Warwick District Council

Home Energy Conservation Act First Progress Report

March 2015

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Home Energy Conservation Act (HECA) Progress Report 2015

1. Introduction

Under HECA guidance published in 2012[1], the Secretary of State for Energy and Climate Change required English local authorities to provide by 31st March 2013 a 'further report' setting out energy conservation measures in their areas that they considered to be practicable, cost-effective and likely to result in significant improvements in the energy efficiency of residential accommodation. The report produced by Warwick District Council is available on the Council's website

In addition to the further report, local authorities have an ongoing requirement to publish two-yearly updates. This is the first of these updates. It provides a summary of the progress made since the publication of the further report and outlines the actions planned for the next reporting period (1st April 2015 to 31st March 2017).

2. How energy efficient is the housing stock in Warwick District?

Domestic energy consumption and carbon emissions

In 2012 (latest available data), 1,055 GWh of energy was consumed in the district for domestic purposes, with gas accounting for 71% of the total, electricity 25%, and oil 4%[2]. This represents a slight decrease on the previous year's figure (1,057 GWh), and a 18% reduction since 2005 (1,279 GWh).

In terms of CO_2 emissions, DECC data[3] show that 8.3 tonnes per capita were emitted in 2012 in Warwick District, with emissions resulting from domestic energy use accounting for 28% of the total. Recent trends in domestic carbon dioxide emissions are shown in table 1, illustrating a variable but essentially downward shift.

Table 1: CO_2 emissions resulting from domestic energy use in Warwick District

Year	Total domestic emissions ($ktCO_2$)	% reduction since 2005	Emissions per capita (tonnes)	% reduction since 2005
2005	343.2	-	2.5	-
2010	319.0	9.7	2.3	8.0
2011	281.2	18.1	2.0	20.0
2012	313.0	8.8	2.3	8.0

(*Source: DECC*)

[1] Department of Energy and Climate Change, 2012. *Guidance to English Energy Conservation Authorities issue pursuant to the Home Energy Conservation Act 1995. Jul 2012 (revised March 2013).*

[2] Based on 2012 sub-national energy consumption statistics, available at: https://www.gov.uk/government/statistical-data-sets/total-final-energy-consumption-at-regional-and-local-authority-level-2005-to-2010

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[3] Based on 2012 sub-national carbon emissions statistics, available at: https://www.gov.uk/government/statistics/local-authority-emissions-estimates

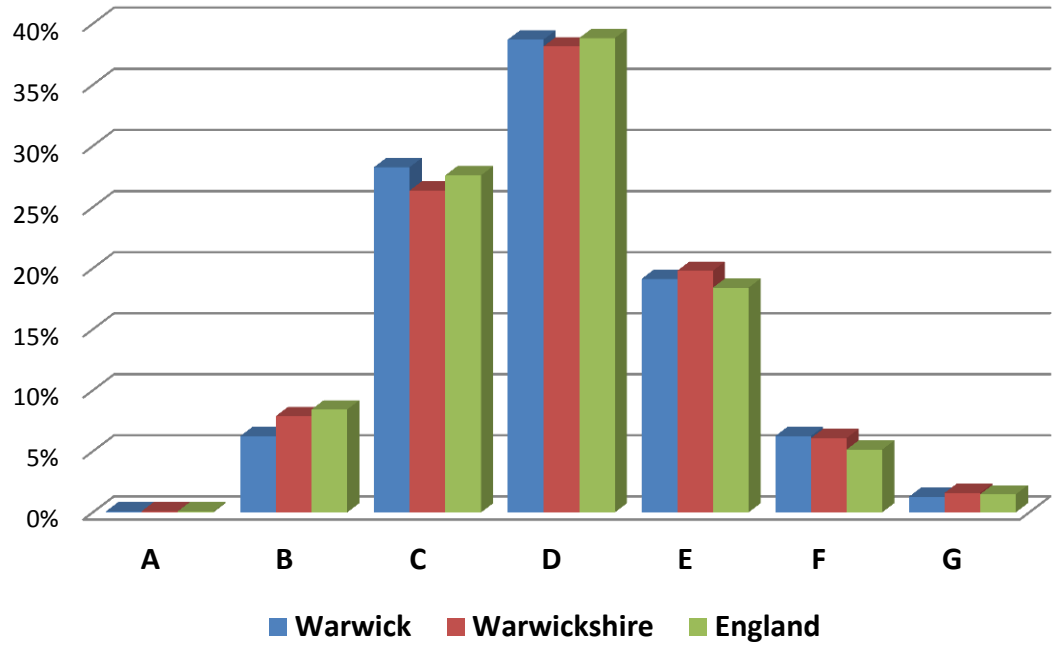
The per capita emissions for Warwick District are slightly higher than the regional and national averages, which stand at 2.2 tonnes per capita in both cases, but are the same as the county average. That Warwickshire's emissions are slightly above regional and national averages is not surprising considering the relatively large numbers of rural, older homes and homes off the mains gas network in the county.

Building energy efficiency

Energy Performance Certificates (EPCs) provide a measure of a home's energy efficiency as a cost index and are required when properties are sold or rented and also when the Feed-in Tariff, Renewable Heat Incentive or a Green Deal loan is required. An average home will be represented as band D, with less efficient homes in band E, F and G.

As illustrated in figure 1, based on all EPCs recorded to date in Warwick District, there is a greater proportion of the higher efficiency band C and D properties than the Warwickshire average. There are also fewer properties in the less energy efficient bands E and G.

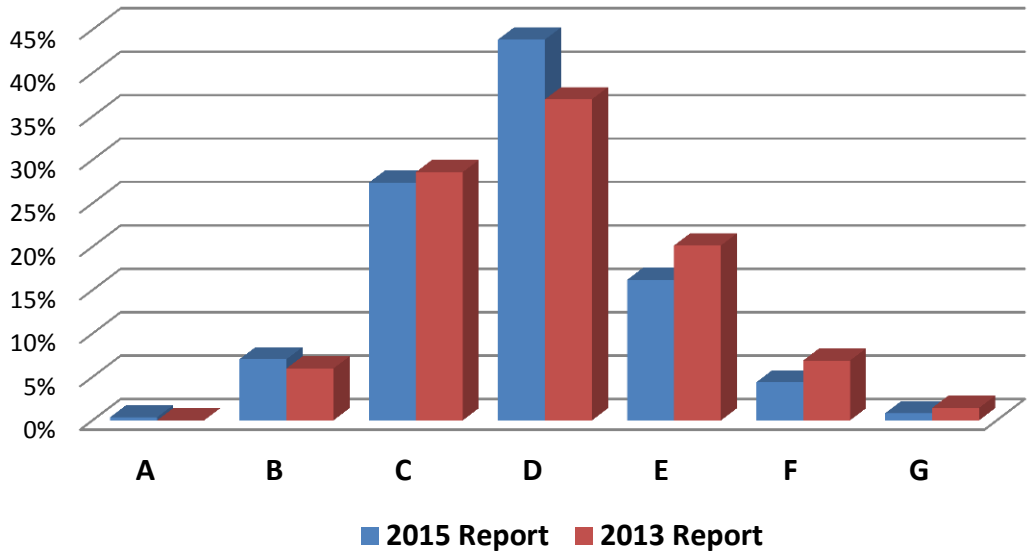
Figure 1: Distribution of EPC efficiency ratings for Warwick District, Warwickshire and England



(Source www.gov.uk/live tables LA1)

In addition, the data indicate that, over the two-year period since the previous report was published, the proportion of homes in the least energy efficient bands E, F and G has reduced, with a large increase in the proportion of the more efficient band D and small increase in band B properties. This is illustrated in figure 2.

Figure 2: Change in EPC ratings since publication of 2013 report

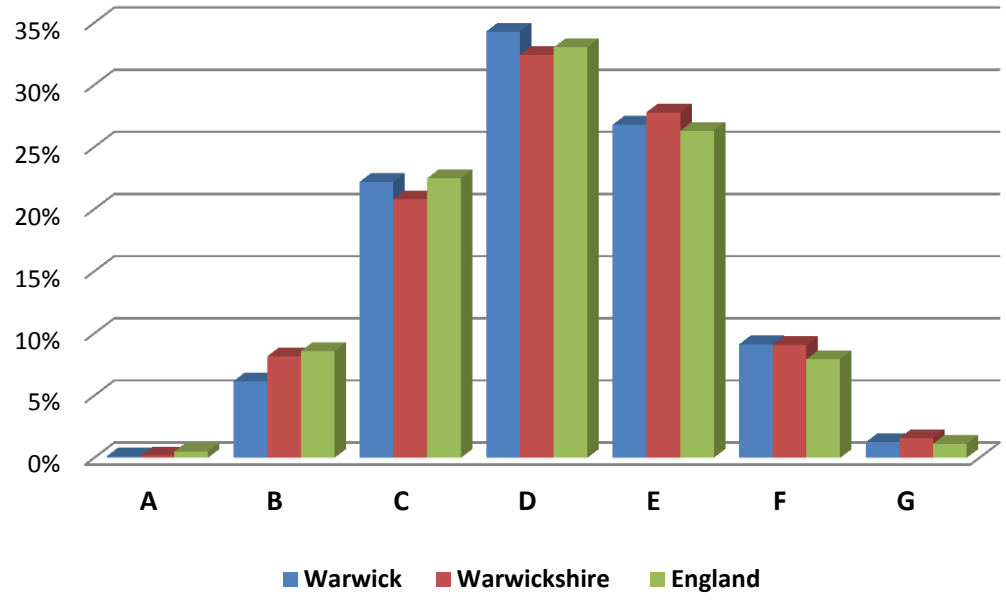


(Source DCLG, December 2014 www.gov.uk/live tables LA1)

Environmental impact

EPCs also provide an Environmental Index (EI) to indicate the impact a home has on the environment. Band D is considered average with bands E, F and G having a greater adverse impact. Figure 3 compares the distribution of EIs for Warwick District, Warwickshire and England respectively.

Figure 3: Distribution of EI ratings for Warwick District, Warwickshire and England

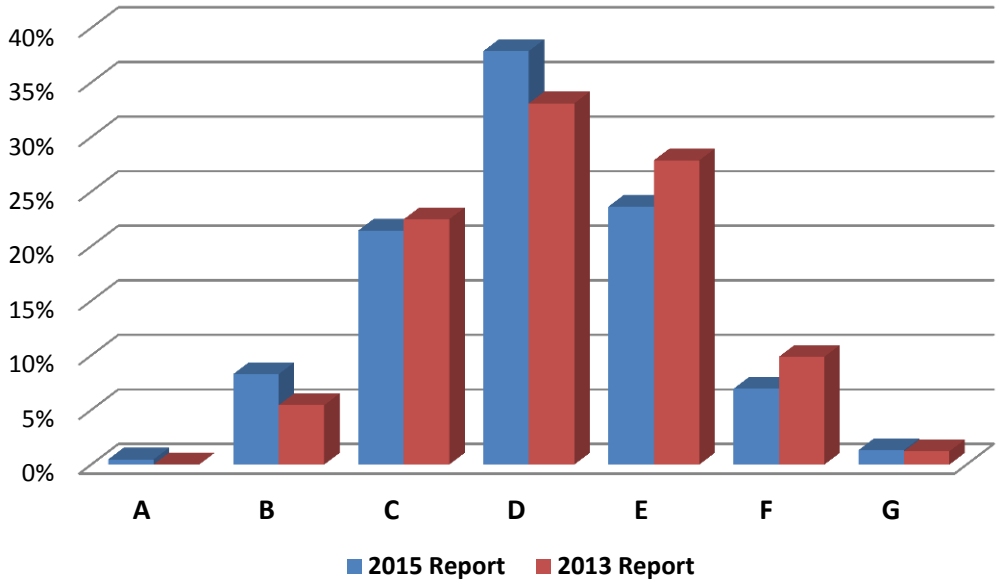


(Source DCLG, December 2014 www.gov.uk/live tables LA1)

As can be seen, there are fewer homes in Warwick District in the worst categories of band E and G and more homes in the better bands D and C compared with the Warwickshire average.

Figure 4 compares the distribution of properties between the bands as presented in the 2013 report with the distribution according to the latest available data.

Figure 4: Change in EI ratings since previous HECA report



(Source DCLG, December 2014 www.gov.uk/live tables LA2)

The chart shows that since the previous report there has been a reduction in the number of homes in the E and G bands and an increase in the number of band B and D homes. This, when taken together with the energy efficiency data, suggests that homes in Warwick are gradually improving, and with reduced carbon dioxide emissions, energy consumption and fuel bills.

Fuel poverty

Traditionally, fuel poverty has been assumed to exist where a household needs to spend 10% or more of its income on energy. On this basis homes in fuel poverty in Warwick had reduced from a peak in 2009 of 19.9% to 13.6% in 2011, which is less than the England average of 14.6% (source: UK Office of National Statistics).

In 2012 the definition was revised to consider a more complex model linking low income with a high household energy requirement. The latest government statistics are for 2012 and indicate that Warwick now has 11.6% homes in fuel poverty which is more than the England average of 10.4%, but significantly less than the West Midlands as a whole at 15.2% and slightly under the Warwickshire average figure of 12.5%.

Renewable energy generation

The government introduced a Feed-in Tariff (FIT) scheme in 2010 to encourage an increase in locally generated electricity. This has recently been extended to renewable heat generation through the Renewable Heat Incentive (RHI). Table 2 shows the number of new installations

receiving the Feed-in Tariff in Warwick District during the period January 2010 to December 2014.

Table 2: Total FITs installations in Warwick District January 2010 to December 2014

Technology	Domestic Installations	Commercial Installations	Industrial Installations	Community Installations	Total	Total Installed Capacity (MW)
Hydro	1	0	0	0	**1**	**0.015**
Micro CHP	3	1	0	0	**4**	**0.004**
Solar PV	1266	32	1	6	**1305**	**4.604**
Wind	1	0	0	0	**1**	**0.006**
Total Installations	1271	33	1	6	**1311**	**4.629**

(Source: www.renewablesandchp.ofgem.gov.uk)

Warwick District generates 22% of the total renewable electricity produced county-wide, and since the previous HECA report in 2013 the District has seen 1.70MW of new capacity installed, comprising 497 domestic, 14 commercial and 2 community installations.

The West Midlands' total renewable electricity generation claiming FITs is 177.74MW, with Warwick District now providing 2.6% of the total.

3. What has the Council been doing to promote domestic energy efficiency?

Improvements to the Council's housing stock

The Council has made a significant contribution towards helping reduce energy costs for its domestic tenants. Implementation of the Decent Homes Standard and the installation of energy efficiency measures have improved the average Standard Assessment Procedure (SAP) ratings of homes and residents' quality of life, addressing damp and poor quality housing. Ongoing energy management of our housing schemes and the installation of renewable energy technologies will further reduce fuel costs.

A 150kW biomass (wood chip) boiler at Tannery Court very sheltered housing scheme (40 flats) in Kenilworth has recently been installed, and to date has bettered its performance targets. It was anticipated that the boiler would generate 70% of the site's heat and hot water requirements, with the remaining 30% being provided by gas boilers. However to date the biomass boiler has been providing 95% of heat and hot water demand (equivalent to approximately 500,000kWh per year), which has resulted in a significant reduction in energy costs.

In addition:

- seven of the Council's rural domestic properties have been fitted with 15kW wood pellet boilers, each delivering an average of 19,000kW/h of heat per year; and,
- as part of a programme of whole heating system refurbishment, 'A'-rated condensing gas-fired boilers have been installed in 700 properties to replace ageing originals, together with extra heating controls.

Planned future initiatives include a 250kW biomass district heating scheme at Radcliffe Gardens / Christine Ledger Square in Leamington Spa, which will service 108 individual flats and communal areas, and is forecast to deliver 800,000kWh of heat per annum. In addition, the Council's new housing development at Fetherston Court (Leamington) is being built to high energy efficiency standards (Code for Sustainable Homes Level 4), and will include a communal biomass boiler.

Act on Energy service level agreement

The council does not have the resources to employ a full-time HECA Officer, and the appointed officer shares this duty with other responsibilities. The officer is supported though a service level agreement with a local provider, Act on Energy, to provide free local energy saving advice to householders and training to front-line staff.

Since the previous HECA report, published in March 2013, the following activities have been carried out in Warwick District under the service level agreement:

- Energy advice sessions at health centres, libraries and drop-in centres
- Events and presentations for community groups and landlord forums
- Training for front-line staff of the Council and other local organisations
- Freephone advice service for residents
- Referrals to Green Deal and ECO funding providers
- Home visits to vulnerable households.

A summary of outputs is shown in table 3.

Table 3: Summary of assistance provided via Act on Energy service level agreement

Type of assistance	Total for 2013-14	Total for 2014-15
Energy efficiency advice sessions for general public	8	18
Training sessions for front-line staff	1	3
Home visits	2	1
Individuals receiving advice via Freephone service	117	230

Also, with the introduction of Green Deal in the Energy Act 2010 and the further energy supplier obligations under ECO, the council has supported Act on Energy to create a referral network to local contractors who can access ECO funding and/or who are providers of Green Deal measures backed by Green Deal finance. This network will continue into the future to make the installation of appropriate improvement measures as seamless and cost effective as possible.

In addition to the above, Act on Energy supports a number of local authorities, including Warwick District Council, on a collective basis, by:

- Running a sub-regional HECA Consortium Group discussing energy issues and assessing local projects;
- Providing feedback information from the Regional and National Carbon Action Network;

- Providing representation at the regional Fuel Poverty Forum and Sustainable Housing Group;
- Liaising with Green Deal Providers and energy companies to enable householders to access Green Deal finance and ECO funding; and,
- Providing updates on new or updated energy-related legislation and feedback on government consultations.

Warm and Well in Warwickshire partnership

The council is also part of a county-wide partnership funded through Public Health Warwickshire called "Warm and Well in Warwickshire". This provides a number of specialist services for the most vulnerable members of the community, including:

- emergency heaters and warm packs;
- boiler servicing and repairs;
- top-up funding for loft and cavity wall insulation; and,
- benefit checks to maximise income.

South Warwickshire Affordable Warmth Group

Warwick and Stratford-on-Avon District Councils work together through the South Warwickshire Affordable Warmth Group, the aim of which is to pool knowledge and expertise across the two districts and identify opportunities for joint projects providing assistance on energy efficiency to the area's most vulnerable residents. The group meets on a quarterly basis.

Collective energy switching initiative

In the autumn of 2014 the Council participated in the Big Energy Switch initiative. Over 100 residents registered their interest to take part in the scheme, and the offer made through the iChoosr reverse auction was predicted to result in average savings on energy bills of £221 per household.

4. What have other organisations been doing to promote energy efficiency?

Housing associations

A number of housing associations are represented in the district. Each of the associations with a significant property holding was contacted for information about the work undertaken to improve the efficiency of its stock during the reporting period. Two responses were received, and these are summarised in table 4.

Table 4: Energy efficiency improvements carried out by housing associations to their property holdings in Warwick District during the period 2013-2015

Measure	Orbit	Stonewater
Loft top-ups	3	
Replacement boilers	50	81
Replacement storage heaters		48
Voltage optimisers		52

Citizens Advice Bureau

CAB has been running a local Energy Best Deal programme since 2011-12. This provides training on energy tariffs, discounts and grants for both the general public and front-line workers, and also offers one-to-one appointments. Table 5 summarises activity during 2013-15.

Table 5: Energy Best Deal activity in Warwick District, 2013-2015

	2013-14	2014-15
Number of training sessions	7	11
Number of consumers trained	27	62
Number of front-line workers trained	20	22
Number of one-to-one appointments	52	33

5. EPC data: potential further improvements to domestic properties in Warwick District

Warwick District Council has obtained the underlying data used to generate the EPCs produced for domestic properties in the district[4] since the last HECA report (March 2013), in order to better understand the characteristics of homes in the area and how their energy efficiency can be improved. Although the sample size is relatively small, at 4,099 properties, which represents approximately 8% of the total stock in the area, the data provide a useful insight into the likely opportunities for energy efficiency improvements across the district. Table 6 provides a summary of the current average and future potential EPC scores, ratings and running costs of the properties included in the sample.

Table 6: EPC data analysis

	Current average	Potential average	Percentage difference (current & potential)
Energy efficiency band	D	B	
SAP rating	63	81	29%
Environmental index band	D	C	
Environmental impact score	60	80	32%
Energy consumption (kWh/m^2)	247	121	-51%
CO_2 emissions (tonnes)	4.3	2.2	-50%
Heating cost (£)	729	510	-30%
Hot water cost (£)	139	86	-38%
Lighting cost (£)	79	54	-32%
Total energy cost (£)	947	650	-31%

(Source: Landmark [2014])

As the table shows, the average SAP rating for the sample is 63 in (Band D), with potential identified improvements increasing the SAP score to 81 (Band B). Furthermore, energy consumption and CO_2 emissions could be reduced by a half, with a consequent reduction in energy costs of 31%. Whilst the extent to which the sample is representative of all properties

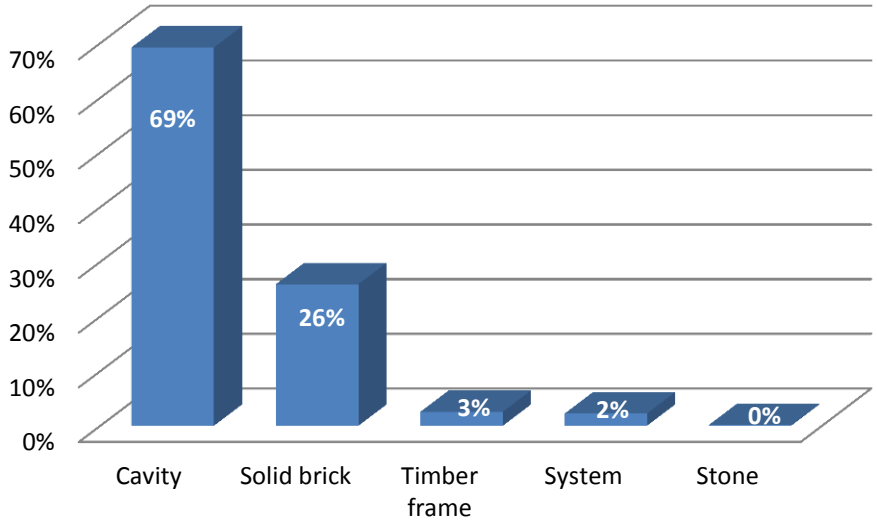
[4] Source of data: Landmark

in the district is not known, these results suggest that there is likely to be significant opportunity to improve the energy efficiency of domestic properties across the district.

External wall insulation

Figure 5 shows the distribution of wall construction types of the properties in the sample.

Figure 5: Wall construction types



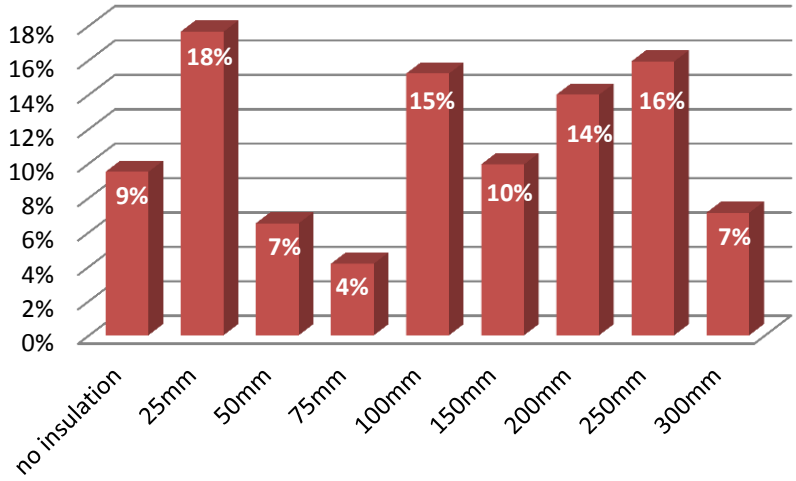
Further data show that of the 69% of homes in the sample with cavity walls, a third are uninsulated. Whilst not all cavity walls are suitable for cavity fill, a significant number will be suitable, making this measure a target for local funding initiatives (including ECO funding) and promotion.

With over a quarter of homes having solid walls, insulating these is much more expensive but very effective. The sample data show that almost 90% of solid-wall homes are currently uninsulated.

Roof insulation

The other main measure for thermal improvement is roof insulation. In the sample, 96% of properties have pitched roofs with lofts, 2% have a pitched roof with one or more rooms in the roof space, and the remaining 2% have flat roofs. Flat roofs are best insulated when the waterproof covering is renewed, whilst properties with converted lofts pose a particular problem due to lack of access. In the case of properties with pitched roofs and unconverted lofts, more half have 100mm or less insulation, as shown in figure 6. These roofs would benefit from additional insulation, especially the 10% that have no insulation at all.

Figure 6: Insulation thickness in properties with pitched roof and unconverted loft



Some insulation measures, including double glazing, are particularly expensive and have long payback periods in terms of savings on energy costs. The EPC data indicate that 98% of the homes surveyed already have part or all double glazing. This is a particularly desirable measure for households but the main reason for implementing it is unlikely to be to save energy and it is likely that replacement will continue without additional promotion or support.

Space heating

Space heating accounts for the majority of energy use in most homes. In Warwick district 85% of homes have a boiler system serving radiators or underfloor heating, 9% use electric storage heaters and 3% use room heaters. Furthermore, the EPC data show that 83% of homes use mains gas as the energy source for space heating, 13% use electricity, and 3% use oil and approximately 1% use LPG.

Given that the life expectancy of a boiler is usually between 10 and 20 years and high efficiency replacement boilers have been required by the Building Regulations since 2005, most boilers will have been renewed without the need for further promotion. However, this is a relatively expensive measure and will only normally be undertaken as a distress purchase when the old boiler fails. Financial support may therefore be required for low income households.

As well as requiring high efficiency replacement boilers, Building Regulations also specify that heating system controls are upgraded at the same time. The requirement is for time and temperature control of heating and hot water circuits, with bedrooms controlled separately from the rest of the house. 57% of homes with boilers already have the required controls and the remainder will need to upgrade when their boiler is renewed.

Lighting

Most homes already use some low energy lights. This resulted from the previous Energy Efficiency Commitment programme, where energy suppliers provided free compact fluorescent lamps (CFLs) to many households. This scheme achieved a high penetration of CFLs into homes despite the known issues of lower light output, slower response and the general dislike of the appearance of the bulbs.

EPCs collect data on fixed lighting and 87% of the homes in the sample have some low energy lights fitted, although only 14% have all low energy lights. This is a particularly cost-effective improvement and one that is easy for householders to implement themselves.

The latest generation of low energy bulbs (LEDs) are even more efficient and long-lasting than CFLs, with an appearance and characteristics similar to incandescent bulbs. The current cost of installing LED lighting is relatively high, but on a life cycle basis it is a cost-effective measure.

6. Action Plan: 2015-17

The actions to be undertaken by the Council with respect to home energy conservation are detailed in the Strategic Approach to Sustainability and Climate Change, adopted in January 2015. This sets three strategic aims, as follows:

Strategic Aim 1: Embed sustainability at a strategic level with the organisation

Strategic Aim 2: Address our own impacts relating to sustainability and ensure our physical assets and operations remain resilient in the face of a changing climate

Strategic Aim 3: Promote and enable sustainability and climate change resilience in the wider district.

Each aim has a number of objectives associated with it, backed up by an action plan detailing the means by which each objective is to be achieved. The objectives and actions relevant to home energy conservation are presented in table 7. The strategy will be subject to regular review and the action plans will be updated on an ongoing basis.

Table 7: Objectives and actions from Strategic Approach to Sustainability and Climate Change relevant to home energy conservation

Strategy reference	Action	Timescale
Objective 2.2: Make the Council's housing stock more energy efficient		
2.2.1	Include appraisal of options for improving energy efficiency of existing Council-owned housing as part of planned stock review	By 31/12/15
2.2.2	Based on findings of review, set minimum standards for energy efficiency to be achieved for whole of existing stock within stated timescale, and produce business case and plan for delivery	By 31/03/16
2.2.3	Set minimum energy efficiency standards for new-build projects	Ongoing
Objective 2.3: Provide more energy from renewable and low-carbon sources		
2.3.1	Carry out heat mapping and energy master-planning to identify opportunities for district heating networks[5]	By 31/07/2015
2.3.3	Continue with programme of upgrading of flats / care facilities to incorporate communal biomass boilers	Ongoing
2.3.7	Consider other options for installing renewable and low-carbon energy technologies	Ongoing
Objective 3.1: Reduce fuel poverty in the district		
3.1.1	Provide advice on domestic energy-related issues to general public (targeted at most vulnerable residents), via advice clinics, home visits, helpline, website and printed literature	Ongoing
3.1.2	Provide energy efficiency information and advice to WDC tenants: • include leaflets in new tenant sign-up packs • via newsletters, events and home visits	Ongoing
3.1.3	Provide training on domestic energy efficiency for frontline staff	Ongoing
3.1.4	Run targeted campaign to increase take-up of Warm Homes Discount	By 31/10/15
3.1.5	For private rented sector, examine options for enhanced usage of Housing Health and Safety Rating System as a means of enforcement in cases where extreme cold are identified	By 30/09/15
Objective 3.4: Engage with other public bodies to achieve joint aims on sustainability		
3.4.3	Work with Public Health Warwickshire, Act on Energy, and other local authorities & agencies in the sub-region to deliver the outcomes of the 'Warm and Well' partnership	Ongoing

[5] District heat networks supply heat from a central source directly to homes and businesses through a network of pipes carrying hot water. This means that individual homes and business do not need to generate their own heat on site and the efficiencies achieved often mean that the consumer makes significant cost savings.