



Off-gas consumers:

Updated information on households without mains gas heating



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About the Consumer Futures Unit

The Consumer Futures Unit (CFU), part of Citizens Advice Scotland, uses research and evidence to put consumers at the heart of policy and regulation in the energy, post and water sectors in Scotland. We work with government, regulators and business to put consumers first, designing policy and practice around their needs and aspirations.



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Updated information on households without mains gas heating



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* For methodology and data tables please see accompanying annex

Executive Summary

Mains gas is both the cheapest means to heat homes and the most common heating fuel in Scotland, England and Wales. However many people, particularly in certain areas and demographics, do not have access to, or do not make use of, mains gas for heating their home.

While this group has been shrinking, as more properties are connected to the gas grid, as of 2013 just over 3.7 million households in Britain did not use mains gas heating. Of these:

- > 1.6 million are close enough to the gas grid that they could be connected without prohibitive cost.¹
- > Fewer than 200,000 have a mains gas connection but do not use it as their primary heating fuel.
- > The remainder are located further from the gas grid and unlikely to be connected without significant infrastructure investment.

This provides an update to research first carried out by Consumer Focus in 2011². The updated data shows that off-gas grid households continue to be:

- > More likely to experience fuel poverty and poor energy efficiency.
- > More likely to be living in a rural area.
- > More likely to include householders over 60 years old.

The UK and devolved governments are committed to reducing emissions in the energy sector, but the route to a low carbon future remains unclear. Since our original report the energy landscape has undergone rapid changes as a result of political, technological and economic drivers. For off-gas households, notable technological advances and financial support schemes have increased the uptake of renewable and off-gas heating

systems³. However, the move towards larger scale decarbonisation of heat will pose significant challenges. Mains gas is expected to remain a cost-effective part of the energy mix beyond 2030^{4,5}.

The data presented here are from 2011 to 2014, using the most up to date data available when analysis commenced. The price of heating fuels is volatile. Following a decade of price increases, there was a sharp dip in wholesale costs in 2014. This has benefitted some off-gas grid consumers in the short term, particularly those with heating oil. However, these lowered costs are indicative of the price volatility that these consumers experience over the medium term, and should not be expected to last. Indeed, crude oil prices have been rising since early 2016.

It is therefore important that the characteristics of households who live off the gas grid, and of the homes they live in, are understood by policy makers.

David Moyes & Kate Morrison

1 For domestic premises within 23 metres of a relevant gas main, a Gas Transporter is obliged to install assets necessary for the connections of the premises. This proxy is used within the report to establish the number of premises close enough to be connected to the grid without prohibitive cost.

2 Baker, William. (2011). [Off-gas consumers. Information on consumers without mains gas heating.](#)

3 Including the Domestic [Renewable Heat Incentive](#), [Energy Company Obligation 2](#) and other national schemes. Please see Citizens Advice Scotland's report [Taking the Temperature](#) for an overview of the relevant schemes in Scotland.

4 [Future Energy Scenarios](#), National Grid July 2017

5 Climate Change Committee report to parliament '[Meeting carbon budgets closing the policy gap](#)'

Overview

- > Of the 27 million homes in Britain, over 22 million use mains gas as their main heating fuel (84% of all homes): 78% in Scotland, 80% in Wales and 85% in England.
- > 2.3 million homes are heated by electricity (8.6%), just over 1 million homes by heating oil (4.1%), 198,000 homes by solid fuel (0.8%) and 187,000 homes by LPG (0.7%). In total, 3.7 million homes in Britain use non-mains

gas fuels for their primary heating.

- > In Scotland electricity is used in 21% of rural homes, unlike elsewhere in rural Britain, where the proportion of homes using electricity for heating is similar to that in urban areas (less than 10%).
- > Two regions in particular have low levels of mains gas use – Mid Wales (41.1%) and Highlands and Islands (40.5%) – with all others having a rate of use over 75%.
- > In London, the figures show a fall in use of electric heating (9.9% to 6.8%), and a rise in use of communal heating⁶ (3.1% to 5.8%).
- > Properties using unmetered fuels (LPG, oil or solid fuel) are more likely to have solid walls than properties using mains gas, electric or communal heating. This is particularly the case in Scotland, where more than 40% of properties using these fuels have solid walls.
- > In Scotland and England the majority of homes are rated EPC D or better (82% in Scotland and 75% in England). The proportion of homes with an EPC C rating has increased from 19% to 35% in Scotland. There has been a similar increase in the proportion of homes rated C in England.
- > Since EPCs were introduced in 2010 off-gas homes are not only more likely to have a low EPC rating, but also less likely to have improved.
- > Both Scotland and England show increased housing rating standard pass rates in the updated data – from 35% to 49% in Scotland and from 67% to 80% in England. Off-gas homes are less likely to pass.
- > Up to 1,614,000 homes are within 23 metres of the gas grid and could be connected at a comparatively low cost, potentially transforming the circumstances of the households living in them.

Physical characteristics

- > Electric heating is prevalent in flats, and particularly high rise flats in Scotland where electric heating is used in 74% of properties.
- > Oil fired heating systems are most often found in detached properties. The role of oil fired heating in detached houses is particularly apparent in Wales.
- > Mains gas is the most common heating fuel

- > Homes within 23m of the gas grid are
 - mainly urban flats using electric heating, and are more likely to have lower EPC ratings and to fail to meet housing standards;
 - more likely to be in lower income bands and less likely to be in higher income bands;
 - substantially more likely to be in fuel poverty;
 - more likely to be single person households; and
 - more likely to be private tenant or tenants of registered social landlords.
- > 174,000 homes have a gas supply but do not use gas for their main source of heating.

⁶ A communal heating system, also referred to as district heating, is any heating system that supplies heat to more than one property, normally a block of flats.

Household characteristics

- > Across all three nations off-gas heating methods are associated with higher rates of fuel poverty.
 - > In all three countries, households using heating oil are more likely to be in higher income bands.
 - > Fuel poverty rates are highest in Scotland at 35% overall, with rates of 28% in Wales and 12% in England⁷. However all non-gas⁸ fuels have fuel poverty rates over 50%⁹.
 - > 71% of households with LPG heating in Scotland are in fuel poverty (compared to 54% in the 2007-09 data).
 - > The fuel poverty rate for those using electric heating in Scotland is 54% (where it is the second most common fuel type), with 38% in Wales and 24% in England.
 - > In Wales the number of people using off-gas fuels is declining whilst fuel poverty rates have increased.
 - > **The Welsh data suggests that those households able to switch to mains gas are not those in fuel poverty.**
 - > Whilst the definition change means that data is not comparable across the nations, the English data, in contrast to Welsh and Scottish data, shows a drop in the overall fuel poverty rate.
-
- 7 Calculations based on the 10% fuel poverty indicator.
 - 8 I.e. not mains gas or communal heating which is usually gas-fired
 - 9 These figures relate to the period the data was collected for the report and are updated annually for Scotland and England.
- > In England, solid fuel and LPG are most associated with fuel poverty (44% and 43%) respectively. Mains gas (10%) and communal heating (6%) show the lowest fuel poverty rates.
 - > Whilst fuel poverty is more common in households with off-gas fuels, moving to gas powered heating methods will not deal with fuel poverty alone – 66% of those in fuel poverty use mains gas to heat their home.
 - > Across GB mains gas is least commonly used in privately rented properties and most common in local authority rented properties.
 - > In Scotland rented homes are more likely to have electric heating. There has been a significant increase in the proportion of privately rented homes that have mains gas (56% to 71%).
 - > Only 5% of local authority owned homes in Wales have electric heating, compared to 16% in Scotland. Welsh local authority homes are more likely to have oil fired heating than electric.
 - > In England communal heating is more common in tenure types other than social housing, compared to Wales and Scotland.
 - > Single person households are less likely to have gas heating in all three countries than other household types. They are also more likely to have electric heating than other household types.



Introduction

The Consumer Futures Unit (CFU), part of Citizens Advice Scotland, uses research and evidence to put consumers at the heart of policy and regulation in the energy, post and water sectors in Scotland. We work with government, regulators and business to put consumers first, designing policy and practice around their needs and aspirations.

We are committed to securing a better deal for off-gas consumers. This report is one of a number of CFU reports that describe the circumstances of off-gas consumers. Other reports in the series are available on the [Citizens Advice Scotland website](#).

This report provides background information on the physical and household characteristics of homes that do not use gas to heat their home (off-gas) and is an update to analysis undertaken in 2011 by our predecessors, Consumer Focus. This report uses the most recent data available at the time the project commenced in 2015. The updated report is based mainly on data derived from national housing surveys and draws again on analysis and data tables provided by Dr Richard Moore, an independent consultant formerly responsible for the English House Condition Survey.

Wherever appropriate the methodology used in the previous analysis has been replicated. This report includes new, more detailed data on the availability of mains gas obtained from the 2015 Non-gas Map¹⁰. This updated method has produced more accurate figures on individual dwellings proximity to the mains gas grid. Full details on the methodology and any updates are included in the Annex.

This report is intended to support our own work and that of our partners by providing detailed information on the circumstances of 'off-gas' consumers in Scotland, England and Wales.

Off-gas price volatility

Table 1 shows the high cost of heating homes without gas, but also the price volatility that these consumers can be exposed to. The most stable fuel costs over this period were mains gas. Given the significant price increases seen across the domestic gas and electricity sectors since this period and the dramatic dip in oil prices, these costs are placed in a more recent context in table 2.

The typical costs of heating a 3 bedroom semi-detached house with different heating fuels are compared in table 1, based on the SAP prices used for modelling in 2009 and in 2012. While it is clear that the cost of heating a home has increased across all fuel types, mains gas remained the cheapest option. Some fuels increased in cost significantly in the three years covered, with heating oil representing the biggest proportional cost.

However since 2012 there have been significant changes in fuel prices – in particular a fall in the price of heating oil, which more than halved between 2013 and 2016¹¹. Table 2 shows the average fuel prices for the 12 months to April 2016, as published by the Energy Saving Trust¹². While mains gas has risen by over 20%, the average price of heating oil is around 34% below the 2012 SAP price. Solid fuels have also fallen below mains gas costs, and LPG is significantly cheaper than in the 2012 estimate, although still more expensive than mains gas.

10 DECC, Kiln and Affordable Warmth Solutions (2015), *The non-gas map*: FAQ and data info, available at <https://www.nongasmap.org.uk>.

11 Department of Energy and Climate Change, *Quarterly Energy Prices, March 2016*, URN 16D/276A, Table 2. 1.3 Consumer prices index, fuel components, monthly figures, London, DECC, 2016.

12 Energy Saving Trust, *Our Calculations*, London, ESR, 2016 at www.energysavingtrust.org.uk/about-us/our-calculations.

Table 1: Heating costs for different fuels for a typical 3 bed semi, 2008 and 2013

	Fuel type	SAP prices p/kWh ¹	Standing charge (SC) £	Cost of 12,500 kWh £ ²	Average heater age yrs ⁴	Allow for efficiency of heater ⁵	Total cost of heating with SC £
SAP 2009 (April 2008)	Mains gas	3.10	106	388	10.8	435	541
	Bulk LPG	5.73	70	716	13.2	918	988
	Bottled LPG	8.34		1,043	13.6	1,337	1,337
	Heating oil	4.06		508	13.5	651	651
	Smokeless fuel	3.73		466	29.1	1,036	1,036
	Wood logs	3.42		428	10.8	658	658
	Standard tariff electric	11.46	27	1,433	13.9	1,433	1,460
	Economy 7 – on peak ³	12.82	27	321	17.8	321	826
	– off peak	4.78		478		478	
Gas communal ⁶	3.78	106	473	22.0	531	637	
SAP 2012 (April 2013)	Mains gas	3.48	120	435	10.0	489	609
	Bulk LPG	7.60	70	950	9.6	1,067	1,137
	Bottled LPG	10.30		1,288	9.4	1,447	1,447
	Heating oil	5.44		680	13.3	872	872
	Smokeless fuel	4.61		576	28.7	1,048	1,048
	Wood logs	4.23		529	15.1	813	813
	Standard tariff electric	13.19	54	1,649	10.4	1,649	1,703
	Economy 7 – on peak ³	12.82	27	382	20.4	382	956
	– off peak	4.78		550		550	
Gas communal ⁶	4.24	120	530	20.3	596	716	

Notes

¹ 2009 and 2012 SAP/RdSAP fuel prices relevant to the 2008 and 2013 EHS, SHCS and LIW surveys

² Assuming an annual total nominal consumption for space and water heating of 12,500 kWh.

³ Assuming for 'Economy 7' electricity, 2,500 kWh consumed on peak and 10,000 kWh off peak.

⁴ Assuming boiler/heater/distribution of average age and type for fuel, as recorded in 2008 & 2013 EHS.

⁵ Assuming appliance efficiencies of 45%, 65%, 78%, 89% and 100% dependent on the fuel and age and type of boiler/heater and distribution system.

⁶ The prices for gas communal may not include the standing charges that householders are also charged as part of their bill, therefore may not be an accurate reflection of total costs.

Table 2: SAP/RdSAP fuel prices and basic cost of 12,500 kWh of fuel, 2015/16¹

Fuel type	Fuel prices p/kWh March 2016	Added standing charge (SC) £	Cost of 12,500 kWh incl. standing C £
Mains gas	4.18	87.75	610
LPG	6.66		833
Heating oil	3.58		448
Coal/solid fuel	3.94		493
Wood	4.23		529
Standard tariff electric	13.86	69.04	1,802
Economy 7 on & off peak ²	7.21	79.18	980

¹ Based on calculations for a typical 3 bedroom semi-detached house.

² Assuming 2,500 kWh used on peak and 10,000 kWh off peak.

Table 3: Heating costs for different fuels for a typical 3 bed semi-detached house, 2015/16

Fuel type	Basic cost of 12,500 kWh excl. standing ch. £	Assumed fuel appliance efficiency	Cost allowing for appliance efficiency £	Total heating cost incl. standing ch. £
Mains gas	523	89%	588	675
LPG	833	89%	935	935
Heating oil	448	78%	574	574
Coal/solid fuels	493	45%	1,094	1,094
Wood	529	65%	813	813
Standard electric	1,733	100%	1,733	1,802
Economy 7 ¹	901	100%	901	980

¹ Assuming 2,500 kWh used on peak and 10,000 kWh off peak.

Table 3 updates table 1 with these 2015/16 fuel prices, assuming the same appliance efficiencies. The fall in heating oil price makes oil fired central heating the cheapest way to heat a typical three bedroom semi-detached house. However, taking a long term view, this situation is highly unusual and given the volatility of wholesale prices the expectation would be that it is likely to be short lived. The cost of heating a home with an electric heating system on a standard tariff is significantly higher than any other heating type with costs almost triple that of mains gas.

The price volatility shown in these tables is dramatic, and is an important feature of unmetered¹³ fuel use – the price of mains gas and electricity have changed far less over the same period. However it is also important to note that electric central heating on a standard tariff has remained consistently the most expensive way to heat a home.

The volatility of household energy bills makes it difficult for consumers to budget and can cause considerable detriment, particularly for those on low incomes. The instability of energy prices is likely to remain an issue as Britain moves towards a low carbon future. Whilst the role of gas may evolve as new technologies advance and the potential of hydrogen unfolds, mains gas is expected to remain a cost-effective fuel choice beyond 2030.¹⁴ Consequently, the price volatility associated with off gas grid heating can be expected to remain an issue for affected consumers.

Methodology Summary

The statistics reported here are taken from the original 2011 analysis along with the most recent data available at the time the updated analysis was carried out. The main data sources are:

- > The English Housing Survey (EHS) 2008 and 2013
- > The Scottish House Condition Survey (SHCS) 2007/09 and 2012/14
- > The Living in Wales Survey (LIWS) 2008 and 2011 update. 15

As no house condition survey has been carried out in Wales since the 2008 LIWS, the original data has been updated using 2011 census data. Full details of the method used to update the LIWS are included in Annex A.

In addition to the above data sources, the original report used the 2005 Transco Gas Postcode File, which listed all the postcodes in Britain where a gas meter is present. The new analysis presented in this report uses the 2015 Non-gas map data, which has been matched to the housing survey data by postcode (see Annex A, section 4), providing more detailed data on the availability of mains gas¹⁶.

Section 1 gives an overview of off-gas homes.

Section 2 gives information on the physical characteristics of off-gas homes.

Section 3 gives information on the characteristics of households living in off-gas homes.

¹³ Off-gas fuels such as liquid petroleum gas (LPG), heating oil or solid fuel (coal, coke or wood) used for heating, excluding electricity.

¹⁴ <http://fes.nationalgrid.com/media/1253/final-fes-2017-updated-interactive-pdf-44-amended.pdf>

¹⁵ This was the most up to date data available when analysis commenced

¹⁶ Increases in percentages reported are in percentage points rather than proportional increases i.e. an increase from 50% to 60% is reported as +10% rather than a 20% increase.

1. Overview of off-gas homes

This section describes the availability of mains gas connections across Scotland, Wales and England, and the regional variation in the use of different heating fuels, noting changes since 2008.

1.1 Headline figures

Table 4 shows the level of gas connectivity and the rates of use of different heating fuels in Scotland, Wales and England for 2008 and 2013.

Overall, the vast majority of homes in Britain have a mains gas connection at almost 23 million – 87.1% of the population¹⁷. The proportion of homes that heat their home with this fuel is lower, with 84.2% of households using mains gas as their main heating

fuel. A further 1.6% use communal heating, which is likely to be gas fired. The proportion of households using mains gas varies significantly by nation and is further highlighted in Figure 1 below. With respect to the main fuels used for heating in Britain:

- > electricity is the second largest fuel source after gas at 8.6% or 2.3 million homes
- > heating oil accounts for 4.1% or just over 1 million homes
- > solid fuel accounts for 0.8% or 198,000 homes
- > LPG accounts for 0.7% or 187,000 homes

¹⁷ Note that the 2011 report assessed gas connectivity – meaning having a gas supply or being located in a postcode with a gas supply. The data used here represents all those with a gas supply, whether it is used as the main heating fuel or not.

In total, just over 3.7 million homes in Britain use non-mains gas fuels for their primary heating.

Table 4: Gas connectivity and main heating fuels in Great Britain, 2008 and 2013¹

Year	Gas connectivity and main heating fuels	Scotland		Wales		England		Great Britain	
		,000	%	,000	%	,000	%	,000	%
2008	All with mains gas supply ²	1,853	79.5	1,016	80.1	18,805	87.8	21,674	86.7
	Mains gas heating	1,773	76.1	995	78.5	18,031	84.2	20,799	83.2
	Communal heating ³	16	0.7	5	0.4	262	1.2	283	1.1
	LPG or bottled gas	18	0.8	25	2.0	128	0.6	171	0.7
	Heating oil	135	5.8	143	11.3	828	3.9	1,106	4.4
	Solid fuel	33	1.4	37	2.9	240	1.1	310	1.2
	Electricity	354	15.2	63	5.0	1,919	9.0	2,336	9.3
	All non-gas heating fuels	541	23.2	268	21.2	3,120	14.6	3,929	15.7
	Total households	2,330	100.0	1,268	100.0	21,407	100.0	25,005	100.0
2013 ¹	All with mains gas supply ²	1,919	79.9	1,073	82.4	19,893	88.1	22,885	87.1
	Mains gas heating	1,863	77.6	1,038	79.7	19,229	85.2	22,130	84.2
	Communal heating ³	29	1.2	4	0.3	396	1.8	429	1.6
	LPG or bottled gas	21	0.9	19	1.5	147	0.7	187	0.7
	Heating oil	140	5.8	123	9.5	821	3.6	1,084	4.1
	Solid fuel	26	1.1	35	2.7	137	0.6	198	0.8
	Electricity	323	13.4	83	6.3	1,853	8.2	2,259	8.6
	All non-gas heating fuels	510	21.2	260	20.0	2,958	13.1	3,728	14.2
	Total households	2,403	100.0	1,303	100.0	22,583	100.0	26,289	100.0

¹ The data for England were collected in 2012/13 and 2013/14, those for Scotland in 2012-2014 and those for Wales relate to 2011.

² This includes homes with mains gas heating, including communal, and those with a gas supply but not using gas for their main heating.

³ The fuel used for communal heating is not recorded, but the overwhelming majority of such heating is located in urban areas and is estimated to be gas fired.

1.2 Main heating fuels

Figure 1 below illustrates the main heating fuel mix for each country.

England has higher levels of mains gas use (85.2%) than Wales (79.7%), and Scotland has the lowest level, with 77.6% of homes using mains gas as their main heating fuel. Electric heating use is above average in Scotland, where 13.4% of homes use it, and heating oil use is most common in Wales, with 9.5% of homes using oil fired systems.

The higher proportion of electric heating in Scotland likely relates to a number of factors including; a higher number of flats, with electric heat particularly common in those built for social housing, the cheaper cost of installing electric heating systems, and rurality as a legacy of the provision of electricity from hydro power. The relatively high use of heating oil in Wales reflects both lower levels of urbanisation and its much lower proportion of flats and tenements (compared to England and Scotland).

All three nations have seen an increase in use of mains gas as the primary heating fuel. In contrast, the rate of use of electric heating in Scotland and England has fallen, while in Wales use of oil fired heating systems is now lower.

1.3 Urban and rural comparisons

Figure 2 below shows the main heating fuel by location (urban and rural) for each of the three countries.

While breaking heating fuel use down by nation reveals important variation, the picture is more dramatic when split by urban/rural classification, as mains gas use drops significantly as rurality increases. In urban areas, almost all homes use either mains gas or electricity, while in rural areas heating oil is used to heat a large proportion of homes. The lower level of gas use in rural areas reflects the fact that the gas grid does not reach many rural areas.

In Scotland electricity is used in 21% of rural homes, unlike elsewhere in rural Britain, where the proportion of homes using electricity is similar to that in urban areas at less than 10%. However it is important to note that as the majority of people live in urban areas, the majority of homes are located in urban areas and consequently the vast majority of homes using electric or mains gas heating are in these areas.

In Scotland both urban and rural areas saw a small drop in electric heating use (and oil use in rural areas) and a small rise in mains gas use compared with 2008. Overall use of non-gas heating fuels is down 2% in Scotland.

In Wales the role of solid fuels in heating rural properties remains more common than elsewhere in GB. There is also a big increase in the proportion of urban homes estimated to be using electric heating – from 3% to 5.9%. However this change is likely to be at least in part explained by small base sizes or methodological changes (see Annex section A.2).

In England, the overall 1% rise in mains gas use is more strongly reflected in village locations, where the rise is from 45.4% to 49.1%.

1.4 Regional comparisons

Figure 3 below shows the distribution of main heating fuels by English government office region, Scottish region and Welsh economic area.

Figure 3 shows the breakdown of heating fuel use by region. The data broadly reflects the rural/urban composition of each region. Immediately notable is that two regions in particular have low levels of mains gas use – Mid Wales (41.1%) and Highlands and Islands (40.5%) – with all others having a rate of use over 75%. However in 2008 the figure for Mid Wales was only 33%, suggesting an extension of gas availability in that area in the three years to 2011. For the Highlands and Islands the 2007-09 figure was 39.2% and the change is not statistically significant. This demonstrates that in the Highlands and Islands region far fewer properties have been connected in recent years, likely as a result of the greater distances involved.

In Scotland, Glasgow has seen a substantial increase in proportion of homes using mains gas (77.7% up to 83.4%). This goes alongside a drop in the proportion of Glasgow homes using electric heating – down from 20.9% to 14.6%. While this matches the trend in most other Scottish regions, the change in Glasgow is far more marked.

While the Welsh data are potentially problematic, both in terms of the sample size and in terms of the different methodologies used to produce the data at each time point, they do show some significant changes in the use of different heating fuels. In Mid Wales mains gas is now the most common heating fuel, rather than heating oil as was most common

Figure 1: Trends in main heating fuels in Scotland, Wales and England

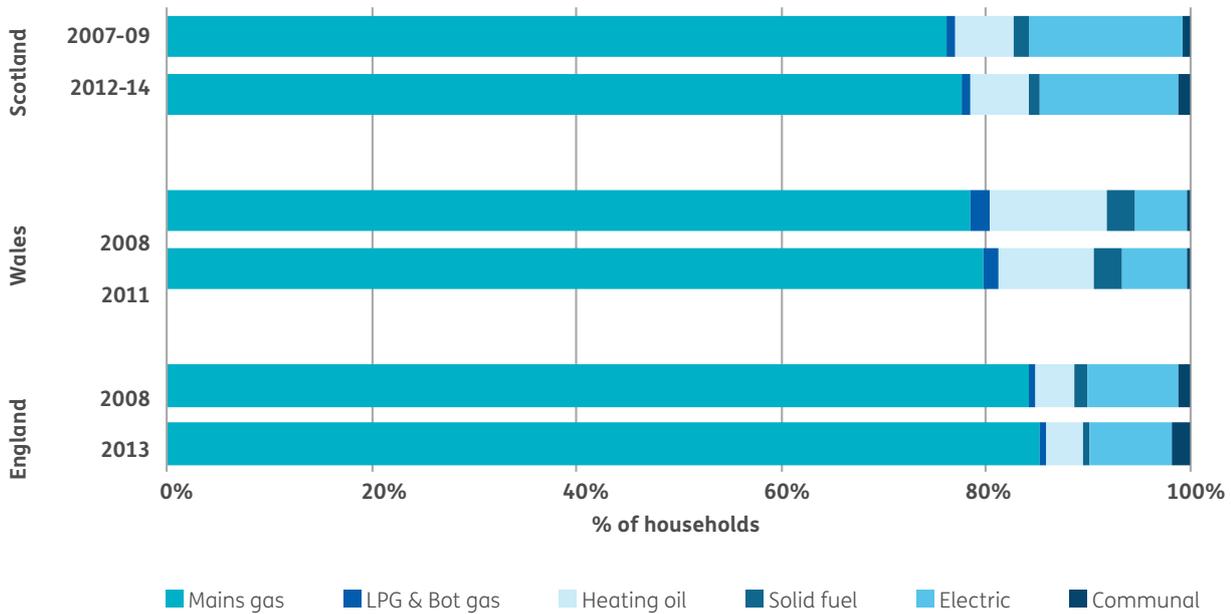


Figure 2: Main heating fuels by location in Scotland, Wales and England

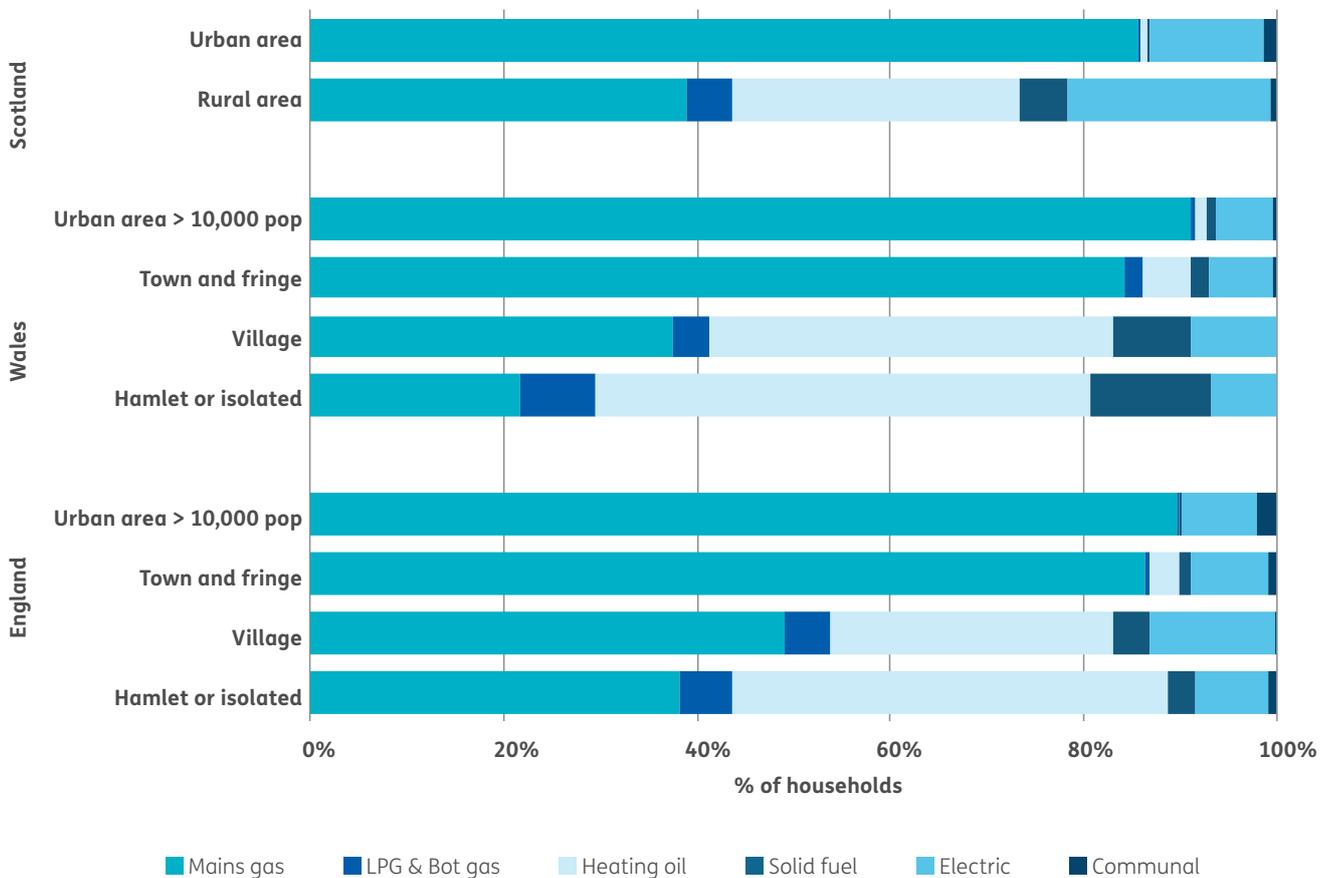
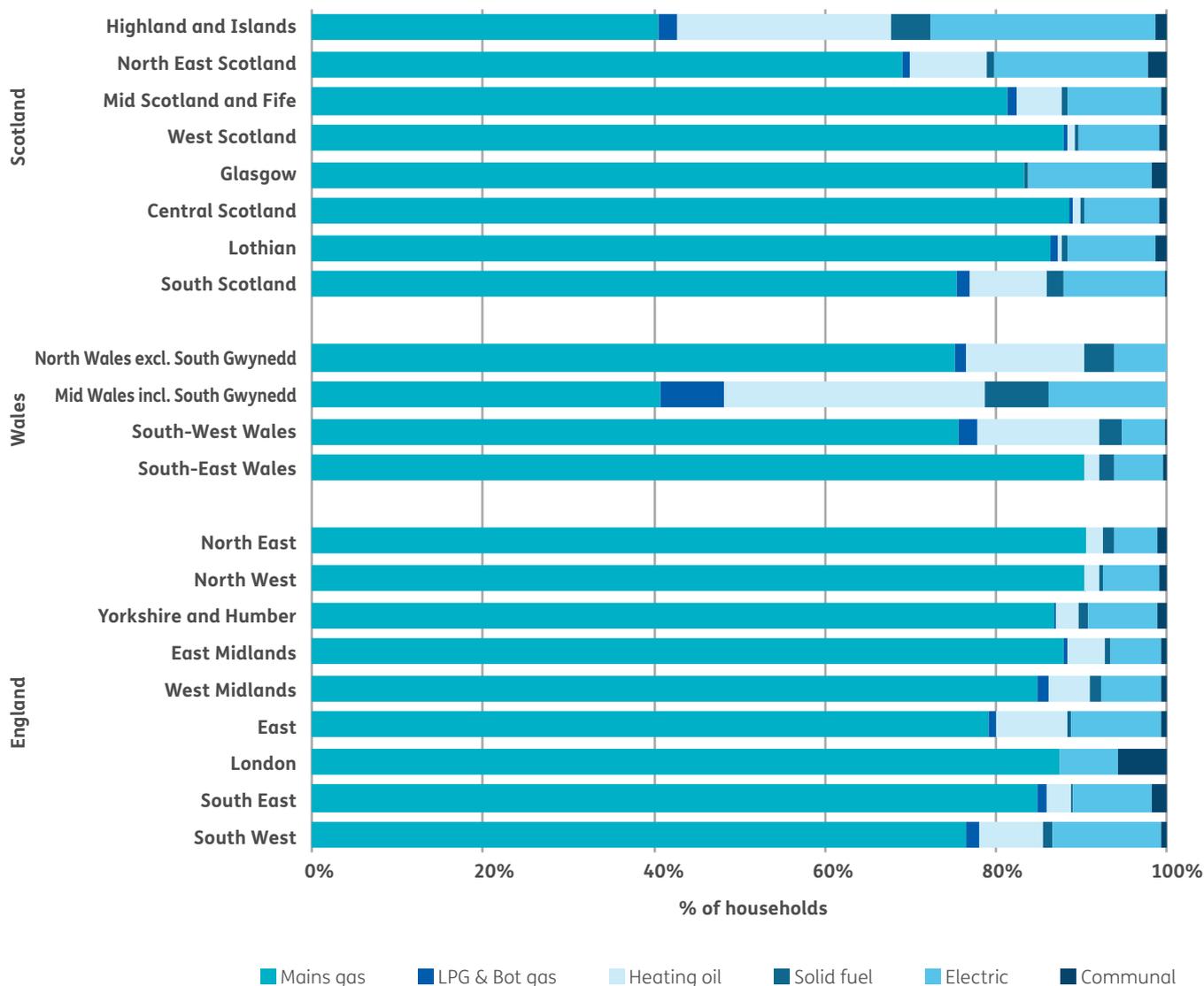


Figure 3: Main heating fuel by region in Scotland, Wales and England



in 2008. Given there has been no significant expansion of the gas network in this region, this is likely an artefact of the survey methodology. The figures also show a substantial increase in electric heating use in South East Wales – from 10,000 homes to 36,000 homes – this increase may relate to the large number of new flats being built in this area and the growth in purpose built student accommodation¹⁸.

In England the most notable increases in mains gas use are in the North East (+3.6%), where mains gas use is highest at 90.5%, and South West (+4.2%) where mains gas use is lowest at

76.5%. In London, the figures show a fall in use of electric heating from 9.9% to 6.8%, and a rise in use of communal heating from 3.1% to 5.8%. Given that both electric and communal heating are commonly found in urban flats, it is reasonable to interpret this as electric heating systems being replaced with communal heating. Nearly half of all communal heating is in London. Electric heating is most common in the South West where 12.9% of households use it. Over England as a whole, 8.2% of properties use electric heating.

Heating oil use is most common in the East (8.2%) and South West (7.4%) as was the case in 2008.

18 Information provided by Wales & West utilities

1.5 Summary of findings

- > Over 22 million households in Britain use mains gas as their main heating fuel (84% of all homes): 78% in Scotland, 80% in Wales and 85% in England
- > 2.3 million homes are heated by electricity (8.6%), just over 1 million homes by heating oil (4.1%), 198,000 homes by solid fuel (0.8%) and 187,000 homes by LPG (0.7%). In total, 3.7 million homes in Britain use non-mains gas fuels for their primary heating.
- > In Scotland electricity is used in 21% of rural homes, unlike elsewhere in rural Britain, where the proportion of homes using electricity is similar to that in urban areas (less than 10%).
- > Two regions in particular have low levels of mains gas use – Mid Wales (41.1%) and Highlands and Islands (40.5%) – with all others having a level of use over 75%.
- > In London, the figures show a fall in use of electric heating (9.9% to 6.8%), and a rise in use of communal heating (3.1% to 5.8%).



2. Physical characteristics of off-gas homes

This chapter looks at the physical characteristics of off-gas homes in Scotland, England and Wales. In particular it considers dwelling type; age of home; energy efficiency standards; compliance with housing rating/quality standards; gas connectivity; and secondary heating. Comparisons are made across the countries, where the data allows.

2.1 Dwelling type

Figure 4 shows how the main heating fuel varies by dwelling type in each nation. The data illustrates how heating fuel varies considerably by dwelling type.

Most strikingly, Figure 4 illustrates the prevalence of electric heating in flats, and particularly high rise flats in Scotland where electric heating is used in 74.3% of properties. (The data also shows a high level of electric heating use in Welsh high rise flats, but the small sample size makes this unreliable). This is in contrast to England, where communal heating systems supply more than a quarter of high rise flats with heat, and nearly 45% have mains gas. In Scotland there has been an increase in the use of communal heating in high rise flats, but currently only 8.5% have communal heating.

Communal heating, which generally uses a gas-fuelled central boiler, can potentially provide a low cost heating fuel for property types where individual gas heating is not possible but where a gas supply is close by. Even if gas is not close by, there are alternative fuels that can be used, such as biomass. However it is important to note that as many communal systems are operated by housing associations or local authorities, the cost of maintenance and/or standing charges associated with heat networks may not be reflected in the fuel costs recorded in this data set or in EPC calculations. Therefore a full analysis of the costs would be required to understand whether consumers stand to benefit from a reduction in their energy bills.

Additionally, electric heating is more common in Scotland than in England or Wales across nearly all property types. It plays a greater role in rural Scotland, where houses with electric heating are more common, than rural England and Wales in addition to its prevalence in urban flats.

It is also evident that oil fired heating systems are most often found in detached properties, no doubt as a result of the prevalence of that type of house in rural areas. The role of oil fired heating in detached houses in Wales is particularly apparent.

2.2 Age of home

Figure 5 below shows how heating fuel varies by dwelling age in Scotland, England and Wales.

As figure 5 shows, there is less variation in heating fuel use by dwelling age than by other variables considered in this analysis. However all nations show a similar distribution, with mains gas being most common in properties built in the middle of the 20th Century, and least common in the oldest properties, where oil fired heating makes a significant contribution, particularly in Wales. This may reflect the nature of house building in this period where the inter-war and immediate post-war periods saw rapid growth in suburban housing estates on the outskirts of towns and cities.

In Scotland the increase in mains gas use has been across all ages of houses. Around half of Scottish communal heating is in the most modern

Figure 4: Main heating fuel by dwelling type in Scotland, Wales and England

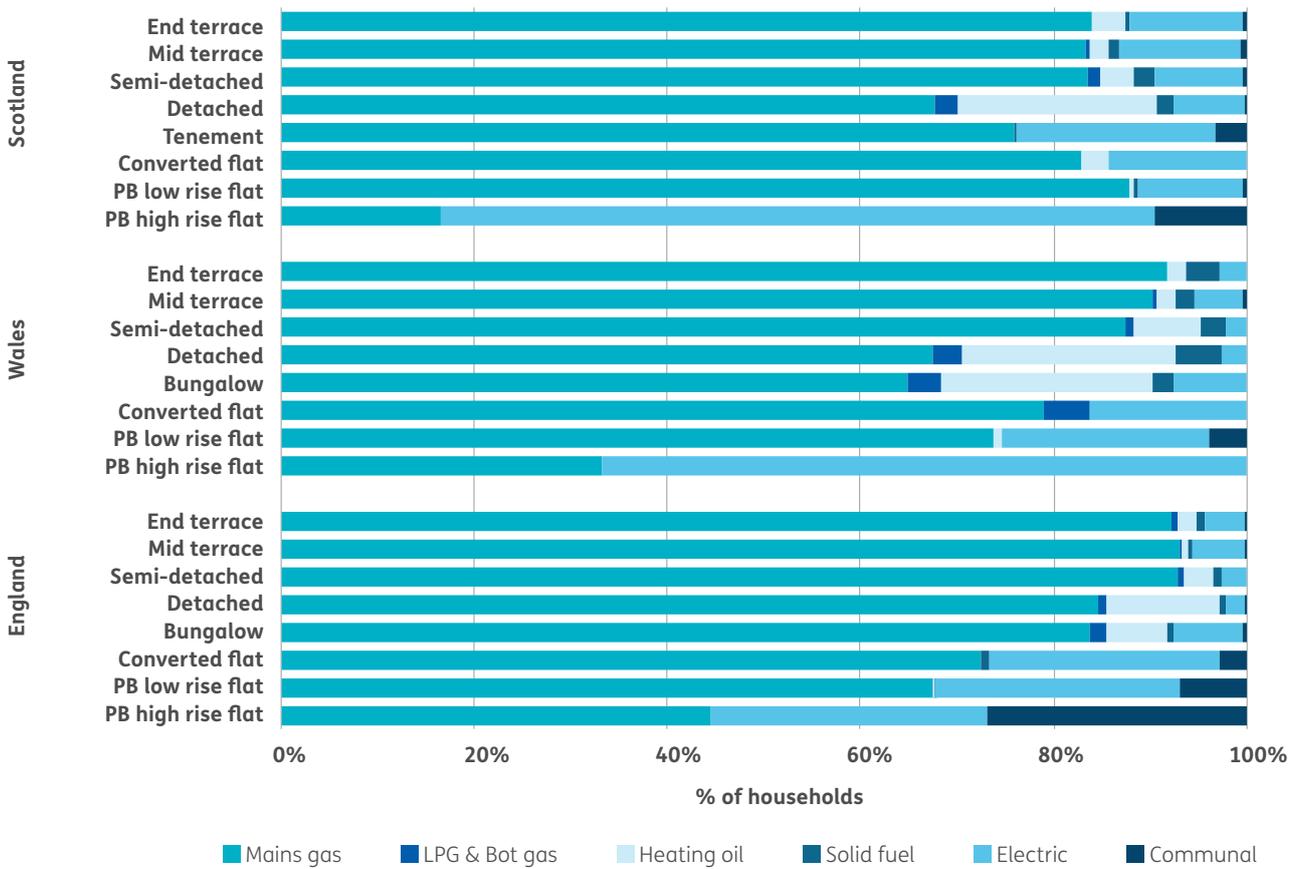
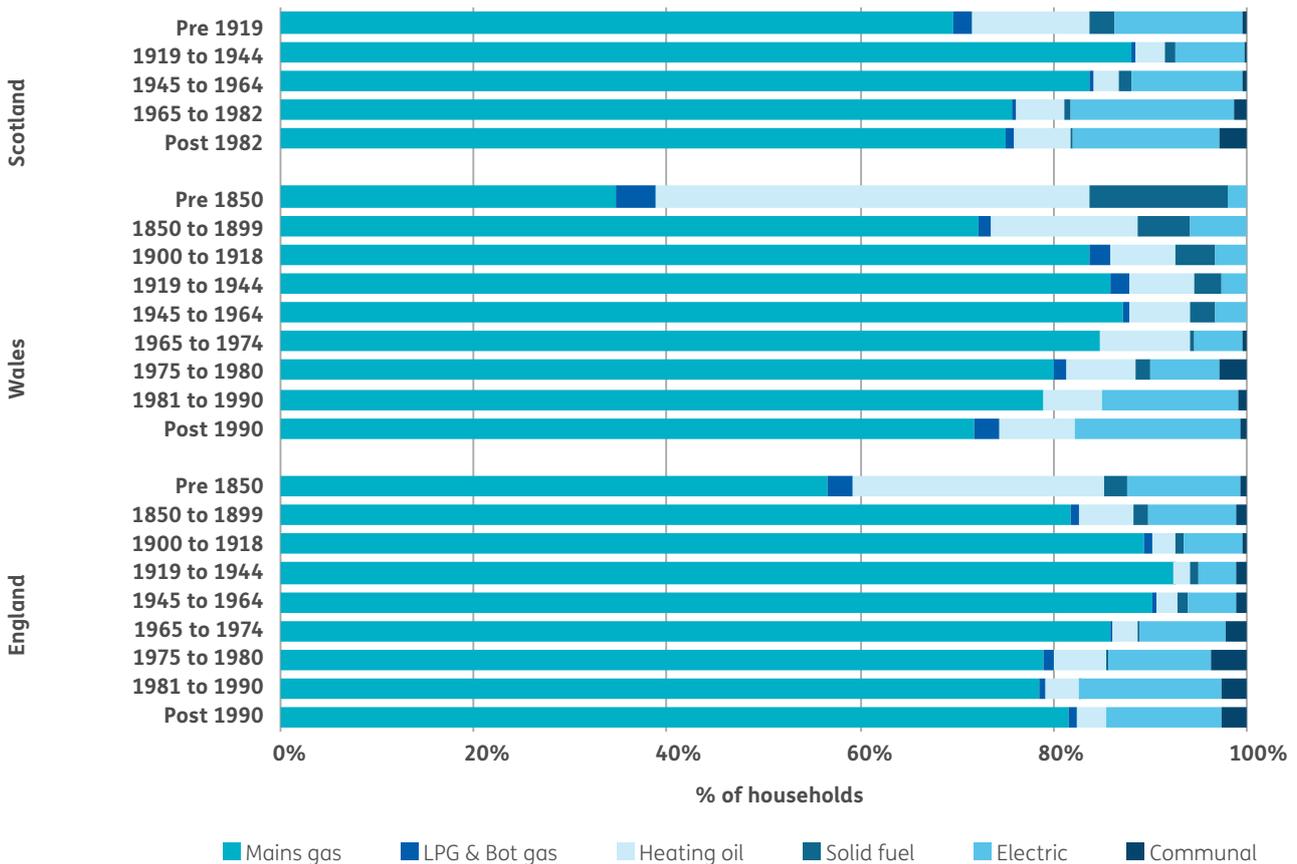


Figure 5: Main heating fuel by dwelling age in Scotland, Wales and England



properties, likely to be housing association flats, where we have seen the majority of communal heating systems installed. The social housing markets within each nation are regulated to minimum standards of energy efficiency, resulting in generally higher SAP ratings for these properties.

The Welsh data shows higher figures for the use of gas as a heating fuel in older properties than found in the previous report – 29% up to 34% – and a rise in electric heating use in modern homes, from 8% to 17%. The small sample size for Wales means these results should be treated with caution.

The data shows little change in England.

2.3 Wall type

Figure 6 below shows how the extent of homes with solid walls varies by heating fuel type.

Solid walls not only have poor insulating properties, but are more expensive and disruptive to add insulation to. It is therefore particularly important in these properties to have efficient, economical heating systems. However figure 6a shows that in all nations, properties using unmetered fuels (LPG, oil or solid fuel) are more likely to have solid walls than properties using mains gas, electric or communal heating. This is particularly the case in Scotland, where more than 40% of properties using these fuels have solid walls, in contrast to only around a fifth of mains gas and electrically heated properties.

In England the distribution of solid wall properties across heating types is more even. The number of solid wall homes heated by communal heating systems has grown from 32,000 to 69,000 (0.6% to 1.2% of all solid-wall homes) households since the previous report, which covered 2007-2009. In Wales, the prevalence of solid fuels to heat solid wall properties is clear.

As figure 6b shows, mains gas is the most common heating fuel in properties of all wall types.

In Scotland the increase in gas use and decrease in electric use as a heating type has been across all wall types. The vast majority of Scottish homes are either masonry cavity (71%) or masonry solid (23%). In these categories, gas is more common in cavity than solid wall houses.

The Welsh data shows no significant change, and mains gas use is similar across wall types other than mixed types, where oil is commonly used. Oil is also more common in solid wall properties, due to the greater prevalence of this construction type in rural areas.

In England mains gas is fairly consistently available across wall types, with non-traditional construction¹⁹ types having the lowest use of mains gas, but the highest level of communal heating use.

¹⁹ This refers to a system of building houses that effectively means the buildings can be mass produced, including pre-cast and in-situ concrete, timber frame and steel frame.



Figure 6a: Main heating fuel by solid wall in Scotland, Wales and England

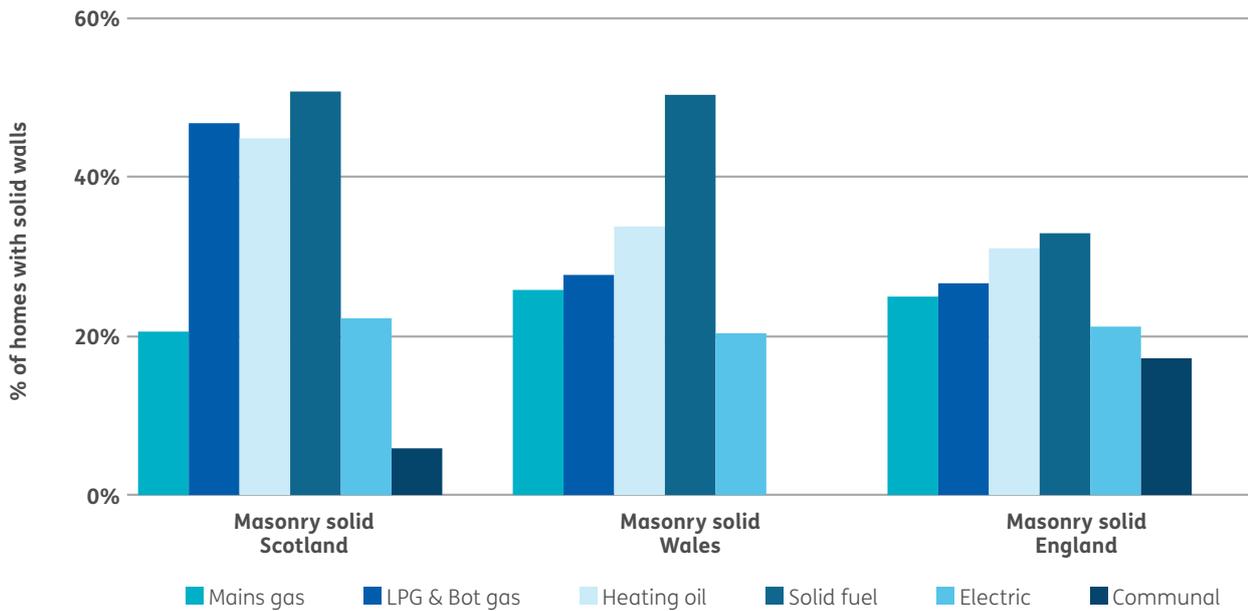
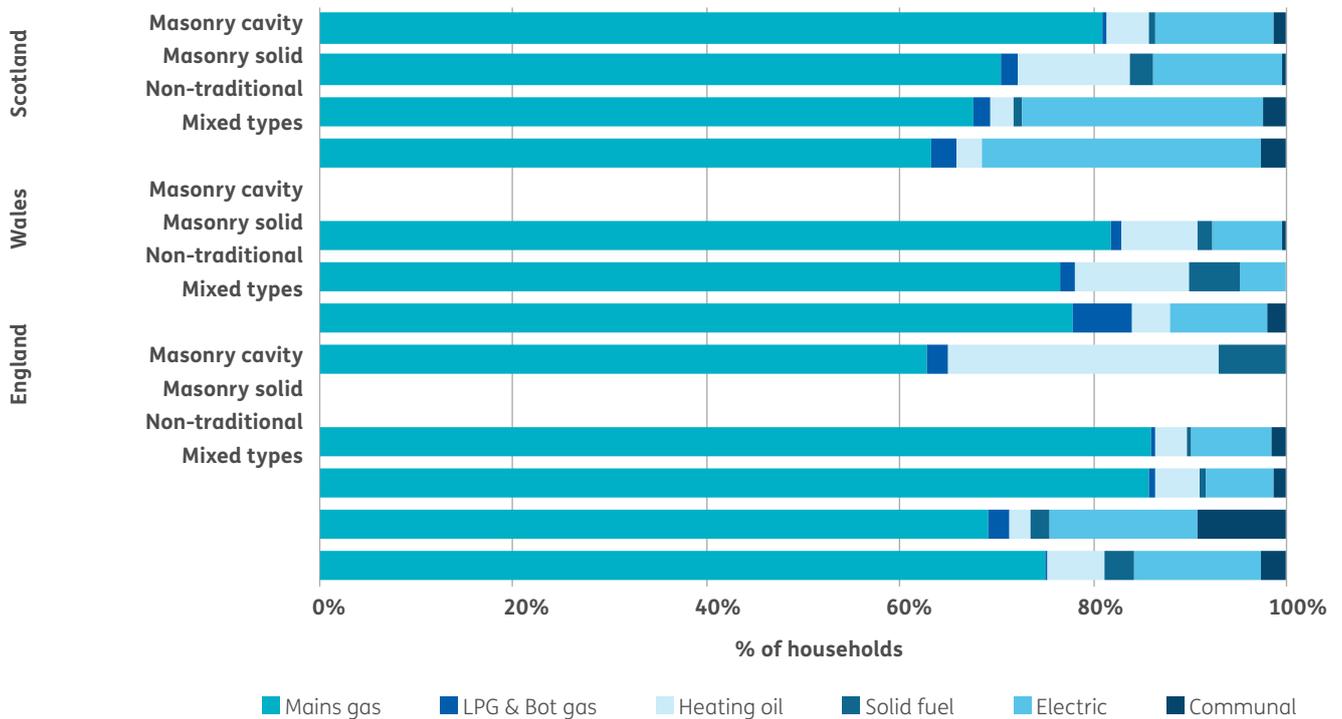


Figure 6b: Main heating fuel by wall type in Scotland, Wales and England



2.4 Energy efficiency performance of homes

Figure 7 below shows how average energy efficiency levels vary by heating fuel type. Energy efficiency is assessed by Energy Performance Certificate (EPC) rating, where 'A' represents the best performing homes and 'G' the 'worst'. Homes with high EPC ratings will generally have high levels of insulation and efficient heating systems. In broad terms, lower rated homes tend to be older, while higher rated homes tend to be newer due to increased Building Regulation standards.

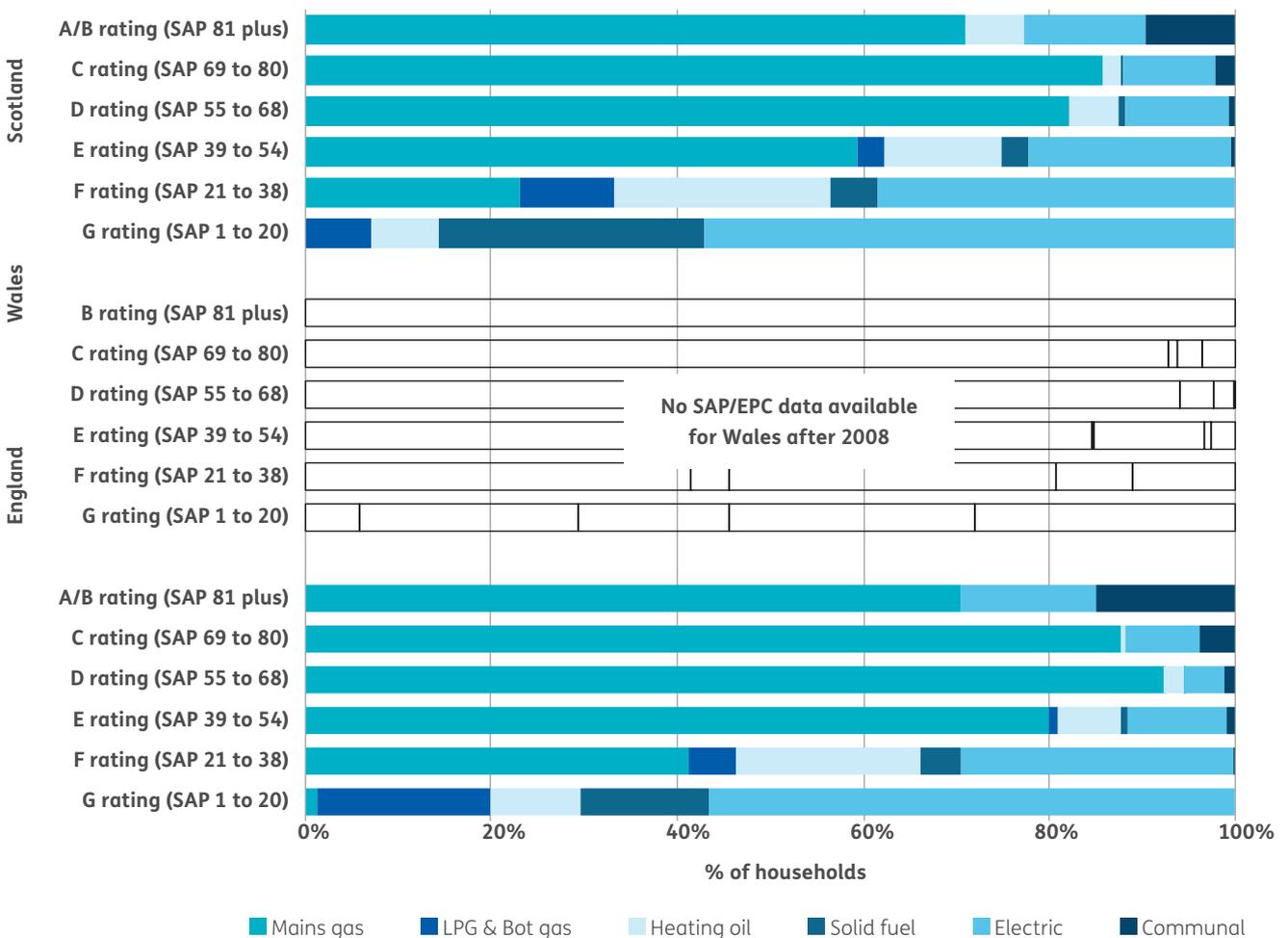
Figure 7 illustrates the association between higher EPC ratings and communal and mains gas heating, the proportion of homes heated by these methods decreases as EPC level decreases. It is important to note that the variables are not independent of each

other – EPC ratings depend in part on the type of heating system installed.

It is interesting to note the greater prevalence of electric heating systems in A and B rated homes compared to C and D rated homes. This may be due to increased energy efficiency standards in social housing, which is more likely to include flats with electric heating systems. It may also show evidence of the impact of modern, more efficient electric heating systems.

When considering change over time, there has been a big rise in A/B rated homes in both Scotland and England, although they still make up a very small proportion of the whole, at only a little over 1% of homes. The largest proportion of homes in both nations are D rated (45.7% in Scotland and 51.4% in England).

Figure 7: Main heating fuel by EPC rating in Scotland, Wales and England



In Scotland the proportion of D rated homes is unchanged since the previous report, but the proportion of homes with a C rating has increased from 19.1% to 34.5%. This means that 81.5% of Scottish homes are now rated D or better. In the previous report, E rated homes were the most common in England. England has seen a similar increase in the proportion of homes rated C, such that 74.6% of English homes are rated D or better.

The general picture is of the housing stock moving up the EPC bands as energy efficiency improvements – which could include replacement heating systems as well as measures such as insulation – are made. However, off-gas homes are not only more likely to have a low EPC rating but also less likely to have improved. The reduction in the proportion of lower rated homes using mains gas could be interpreted as sign that properties with mains gas heating are becoming more energy efficient to a greater extent than off gas homes. This could be a result of off-gas homes being more likely to be older solid walled properties that are harder and more expensive to insulate.

There is no updated EPC data available for Wales.

2.5 Compliance with statutory housing rating standards

There are different housing quality measures in Scotland and England – in Scotland the Scottish Housing Quality Standard and in England the Decent Homes Standard (there is no housing quality data for Wales after 2008). Both show increased pass rates in the updated data – from 34.9% to 49.1% in Scotland and from 66.6% to 79.7% in England. Figures 8a and 8b below show how housing standard varies by main heating fuel in Scotland and England.

In Scotland mains gas (53%) and communally heated homes (67%) are most likely to pass. Homes with electric heating (32%) and LPG (26%) are less likely to pass, and only 0.8% of homes with solid fuel heating pass the standard. Scottish homes that fail most commonly, fail on energy efficiency. In England, communally heated homes are most likely to pass (88%), while off-gas homes, except those with oil fired heating, are much more likely to fail, most commonly on insulation. The association between oil heating and higher income homes may lie behind the low rate of failure on insulation for those homes.

Figure 8a: Housing standards by main heating fuel in Scotland

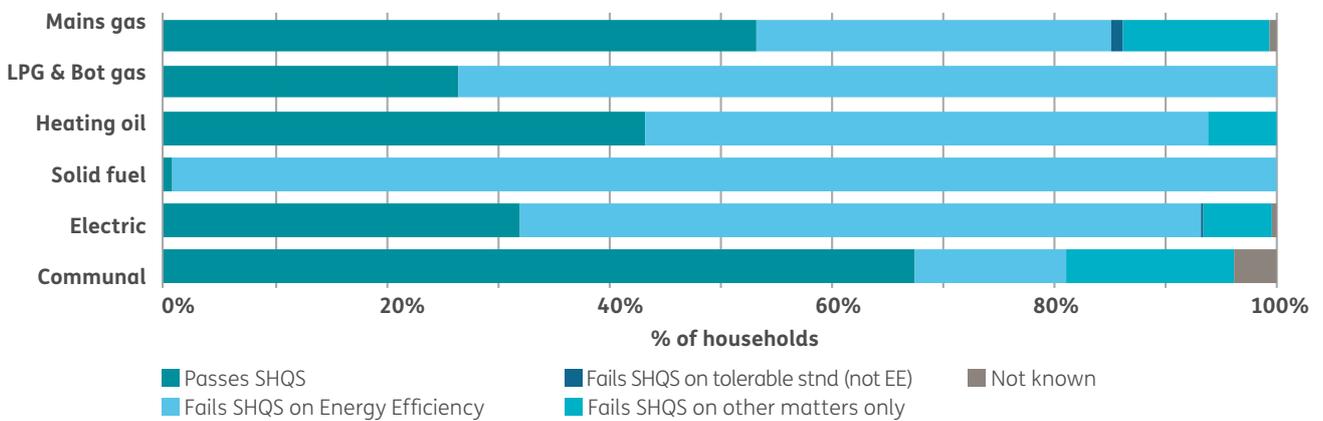
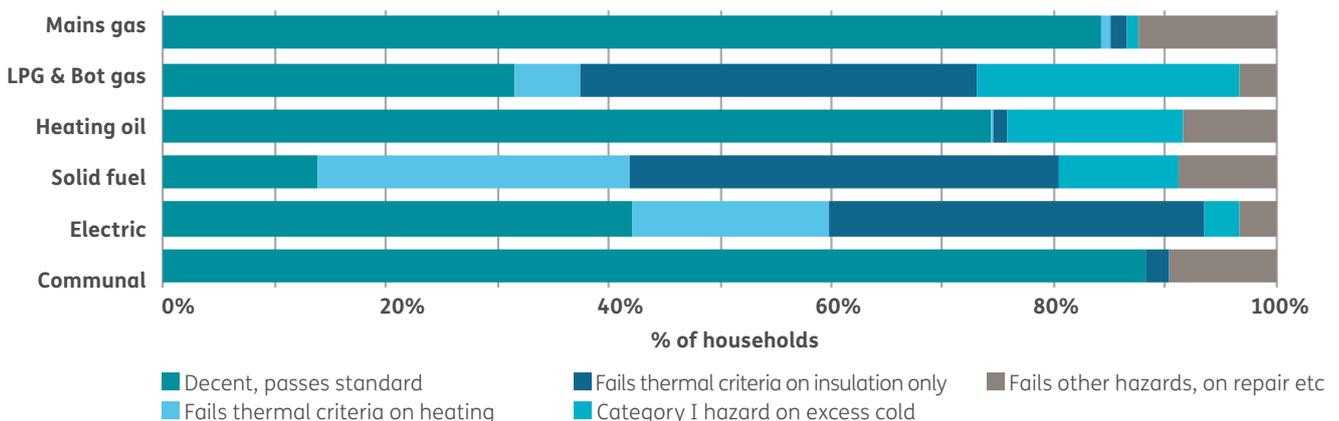


Figure 8b: Housing standards by main heating fuel in England



2.6 Availability and use of mains gas

Table 5 below provides data on the availability and use of mains gas in Scotland, England and Wales. The revised methodology used in this report is able to define the number of properties which can be considered to be ‘on the gas grid’ by a distance-based measure of proximity (within 23 metres of the gas grid). The previous data presented the number of homes situated within a gas postcode. The new methodology provides more accurate figures.

For properties within 23 metres of the gas grid, a Gas Transporter is obliged, upon request, to install assets necessary for the connections of the premises²⁰. Table 5 finds that up to 1,614,000 homes in Britain are within 23 metres of the gas network and could potentially be connected to have some form of gas heating (either individual home or communal systems) installed at a comparatively low cost, thus allowing such homes to benefit from cheaper heating²¹. Connecting the 1,788,000 homes that are located off the gas grid (further than 23 metres) would be less cost effective.

²⁰ [Ofgem](#)

²¹ Householders may require support with the additional cost of installing a new internal heating system to ensure that they are able to benefit from any fuel change.

Table 5 also shows that 174,000 homes have a gas supply but do not use gas for their main source of heating. Although this is a substantially lower number than in 2008, these households are likely to use more expensive heating fuels than gas despite the fact that they could have gas heating installed at relatively low cost (given that they have a gas supply coming to their property).

The data suggests that connecting these properties to the gas grid could have a disproportionately beneficial impact, as these households are more likely to be financially worse off. Specifically, and compared to those connected to the gas grid, households within 23m meters of the gas grid but not connected to it are:

- > More likely to be in lower income bands and less likely to be in higher income bands;
- > Substantially more likely to be in fuel poverty;
- > More likely to be single person households; and
- > More likely to be private tenant or tenants of registered social landlords.

In England and Scotland these properties are mostly urban flats using electric heating, as shown in Table 6. In Wales this is true but to a lesser extent. Additionally these homes are more likely to fail housing quality standards than homes connected to the gas grid, and more likely to have a lower EPC rating, with more than twice the proportion of English and Scottish homes within 23m of the gas grid rated E or lower compared to gas connected properties (fig. 9).

Table 5: Availability and use of mains gas, 2008 and 2013¹

Year	Mains gas usage	Scotland		Wales		England		Great Britain	
		,000	%	,000	%	,000	%	,000	%
2008	Gas – main heating fuel ²	1,800	76.8	1,000	78.8	18,288	85.4	21,088	84.3
	Gas supply, but not main fuel	53	2.3	16	1.3	517	2.4	586	2.3
	No gas, but in gas postcode	171	7.3	56	4.4	1,077	5.0	1,304	5.2
	Not in gas postcode	306	13.1	196	15.5	1,525	7.1	2,027	8.1
	Total households	2,330	100.0	1,268	100.0	21,407	100.0	25,005	100.0
2013 ¹	Gas – main heating fuel ²	1,890	78.7	1,063	81.6	19,758	87.5	22,711	86.4
	Gas supply, but not main fuel	29	1.2	10	0.8	135	0.6	174	0.7
	No gas, but on gas grid ³	207	8.6	76	5.9	1,331	5.9	1,614	6.1
	Off gas grid	277	11.5	153	11.7	1,358	6.0	1,788	6.8
	Total households	2,403	100.0	1,303	100.0	22,583	100.0	26,289	100.0

¹ The data for England were collected in 2012/13 and 2013/14, those for Scotland in 2012-2014 and those for Wales relate to 2011.

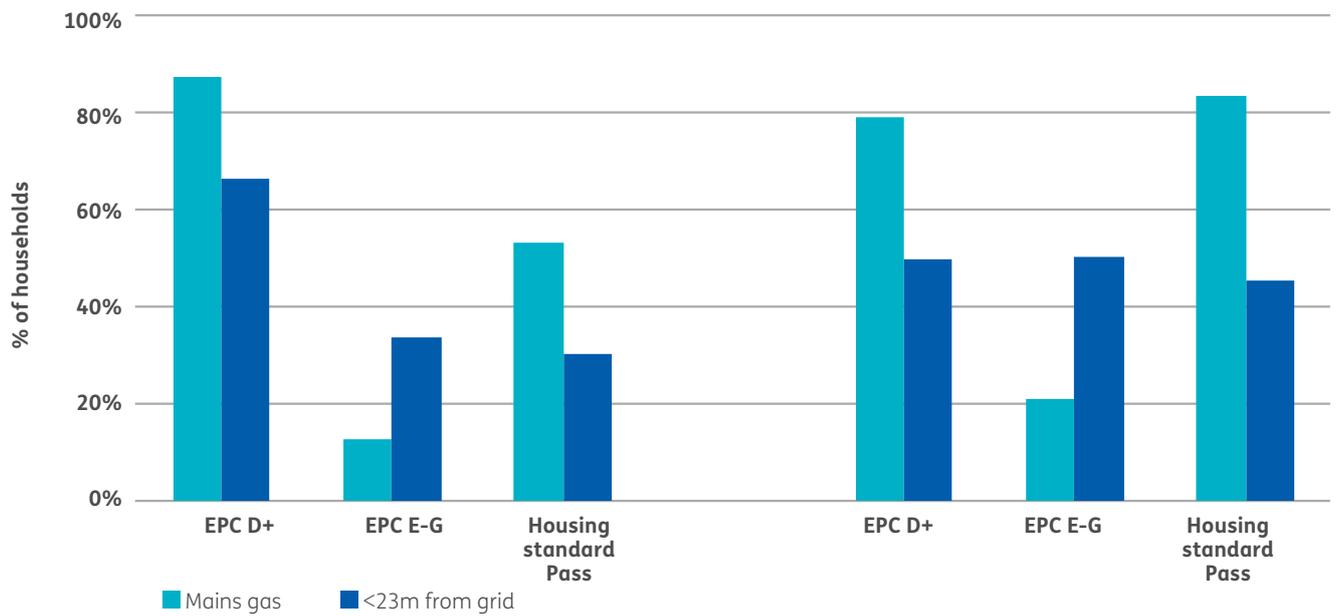
² Includes communal heating where likely to be gas-fired.

³ Defined as a property less than 23 metres from the gas network.

Table 6: Main characteristics of homes within 23m of the gas grid for England, Scotland and Wales

	England		Scotland		Wales	
	,000	%	,000	%	,000	%
Urban	972	73.0	177	85.4	43	56.5
Electric heating	1,121	84.2	182	88.1	44	58.2
Flats	798	60.0	127	61.4	31	40.8

Figure 9: EPC rating and housing standard of homes within 23m of the gas grid Scotland and England



2.7 Secondary heating fuels

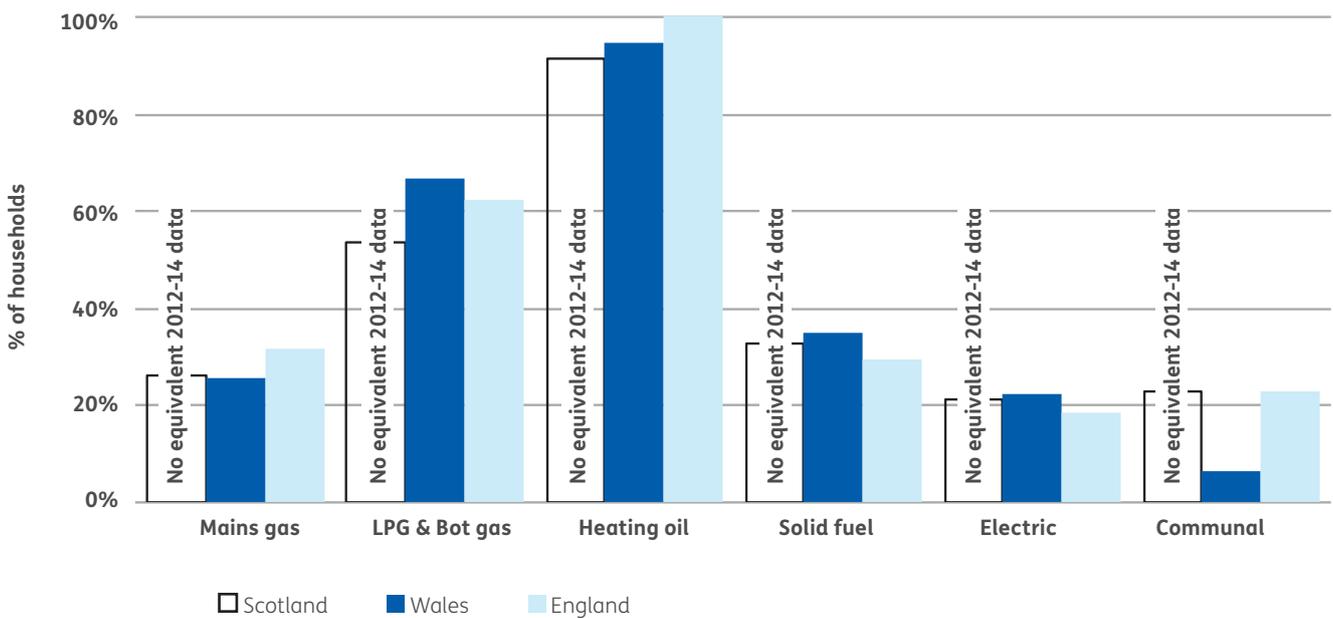
Figure 9 below shows how many homes use other heating fuels to supplement the main heating source – referred to as ‘secondary heating’. Use of secondary heating varies by primary heating fuel. The graph does not include consumers who use the same fuel as the main heating fuel for their secondary heating, e.g. mains gas heating consumers with gas flame effect fires.

Figure 10 shows that, at least for Wales and England (and in 2007-09 the pattern was the same for Scotland) oil fired heating is rarely used without a secondary means of heating the property, and LPG is often used with another fuel for heating, but all other heating types are normally used alone.

There has been little change in use of secondary heating in England and Wales and electric heating remains the most common secondary heating type. The data does show thousands of homes using mains gas as a secondary heating source. It is difficult to determine why users would make this choice, as it is likely to be cheaper to use mains gas as the main source of heating.

In 2012-14 the SHCS did not record what secondary fuel was used, only whether there was secondary heating, and the resulting figures are not comparable to the 2007-09 figures.

Figure 10: Main heating fuel by secondary heating fuel in Scotland, Wales and England



2.8 Summary of findings

- > Electric heating is prevalent in flats, and particularly high rise flats in Scotland, where electric heating is used in 74% of properties.
- > Oil fired heating systems are most often found in detached properties. The role of oil fired heating in detached houses is particularly apparent in Wales.
- > Mains gas is the most common heating fuel in properties built in the middle of the 20th Century, and least common in the oldest properties, where oil fired heating makes a significant contribution.
- > Properties using unmetered fuels (LPG, oil or solid fuel) are more likely to have solid walls than properties using mains gas, electric or communal heating. This is particularly the case in Scotland, where more than 40% of properties using these fuels have solid walls.
- > In Scotland and England the majority of homes are rated EPC D or better (82% in Scotland and 75% in England). The proportion of homes with an EPC C rating has increased from 19% to 35% in Scotland. There has been a similar increase in the proportion of homes rated C in England.
- > Since EPCs were introduced in 2010 off-gas homes are not only more likely to have a low EPC rating, but also less likely to have improved.
- > Both Scotland and England show increased housing rating standard pass rates in the updated data – from 35% to 49% in Scotland and from 67% to 80% in England. Off-gas homes are less likely to pass.
- > Up to 1,614,000 homes are within 23 metres of the gas grid and could be connected at a comparatively low cost, potentially transforming the circumstances of the households living in them.
- > Homes within 23m of the gas grid are:
 - mainly urban flats using electric heating, and are more likely to have lower EPC ratings and to fail to meet housing standards;
 - more likely to be in lower income bands and less likely to be in higher income bands;
 - substantially more likely to be in fuel poverty;
 - more likely to be single person households; and
 - more likely to be private tenant or tenants of registered social landlords.
- > 174,000 homes have a gas supply but do not use gas for their main source of heating.



3. Characteristics of off-gas households

3.1 Income

Figures 11a, 11b and 11c display the way that rates of use of different heating fuels change according to income.

As the Scottish data is based on set income bands it doesn't take account of changes in wages, so change over time is difficult to analyse. However figure 10a shows that, in Scotland, electric heating and communal heating users are more likely to be in lower income households, and solid fuel, heating oil and LPG users are more likely to be in better off households. This is a slightly different picture than in England and Wales, where LPG use is more common among lower income households than heating oil. Mains gas use is more level across income bands.

In contrast to the Scottish data, the Welsh data is based on income deciles, so accounts for general income changes over time (it is presented here in quintiles). While this allows analysis of change over time, the data in fact shows little change since 2008. The same pattern of electric and communal heating being more common in low income

households is evident. Heating oil in Wales shows the most distinct association with higher income.

The English data also allows analysis of change over time, but again the changes are minimal. The relatively even distribution of mains gas across income bands is evident, as is the association between electric and communal heating with low income households. It is however notable that communal heating is more common in the highest income quintile than in the third and fourth quintiles – this may be evidence of communal heating systems being found in London blocks of flats where residents are relatively wealthy.

There is some evidence of a drop in use of LPG in middle income homes, possibly as these households are able to pay to connect to the mains gas grid, or to switch to another cheaper heating fuel. Heating oil is again associated with higher income households, and more strongly so than in 2008. Solid fuel has the opposite association, but generally is much less common.

Figure 11a: Income profile of households with different main heating fuels, Scotland

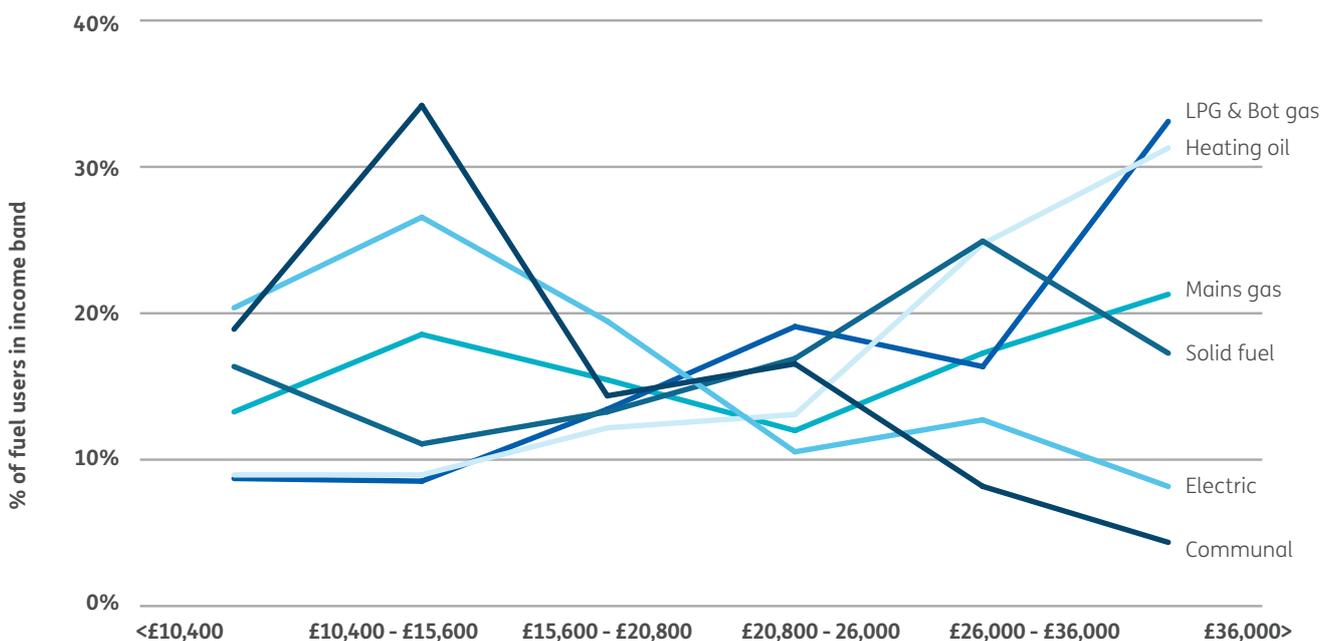


Figure 11b: Income profile of households with different main heating fuels, Wales

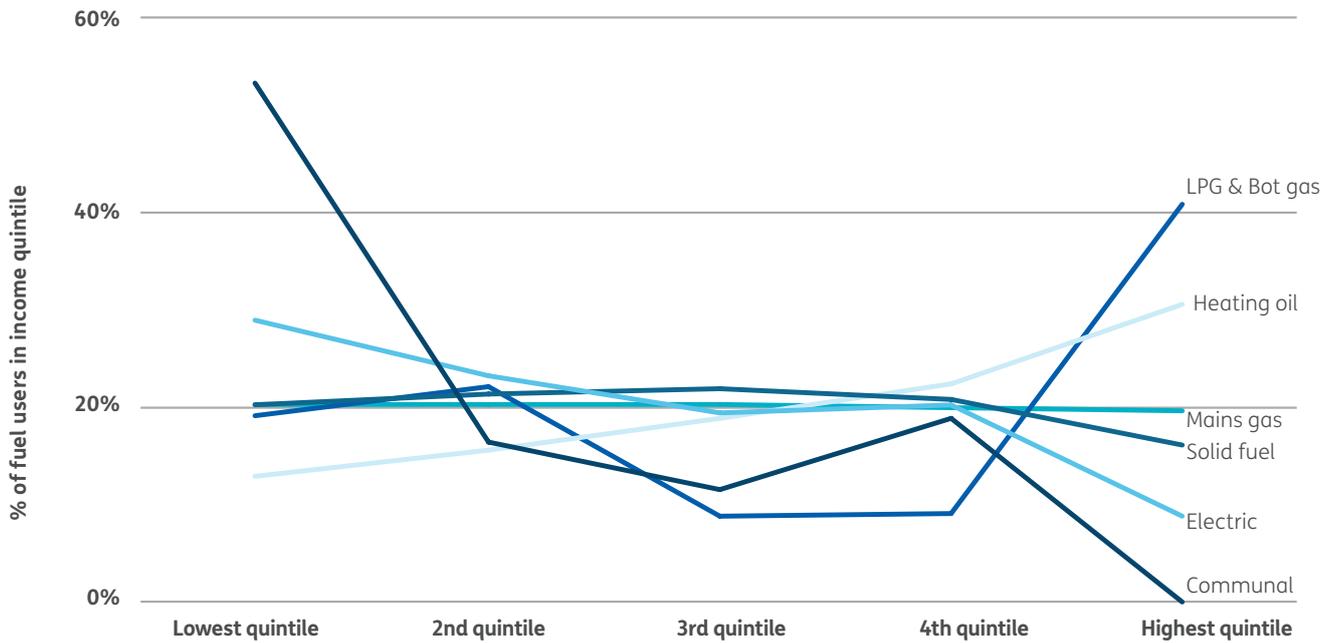
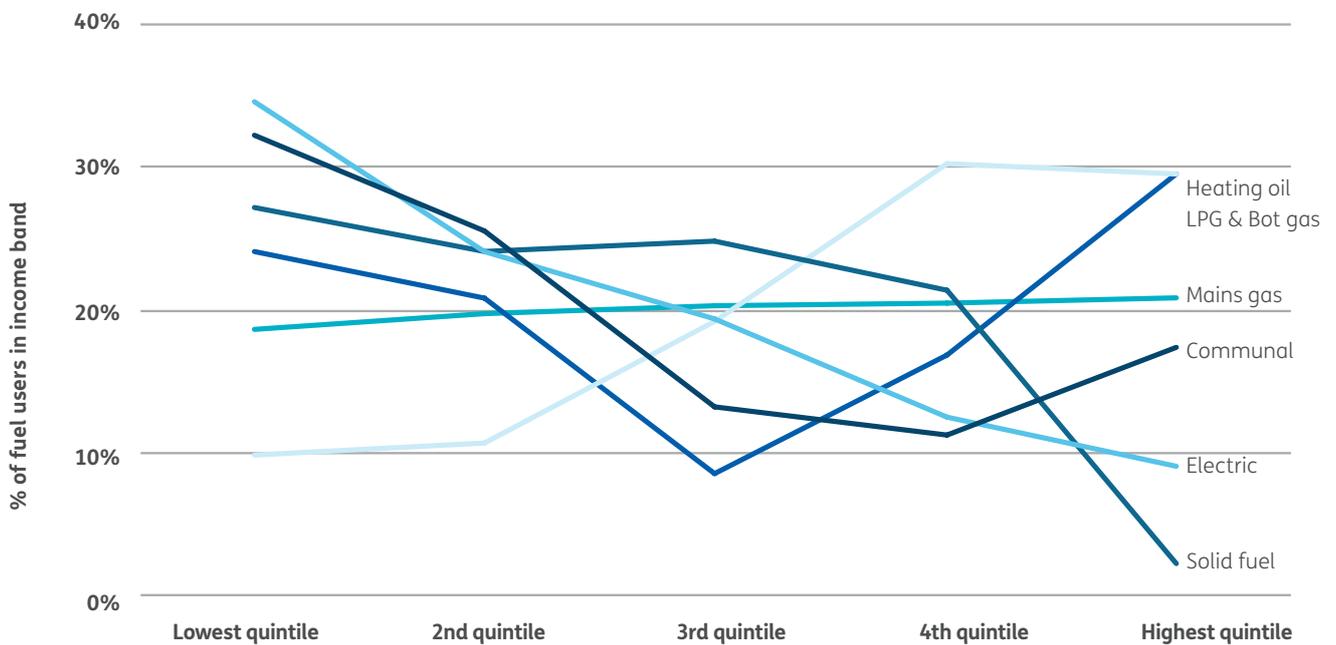


Figure 11c: Income profile of households with different main heating fuels, England



3.2 Fuel Poverty

Table 7 and Figure 12 present statistics on fuel poverty rates broken down by main heating fuel.

In Scotland²² and Wales a household is defined as fuel poor if it spends more than 10% of its income on fuel costs. The data shows that 35.1% of Scottish households were classed as fuel poor in 2012-14 compared to 27.7% in the previous period (2007-2009) and 27.8% of Welsh households in 2011 compared with 26.2% in 2008. By this definition the figures are at 12.1% in England. However, in England the formal measure of fuel poverty uses the Low Income High Costs definition which was brought in in 2013, and fuel poverty rates under this definition are 10.4%²³ versus 11.7% in the previous period (with 2008 figures recalculated to the new LIHC definition).

Figure 12 clearly shows that mains gas use is far less common among those in fuel poverty, which is to be expected given that mains gas has consistently been the cheapest way to heat a home. Across all three nations, off-gas heating methods are associated with higher rates of fuel poverty, although changes in fuel prices will have had some effect on this picture over the last few years – particularly the fall in the price of heating oil as discussed above.

In Scotland, fuel poverty rates are highest for those using LPG to heat their homes, and have increased – 71.4% of these households are in fuel poverty in the 2012-14 data, compared to 53.6% in the 2007-09 data. Although this is a small proportion of households overall (0.9%), it equates to 15 000 households in fuel poverty.

In contrast, 29.9% of mains gas-using households in Scotland are in fuel poverty, and 25.2% of those using communal heating are in fuel poverty.

The fuel poverty rate for those using electric heating – the second most common fuel type in Scotland – is 54.5% , a significant increase from the rate of 36.8% in 2007-09. Fuel poverty rates rose over this period for all fuel types, and all non-gas fuels (i.e. not mains gas or communal heating, which is normally gas fired) have fuel poverty rates over 50%.

However it is important to note that moving to gas powered heating methods will not deal with fuel poverty alone – 66.1% of those in fuel poverty use mains gas to heat their home.

In Wales the data shows a slight rise in the fuel poverty rate (26.2% to 27.8%). This has been most pronounced for heating oil users (9.5% of all households) and solid fuel users, who experience fuel poverty rates over 50%. 37.9% of electric heating users are in fuel poverty, which is significantly above the overall rate. In contrast, only 4.4% of users of communal heating – who have a similar income profile to electric heating users – are in fuel poverty. It is notable that the data shows declines in the overall numbers of people using off-gas fuels, alongside a rise in fuel poverty rates. This suggests that the people who are able to switch to mains gas (which has seen a rise in the overall number of users) are not those in fuel poverty. For example, for heating oil the 2008 data shows 67,000 heating oil households in fuel poverty, and the data for 2001 shows 66,000 in fuel poverty, despite a drop in the number of heating oil users of 20,000.

The English data, in contrast to Welsh and Scottish data, shows a drop in the overall fuel poverty rate from 15.6% to 12.1%. Solid fuel and LPG are most associated with fuel poverty (44.3% and 42.5%) respectively. LPG heated homes in England are most likely to be in severe fuel poverty. Mains gas (10.1%) and communal heating (6.4%) show the lowest fuel poverty rates, in line with Scotland and Wales.

There is a link between the cost of heating a home with a particular fuel, the distribution of fuels across income bands, and fuel poverty rates. Fuels that are more common in low income households, electric heating for example, are more likely to be associated with fuel poverty for that reason. The data shows a notable gulf between fuel poverty rates for electric heating and communal heating, which have a similar distribution across income bands, however caution must be taken with these findings as full system costs may not be reflected in the data. As previously noted, communal heating schemes are commonly run by local authorities and housing associations and as such data on costs does not necessarily include standing charges or maintenance costs.

22 The Scottish Government are currently consulting on a fuel poverty definition change for Scotland

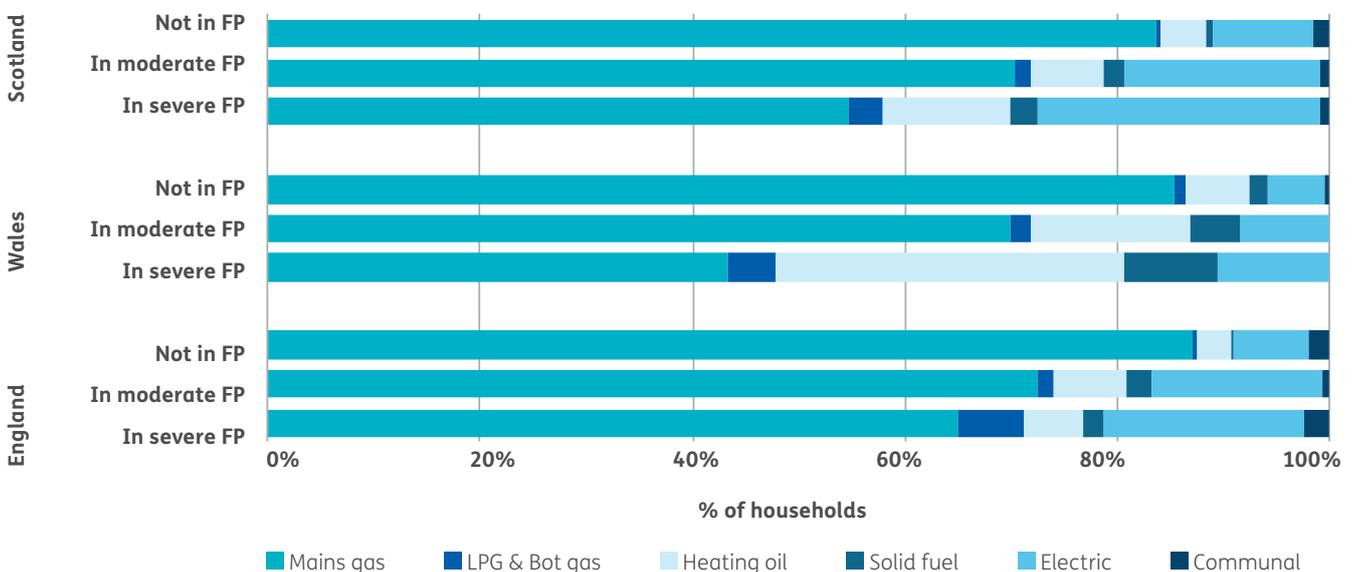
23 [Energy Action Scotland](#)

Table 7: Heating fuel by 10% fuel poverty, Scotland, Wales and England

		Thousand households / row percentage / column percentage						
		Mains gas	LPG & Bot gas	Heating Oil	Solid Fuel	Electric heating	Communal	Total
Scotland	Not in fuel poverty	1,305	6	70	10	147	22	1,560
		83.7	0.4	4.5	0.6	9.4	1.4	100.0
		70.1	28.6	49.5	37.3	45.5	74.8	64.9
	In fuel poverty	557	15	71	17	176	7	843
		66.1	1.8	8.5	2.0	20.8	0.9	100.0
		29.9	71.4	50.5	62.7	54.5	25.2	35.1
Wales	Not in fuel poverty	802	10	57	16	51	4	940
		85.3	1.1	6.1	1.7	5.5	0.4	100.0
		77.3	52.3	46.3	44.6	62.1	95.6	72.2
	In fuel poverty	236	9	66	20	31	0	362
		65.2	2.5	18.2	5.4	8.6	0.1	100.0
		22.7	47.7	53.7	55.4	37.9	4.4	27.8
England	Not in fuel poverty	17,280	85	639	76	1,402	371	19,853
		87.0	0.4	3.2	0.4	7.1	1.9	100.0
		89.9	57.5	77.9	55.7	75.7	93.6	87.9
	In fuel poverty	1,949	62	182	61	450	25	2,730
		71.4	2.3	6.7	2.2	16.5	0.9	100.0
		10.1	42.5	22.1	44.3	24.3	6.4	12.1

- 1 The definition of fuel poverty is slightly different in Scotland than England and Wales, eg Scotland uses a higher temperature standard than England and Wales in 2011.
- 2 Table 7 compares the estimates for the 10% 'full income' definition of fuel poverty in each country.

Figure 12: Main heating fuel by 10% fuel poverty in Scotland, Wales and England



3.3 Tenure

Figure 13 illustrates the use of different heating fuels broken down by tenure.

Across GB mains gas is least commonly used in privately rented properties and most common in local authority rented properties – although in Scotland homes owned with a mortgage are slightly more likely to have mains gas.

In Scotland rented homes are more likely to have electric heating. Social housing is almost entirely either mains gas or electric heating, with a small percentage using communal heating – although almost all communal heating is in social housing, having increased from 16,000 homes in 2007-9 to 29,000 homes in 2012-14. Conversely, the number of social housing homes with electric heating has fallen significantly.

There has also been a substantial increase in the proportion of privately rented homes in Scotland that have mains gas – from 56.2% in 2007-09 to 70.5% in 2012-14 – with smaller rises in the proportion of social housing with mains gas heating.

In Wales, the data indicates a big increase in the number of privately rented homes, many of which have electric heating. This means that while there are more privately rented homes that have gas, electric heating as a proportion of all privately rented homes has gone up. 25.6% of privately rented homes – the most common off-gas tenure – do not use mains gas heating, with 12.3% using either heating oil or solid fuel to heat.

Only 5.3% of local authority owned homes in Wales have electric heating, compared to 16.3% in Scotland. Welsh local authority homes are more likely to have oil fired heating than electric. All of the communal heating in Wales is in social housing, with two-thirds of this heating type in local authority housing.

In England, the 2013 data also shows a decrease in mortgage ownership and an increase in the number of privately rented homes and homes owned outright since the 2008 data. This matches the trend that has been evident for over a decade²⁴. There are 1.3 million additional privately rented homes, with 1 million of these additional homes on mains gas and 300,000 on electric heating.

However there has been little change in the distribution of mains gas heating over the housing tenure types in England. Gas heating is least common in privately rented homes, and RSL (registered social landlord) rented homes, with mortgage owned homes being most likely to have mains gas heating.

In England communal heating is more common in tenure types other than social housing, compared to Wales and Scotland. The data shows substantial growth in communal heating for all tenure types except for local authority properties which is unexpected given that local authorities have largely been driving the development of schemes. Further research would be required to explain this.

3.4 Household type

Figure 14 shows the breakdown of heating fuel use by household type.

In general households with fewer people are less likely to have a mains gas connection. Single-person households, including working-age singles as well as single pensioners, are also more likely to be in fuel poverty than either couples or larger families.

In Scotland, this is likely due to the connection between electric heating and flats, with more than a fifth of single person households having electric heating. The over 60s are the least likely to have gas central heating, and 61.8% of communal heating is used by single people over 60 years old. LPG, oil and solid fuel heating are most commonly used by childless couples and couples with children, with very little use by lone parents, who almost always use gas or electricity.

In Wales, there is less variation in use of mains gas heating across household types. However, couples without children in Wales account for 70.1% of LPG use, but only make up 33.1% of the general population, and heating oil is more likely to be used by couples with children. In line with the Scottish data, electric heating is most common in single person households in Wales.

In England, mains gas use is most common in households with children, and least common in single person households, as elsewhere in GB. Electric heating is most common in single person households as is communal heating.

24 Family resources survey – https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/600465/family-resources-survey-2015-16.pdf

Figure 13: Main heating fuel by tenure in Scotland, Wales and England

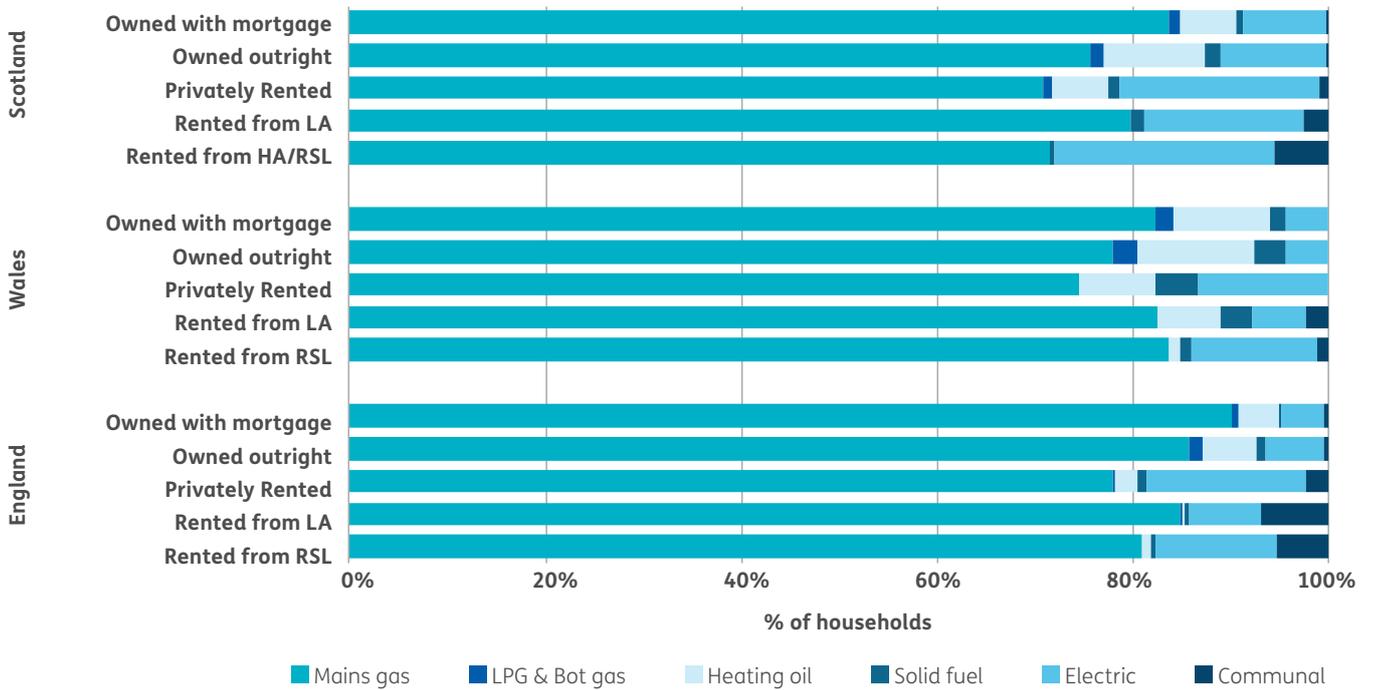
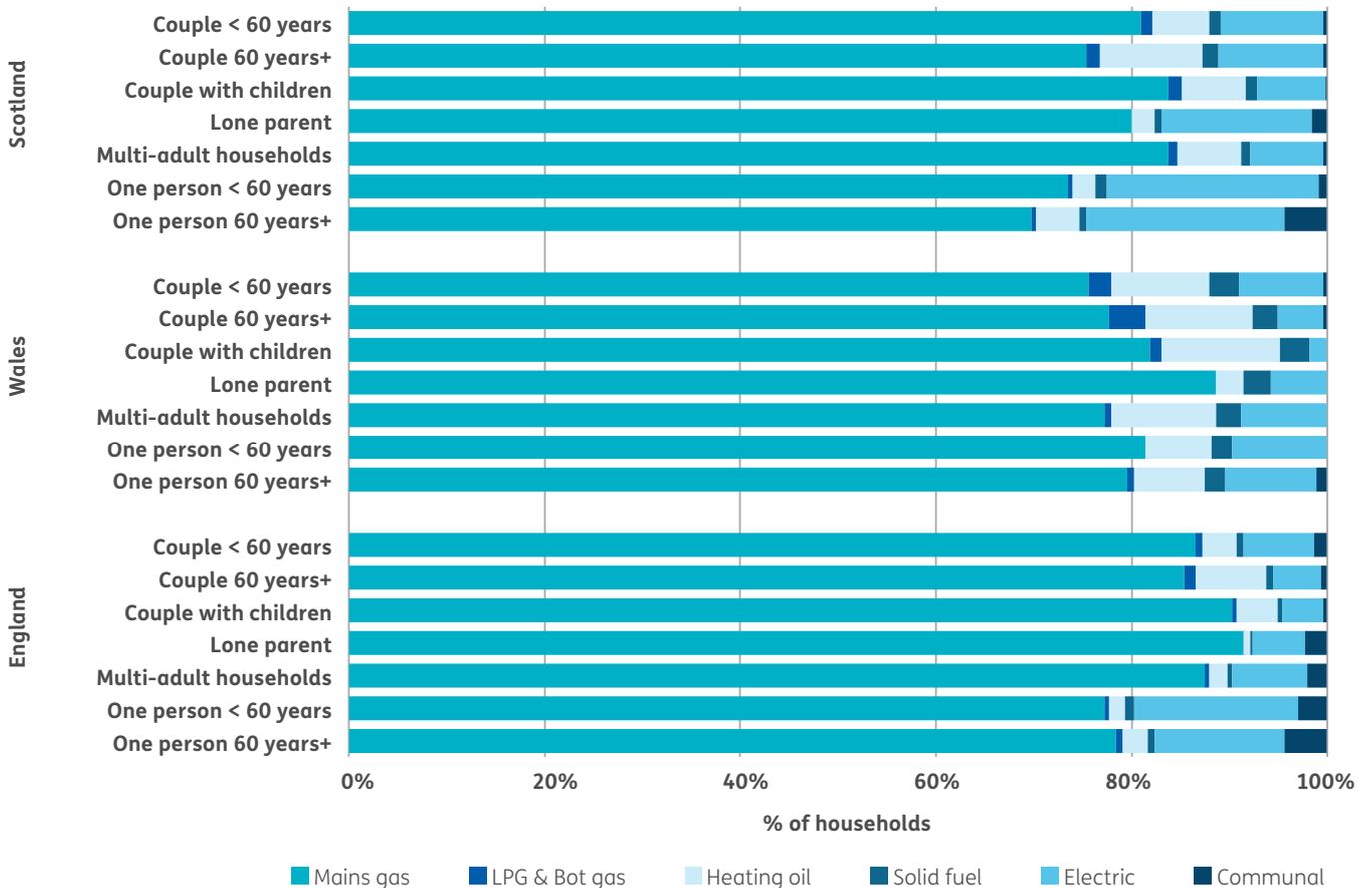


Figure 14: Main heating fuel by household type in Scotland, Wales and England



3.5 Summary of findings

- > In all three countries, households using heating oil are more likely to be in higher income bands.
- > Fuel poverty rates are highest in Scotland at 35% overall, with rates of 28% in Wales and 12% in England²⁵. However all non-gas²⁶ fuels have fuel poverty rates over 50%.
- > 71% of households with LPG heating in Scotland are in fuel poverty (compared to 54% in the 2007-09 data).
- > The fuel poverty rate for those using electric heating in Scotland is 54% (where it is the second most common fuel type), with 38% in Wales and 24% in England.
- > In Wales the number of people using off-gas fuels is declining whilst fuel poverty rates have increased.
- > The Welsh data suggests that those households able to switch to mains gas are not those in fuel poverty.
- > Whilst the definition change means that data is not comparable across the nations, the English data, in contrast to Welsh and Scottish data, shows a drop in the overall fuel poverty rate.
- > In England, solid fuel and LPG are most associated with fuel poverty (44% and 43%) respectively. Mains gas (10%) and communal heating (6%) show the lowest fuel poverty rates.
- > Whilst fuel poverty is more common in households with off-gas fuels, moving to gas powered heating methods will not deal with fuel poverty alone – 66% of those in fuel poverty use mains gas to heat their home.
- > Across GB mains gas is least commonly used in privately rented properties and most common in local authority rented properties.
- > In Scotland rented homes are more likely to have electric heating. There has been a significant increase in the proportion of privately rented homes that have mains gas (56% to 71%).
- > Only 5% of local authority owned homes in Wales have electric heating, compared to 16% in Scotland. Welsh local authority homes are more likely to have oil fired heating than electric.
- > In England communal heating is more common in tenure types other than social housing, compared to Wales and Scotland.
- > Single person households are less likely to have gas heating in all three countries than other household types. They are also more likely to have electric heating than other household types.

²⁵ Calculations based on the 10% fuel poverty indicator.

²⁶ I.e. not mains gas or communal heating which is usually gas-fired





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