insulation.

Local Communications Strategy

9. Does your local authority provide and advisory service to consumers (and businesses) on how to save energy? **YES**
10. If yes to question 10, please briefly outline how this is undertaken (100 words)

Our Affordable Warmth Officer advises residents on how to save energy within the home and maximise their income, through benefit advice, help with fuel debts and supporting residents in supplier disputes. We produce energy saving 'packs' which include information sheets on energy saving. These have been sent out directly to residents in our most fuel poor wards, and are given to residents when we undertake roadshows. We also work with teams within the council, including specialist support and private sector housing, to provide 1:1 support where appropriate.

Our annual Winter Wellbeing event brings together affordable warmth groups and stakeholders.

11. How do you communicate or encourage energy saving amongst domestic consumers and/or local businesses? (100 words)

Through our energy saving packs which include information sheets on energy saving. Face to face advice during home visits or at road shows. Our 'One Planet Norwich' work stream aims to actively engage with Norwich residents about energy saving, carbon reduction and sustainable lifestyles in a fun and accessible way. We do this through social media and our annual One Planet Norwich festival, which has seen over 30,000 visitors over the past four years. Our next festival is planned for June 2019.

Local Green Supply Chain

12. Does your Local Authority promote the use of energy efficient products amongst consumers (and businesses)? (if you answer no please move onto the next section 'Private Rented Sector') **YES**
13. If yes to question 12, please briefly detail how this promotion work is undertaken (100 words).

One Planet Norwich works to actively engage with Norwich residents about small changes they can make to their lifestyle to reduce their carbon emissions, including through raising awareness of energy use and the savings that can be made through fitting energy efficient measures.

14. What engagement (formal or informal) does your local authority have with local businesses/supply chains involved in promoting energy efficiency products or carbon reduction? (100 words).

We work with Aran Services to deliver ECO funded installations in Norwich.

Domestic Private Rented Sector (PRS) Minimum Energy Efficiency Standards

15. Is your authority aware of the PRS Minimum Efficiency Standards which came into force in April 2018? (if you answered no, please move on to the next section 'Financial Support for Energy Efficiency') **YES**
16. Which team within your authority is responsible for, or will be responsible for, leading on enforcement of the PRS minimum standard?

Private Sector Housing

17. Please provide the contact details of the person leading this team.

Paul Swanborough, paulswanborough@norwich.gov.uk

18. What method or methods does your authority use to communicate with landlords and tenants about the standards and other related issues? (100 words)

We provide general guidance about our standards on our website.

19. Do you directly target landlords of EPC F and G rated properties? If yes, how? If no, please explain. (100 words)

We are developing our approach to enforcement and expect to take an intelligence-led approach to targeting in the future. We will very probably use EPC ratings, along with other indicators, to help us do this. Currently, however, we do not directly target landlords with lower-rated properties. This is because the team is very small and is mostly dealing reactively to complaints or to the requirements of the HMO licensing scheme.

Financial Support for Energy Efficiency

20. What financial programmes, if any, do you have to promote domestic and non-domestic energy efficiency or energy saving? If applicable, please outline the sums, where such funding is sourced, and where it is targeted. (If you do not have any financial assistance programmes, please enter 'N/A' and move onto the next section 'Fuel Poverty') (200 words) **N/A**

Fuel Poverty

21. Does your local authority have a fuel poverty strategy? **YES** If yes, please describe the scope of the strategy, and the support that is available for low income and vulnerable households to help tackle fuel poverty in your local area. Please also provide a link to your strategy if published. (300 words)

https://www.norwich.gov.uk/downloads/file/2241/affordable_warmth_strategy_2018-2021

This covers the whole of Norwich and encompasses partnership working both within Norwich City Council and external partners. We support low income and vulnerable households using a variety of tools, coordinated by our dedicated Affordable Warmth Officer.

Norwich City Council supports households in fuel poverty through a range of initiatives including: supporting residents to utilise ECO funding for home insulation, our collective switching scheme, our Warm and Well work both with stakeholders and the public, Home Improvement team work, work with Private Sector landlords around category 1 hazards and ongoing improvements to our housing stock.

We provide energy advice and support, emergency payments for vulnerable residents using charity money awarded to us, emergency heating in the form of radiator loans to residents without central heating, help residents access appropriate funding for heating repairs (if available), work with residents to reduce fuel debts and provide small scale measures such as insulation and 'Winter Well' packs which include thermal clothing, blankets and soup.

We were the second local authority in the UK to introduce a collective switching scheme and have since promoted 11 tranches. The scheme aims to secure lower energy tariffs for switchers through the power of collective switching.

To date we have supported over 3,000 switches to cheaper energy tariffs, with average savings of over £200 per household per year. Our scheme is open to all residents in the city, including those without access to the internet, who may be unsure of how to find the best deal, and those on prepayment meters, who may be struggling with high energy bills.

We work in partnership with the health sector and third sector, to engage with the most isolated or vulnerable residents of Norwich. We have engaged a range of health professionals and voluntary organisations to promote our affordable warmth work.

22. What steps have you taken to identify residents/properties in fuel poverty? (enter 'N/A' if not appropriate) (200 words)

In 2014 we commissioned BRE to produce information regarding the property of our stock. From this we have been able to identify households with the poorest SAP ratings, and where excess cold hazards exist, and target them for home energy efficiency improvements and help with heating costs.

We have mapped fuel poverty and excess winter deaths data for Norwich, allowing us to identify areas with the highest risk of negative health outcomes due to cold. We have used this to target these areas with appropriate fuel poverty advice.

We have also used benefit data to send (anonymised) letters advising residents they may be install energy efficiency improvements, such as loft and cavity wall insulation, in their homes through the ECO scheme. Our statement of intent allows us to target households who may be eligible under LA Flex.

23. How does fuel poverty interlink with your local authority's overall carbon reduction strategy? (enter 'N/A' if not appropriate) (200 words).

Our Affordable Warmth Strategy is delivered as part of our overall Environmental Strategy. Work to reduce fuel poverty, for example through increasing home energy efficiency, will also reduce the carbon footprint of the city.

24. Fuel cost reduction
    a. What measures or initiatives have you taken to promote fuel cost reduction for those in fuel poverty? (enter 'N/A' if not appropriate) (200 words)

We run a collective switching scheme 'The Big Switch and Save' which consistently delivers savings of over £200 for residents. This scheme is open to all residents and our switching team is able to register offline residents who are otherwise unable to access many tariffs. This scheme encourages residents to move away from high cost standard tariffs to more affordable fixed price tariffs. This scheme employs what is known as a 'reverse auction' where different suppliers bid to be able to access the registrants, driving the prices down. As part of our targeted support we provide information to fuel poor residents about this scheme and encourage them to switch provider to make sure they are not left on expensive standard tariffs. To date we have supported over 3,000 switches to cheaper energy tariffs.

b. If you have taken measures or initiatives to promote fuel cost reduction for those in fuel poverty, what partnership with business or energy providers have you undertake? (enter 'N/A' if not appropriate) (200 words)

The Big Switch and Save is a partnership between Norwich City Council and iChoosr, a business specialising in reverse auctions and collective switching.

The Energy Company Obligation

25. Has your local authority published a Statement of Intent (SoI) for ECO flexibility eligibility? **YES** If yes, please include a link to your SoI below

https://www.norwich.gov.uk/downloads/file/3974/eco_flexible_eligibility_-_statement_of_intent

26. Please use the following space to provide any further information you feel might be of benefit to BEIS, in helping us to understand ECO Flex delivery in more detail. For example, the number of declarations signed versus the number of households helped. (200 words)

Norwich focuses on loft and cavity wall insulation. Loft insulation has historically been a more popular measure in Norwich than cavity wall insulation as not all properties in Norwich have cavity walls. Cavity wall insulation also requires specialist equipment to install. However, take up of loft insulation can be impeded due to residents storing belongings in their loft space.

Rental properties can restrict the take-up of home improvement measures since the landlord may be reluctant to pay to improve the thermal efficiency of the property when they will not benefit directly from a decrease in fuel bills.

Norwich has some of the highest levels of CSCO installations in Norfolk. This is probably due to the high occurrence of terraced housing in Norwich. However, the rest of the county saw, on the whole, a higher take up of the CERO commitment than Norwich. As such, the impact of the CERO removal may impact local authorities across the county. This discrepancy may be because Norwich has a higher social housing stock, and funding was split across these tenures, whereas other local authorities in Norfolk have very low social housing stock and have focused on the private sector.

Smart Metering

27. Please provide a brief statement outlining your current or planned approach to: Engage and support your residents (including those in vulnerable circumstances or with pre-payment metering) to promote take up of smart meters and achieve associated benefits (e.g. ability to control energy use, identify best value tariffs)? Please detail any work undertaken or planned with local/community groups, housing associations, micro businesses, Smart

Energy GB under their Partnership Programme and energy suppliers. (150 words)

Norwich City Council has previously used funding from Smart Energy GB to promote smart meters in the city through community events and workshops. We specifically targeted vulnerable residents and offered residents confused by their smart meters additional in-home support from our trained smart meter champions. While we do not actively promote smart meters as part of our fuel poverty work we do provide advice and information when requested.

28. Please provide a brief statement outlining your current or planned approach to: Integrate your approaches to delivering energy efficiency improvements in residential accommodation with the opportunities presented by the installation of smart meters, drawing upon materials from the Smart Meter Energy Efficiency Materials (150 words).

We do not currently have plans to actively promote smart meter installation in, however if further funding becomes available we will use this to promote smart meters across Norwich. Our planned white label energy company will offer smart meters.

29. Please detail any resources/support (e.g. services, funding) available to residents who have had an appliance condemned for safety reasons and cannot afford to replace it (e.g. during visual safety checks conducted during their smart meter installation or otherwise). (150 words)

We offer loans of oil filled radiators to residents without central heating. We have a variety of funding streams available for residents, including grants to prevent admissions to hospital due to cold homes, and home improvement loans, however these are subject to availability and eligibility.

30. Please detail any existing relationships with energy suppliers to help ensure that the opportunities presented by vacant properties under your control are effectively utilised (i.e. gaining access to install a smart meter) (150 words)

We currently have a contract with British Gas to supply our void properties. This does not include an agreement to install smart meters.

Future Schemes or Wider Initiatives

31. Please outline any future schemes or wider initiatives not covered above that your local authority has carried out or is planning to undertake to improve the energy efficiency of residential accommodation or businesses in your area, for example, within your Local Enterprise Partnership (LEP) Energy Strategy (if you do not plan any future schemes currently, please enter ‘N/A’). (500 words)

Norwich City Council is part of the Local Energy East Network. This energy strategy aims to increase energy efficiency and improve energy affordability in the region.

The Greater Norwich Partnership of Broadland District Council, Norwich City Council and South Norfolk Council, representing 400,000 residents, plans to build over 30,000 new homes in the next 13 years and is implementing a network of electric vehicle charging points.

We also have a number of internal actions we will be focusing on. We will continue to work with the Norwich City Council digital inclusion project to enable residents to make use of lower energy tariffs and deals via online billing, continue to utilise available ECO funding, work with other local authorities to deliver collective energy switching across Norfolk, launch and run our White Label energy company, work with vulnerable residents to assist them to get the best energy deals, even on pre-payment meters, organising warm and well workshops with stakeholder professionals to discuss best practice, seek new ways to effectively engage with the public re: energy education, seek new funding opportunities for energy reduction projects and work with Broadland District Council to identify households eligible for funding first time central heating installation.