

## Areas and types of properties off the gas grid

### Introduction

This article summarises recently published information which can help identify areas and types of properties which are off the gas grid.

DECC and industry partners have been working towards making more data available to help support policy delivery, including renewable heat and fuel poverty. This article covers three sources of data which help build a picture of areas and properties which are off the gas grid:

**1. DECC sub-national estimates of proportion of properties without a gas meter – published December 2013**

Estimates of the proportion of households without a gas meter have been published at local authority (LA) and lower level super output area (LSOA) levels for 2012 and 2011 respectively and are available here: [www.gov.uk/government/collections/sub-national-gas-consumption-data](http://www.gov.uk/government/collections/sub-national-gas-consumption-data).

**2. Xoserve list of off gas postcodes – published November 2013**

A dataset with a list of all postcodes without a record of a gas supply is available on the Xoserve website: [www.xoserve.com/wp-content/uploads/Off-Gas-Postcodes.xlsx](http://www.xoserve.com/wp-content/uploads/Off-Gas-Postcodes.xlsx).

**3. DECC's National Energy Efficiency Data-Framework (NEED) estimates of proportion of properties without a gas meter – published August 2013**

NEED provides estimates of the number of properties without a gas meter by property attributes and household characteristics. Available here: [www.gov.uk/government/collections/national-energy-efficiency-data-need-framework](http://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework).

The above three sources of information complement each other and allow a more comprehensive understanding of the types and locations of properties which do not have access to mains gas. These properties are likely to be using more expensive fuels to heat their homes, such as electricity or oil, and therefore represent a group which could benefit the most from a range of DECC and industry policies.

These data sources represent a significant improvement to DECC's evidence base. There are limitations with each of the sources which should be understood before the data are used to inform decisions. However, despite these limitations, these data provide valuable reference material.

### DECC sub-national off gas grid estimates

On 19 December 2013, DECC published estimates of the number of households within each local authority (2012 data) and lower levels super output area (2011 data<sup>1</sup>) without a gas meter. These estimates are based on the gas meter point data used to produce DECC's sub-national consumption estimates<sup>2</sup>. This is the first time these off gas data have been published for all local authorities in Great Britain.

Working with energy suppliers and other energy industry representatives, DECC receives meter point gas and electricity consumption data for all meters in Great Britain. These data are collected by DECC in order to produce estimates of consumption for small geographic areas; down to LSOA<sup>3</sup>. The meter point data provide an estimate of the number of meters in each area. By comparing the number of domestic gas meters to the number of households in the area, the number of properties without a gas meter can be estimated.

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<sup>1</sup> LSOA estimates for 2012 data will be published on 27 March 2014.

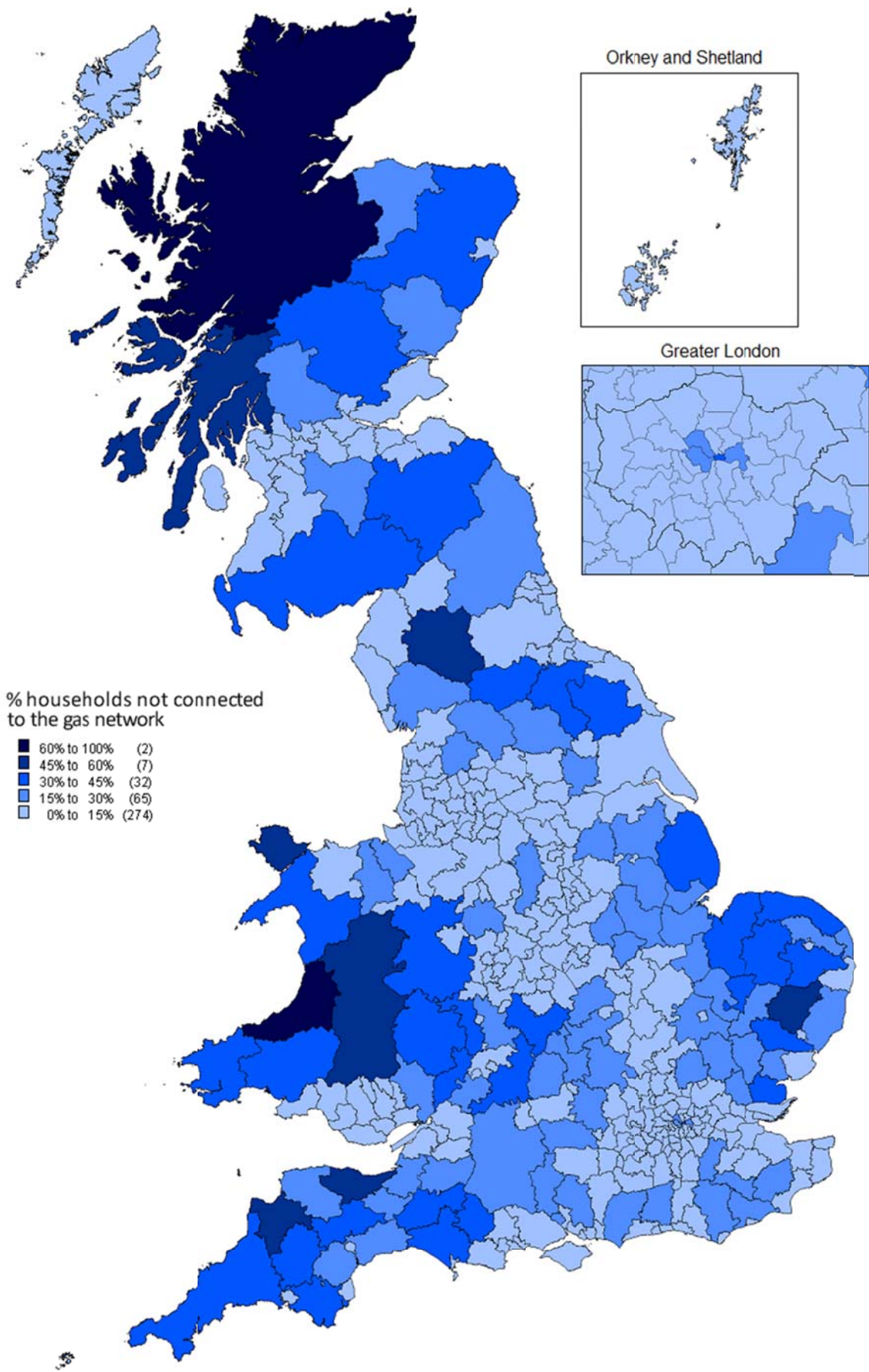
<sup>2</sup> For further details about the analysis, please refer to section 5 of the sub-national gas consumption factsheet which can be accessed here: <https://www.gov.uk/government/collections/sub-national-gas-consumption-data>.

<sup>3</sup> Sub-national gas consumption data are available at: [www.gov.uk/government/collections/sub-national-gas-consumption-data](http://www.gov.uk/government/collections/sub-national-gas-consumption-data) (LA data) and [www.gov.uk/government/statistical-data-sets/lsoa-electricity-and-gas-2011-experimental](http://www.gov.uk/government/statistical-data-sets/lsoa-electricity-and-gas-2011-experimental) (LSOA data).

The published data do not allow the identification of specific households within an area which are off the gas grid, but do allow small geographic areas which have few or no gas meters to be identified. By Region, the South West and Scotland had the highest proportion of properties without a gas meter (20 per cent and 18 per cent respectively).

Figure 1 shows how the proportion of properties without a gas meter varies across local authorities in Great Britain (the numbers in brackets in the key give the number of local authorities which fall into the relevant band). It shows that in the majority of local authorities between 0 and 15 per cent of properties had no gas meter (273 out of 376 local authorities). The data also show that in 2012 there were nine local authorities in Great Britain where more than 45 per cent of properties did not have a gas meter. In 2011 (the latest year for which data are available at LSOA level) 100 per cent of properties had no gas meter in 5 per cent (1,849) of LSOAs.

**Figure 1: Proportion of properties without a gas meter by local authority (DECC sub-national estimates)**



The map gives a strong indication of off gas grid areas; however there are some limitations:

- The gas meter point consumption data is not supplied with a domestic indicator and instead DECC use the gas industry cut off threshold of 73,200kWh to determine whether a gas meter is domestic or not, with all meters with consumption of 73,200 kWh or below assumed to be domestic. This means a number of smaller commercial/industrial consumers are allocated as domestic and therefore estimates of the number of households without gas is an underestimate of the true number. The impact of this assumption on estimates will vary by area.
- Some meters cannot be allocated to a local authority or LSOA due to insufficient or incomplete address information<sup>4</sup>. Approximately 0.2 per cent of domestic meters could not be allocated to a local authority in 2012.
- In some cases incorrect address information may mean meters are allocated to the wrong area. The number of meters which are incorrectly allocated will vary by area.
- In this dataset, there is no differentiation between properties which do not have a gas meter because they are in an area which is off the gas grid and those which are in an area on the gas grid but have a property which is not connected to it (such as inner city blocks of flats).
- For these estimates it is assumed that each property always has one gas meter. Occasionally a property may have more than one gas meter, which would again mean the estimates provided are an underestimate of the true value. In 2012, approximately one per cent of properties allocated as domestic in this dataset had more than one meter.
- Data refer to the data collection during 2012 (or 2011 for LSOA) and therefore does not include any changes which may have occurred since 2012.

### **Xoserve off gas postcodes**

In November 2013, Xoserve<sup>5</sup> published a list of off gas postcodes. The list contains all postcodes - based on the Royal Mail postcode list - where Xoserve hold no record of a gas supply (domestic or non-domestic) by either large or small gas transporters. In some cases a property may have a gas supply but not yet have a meter connected to it, for example for new connections, so although there may appear to be no gas meters, there is a supply in the relevant postcode.

Figure 2 below shows areas of the UK which have access to a gas supply in blue and those which do not in white. The map has been created by shading all postcodes that were not on the Xoserve dataset<sup>6</sup>.

The figure provides a useful insight into which areas of the UK have access to a gas supply. It shows that areas which have no gas supply can be found in all parts of the UK; including urban and rural areas. In urban areas the postcodes which show as off gas are most likely to be near a gas connection, but not have a gas connection within the property (e.g. blocks of flats). The more rural areas are likely to have no gas supply because of the distance from the gas network.

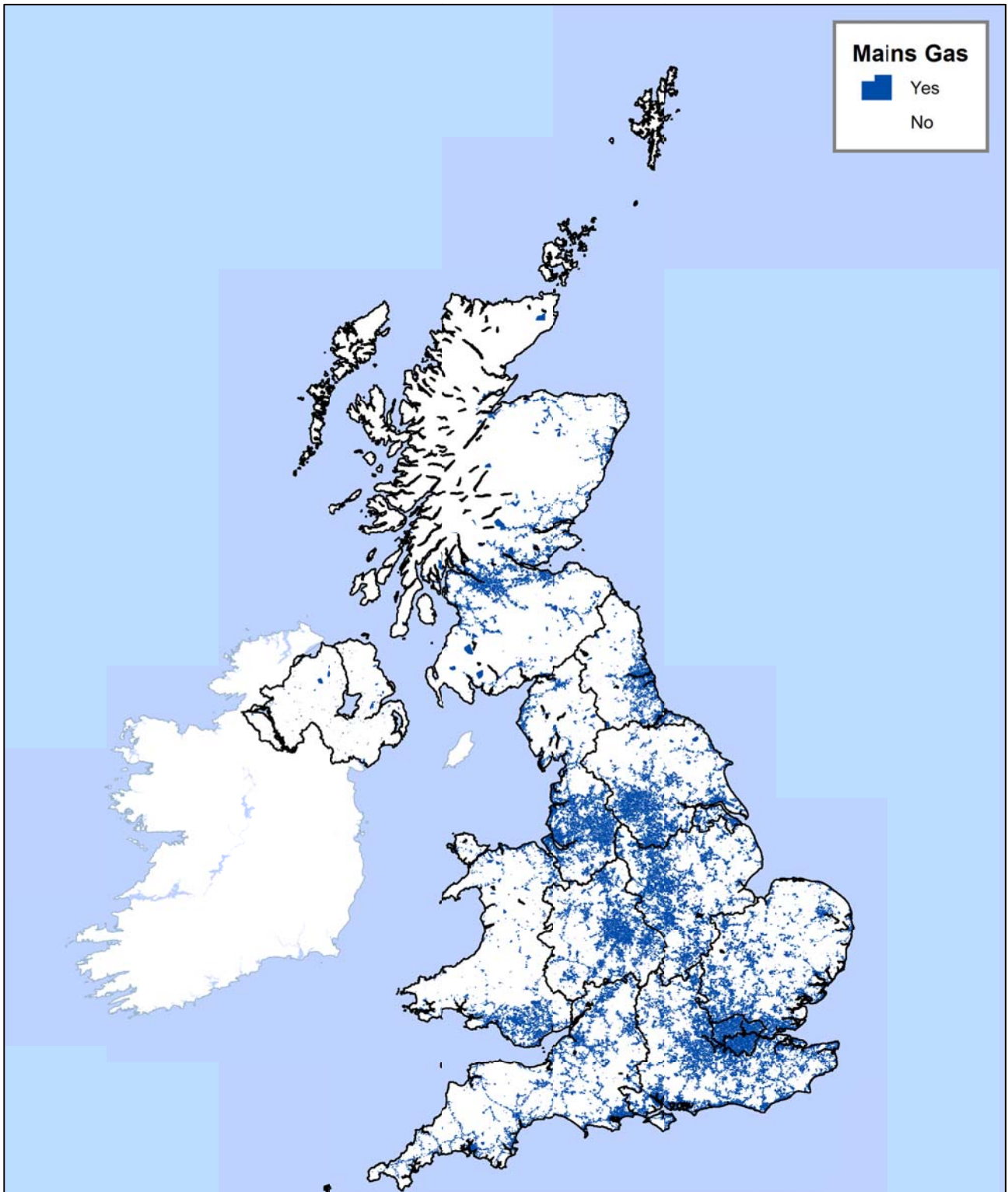
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<sup>4</sup> These meters are included in the overall estimates for Great Britain, but are aggregated in the 'Unallocated' row in the sub-national statistics outputs.

<sup>5</sup> Xoserve provides centralised information and data services for gas transporters and shippers in Great Britain.

<sup>6</sup> The polygon postcode shape file used to create this map is for postcodes as they were in mid-2010. There have been some changes to postcodes between 2010 and 2012 (the point in time the Xoserve data relate to). Where postcodes which existed in 2010 no longer exist in 2012 they will not appear on the Xoserve off gas file and therefore will have been shaded blue on the map; assumed to have access to a gas supply. This assumption is not always correct. One example of this is the postcode area PA80 which was created in June 2010. The map has been correct to show this area is off the gas grid, but a small number of other areas may remain incorrectly allocated. Despite this limitation, the map provides a good representation of the situation in 2012. For detailed information about specific postcodes the Xoserve dataset should be used.

Figure 2: Xoserve off gas grid postcode map<sup>7</sup>



<sup>7</sup> Map produced by Experian. Copyright 2011 Experian Ltd, Copyright NAVTEC 2010. Based on Crown Copyright material and data published by Xoserve.

The dataset published by Xoserve complements the data published by DECC, described above, as it allows identification of lower level geography. The higher level data published by DECC can help with identification of general areas (at LA or LSOA level) while the Xoserve postcode level data can allow users to drill down within these areas. As with the DECC estimates, a number of assumptions have had to be made in order to produce this postcode list.

Both the sub-national and the Xoserve datasets are based on data from Xoserve and the independent gas transporters. This means that the data published by Xoserve has many of the same limitations as the DECC data. However, there are also some differences:

- The Xoserve data lists all postcodes where there is no gas supply recorded in them. There are cases - most commonly new connections - where there is a gas supply with no meter. The DECC dataset is based on meters and therefore would allocate a property with no meter as off gas while the Xoserve dataset should correctly reflect the availability of gas in the area.
- The Xoserve list of postcode areas off the gas grid includes all postcodes where there is no recorded gas supply. A postcode with very few gas supplies recorded in it would not be included in the list.
- The Xoserve data is based on all gas supplies regardless of whether the property being supplied is domestic or non-domestic. Therefore an area will not be classified as off gas on the Xoserve dataset if it contains only non-domestic gas supply. However, these areas would be shown as having no (domestic) gas meters on the DECC dataset.

As with the DECC dataset, the Xoserve dataset is based on a point in time and therefore may not reflect the latest situation, for example if there have been some recent developments in an area. However, it will give a good picture of the situation. It is intended that this dataset will be updated annually.

### **DECC estimates by property type and household characteristics**

In addition to the two data sources above, which give information on geographic areas off the gas grid, the National Energy Efficiency Data-Framework (NEED) can provide more information on the types of properties and households which do not have access to gas. This is estimated by looking at the number of properties which have an electricity meter compared to the number of properties with a gas meter. It is assumed that all properties have an electricity meter and therefore the difference between the number of electricity meters and the number of gas meters is the number of properties without a gas meter.

The data used in NEED are based on the same meter point gas and electricity data used in DECC's sub-national consumption outputs. However, through NEED the data are matched to other sources of data which provide information about each property and its occupants; allowing analysis by these additional attributes. Due to the data matching at household level (rather than postcode or LSOA level) any inaccuracies in address information will have a more pronounced impact with this output. However, match rates are high and therefore results presented should be a good reflection of the population.

Many of the limitations outlined for the above datasets also apply to data in NEED. However, there are some significant differences:

- In NEED a property is assumed to be domestic if it is included on the Valuation Office Agency council tax dataset, and if annual electricity consumption is 25,000kWh or less and annual gas consumption is 50,000 kWh or less. This means the lower consuming non-domestic properties should not be included in this dataset.
- Data are analysed at property level, rather than meter point level. This means that properties are only included in the dataset once, even if they have more than one gas or electricity meter.
- The data analysed in NEED are a sample of data for England and Wales only; data for Scotland are not currently available.

*Special feature – NEED analysis*

More information on NEED is available on the DECC pages of the Government website: [www.gov.uk/government/collections/national-energy-efficiency-data-need-framework](http://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework).

The NEED data suggests that small modern properties are the least likely to have a gas connection, for example, 70 per cent of post 1999 flats have no gas connection. It is likely the majority of these properties without gas are in areas which are on the gas grid, but with no gas connection in the property (e.g. blocks of flats in high density urban areas). The data also show that more generally, the largest and smallest properties are least likely to have a gas connection, for example 43 per cent of properties with a floor area of more than 200 square metres and 42 per cent of properties with a floor area of 50 square metres or less have no mains gas in the home; compared with the average for all properties of 18 per cent. Figure 3 shows the proportion of properties without a gas meter by property age and floor area band.

**Figure 3: Percentage of properties without a gas meter by floor area band and property age**

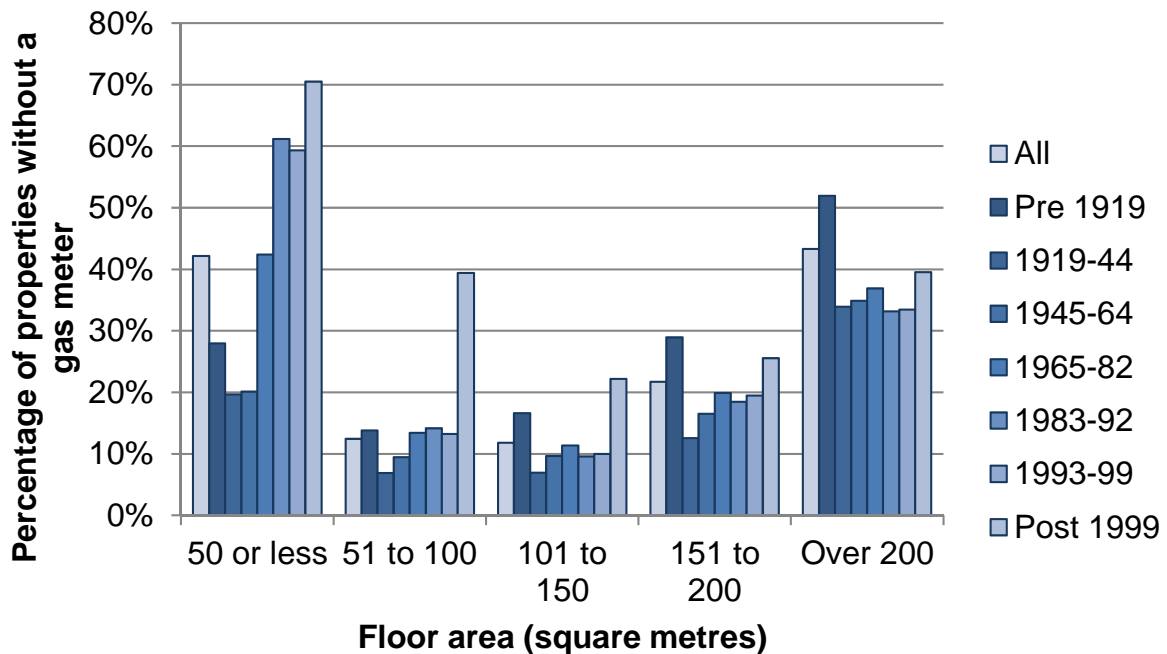
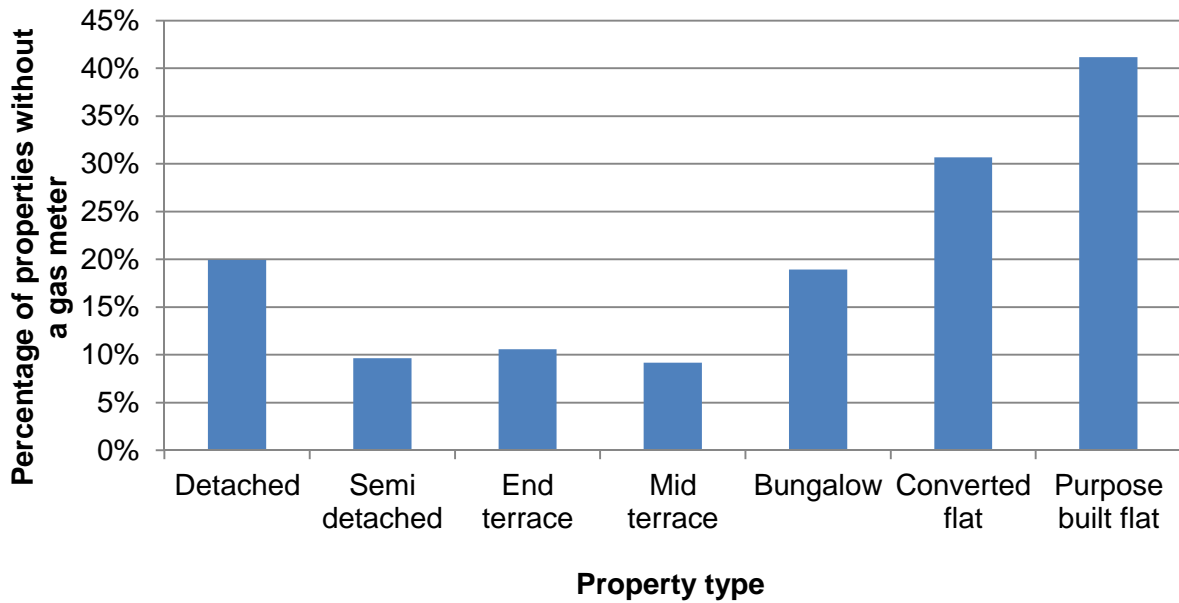


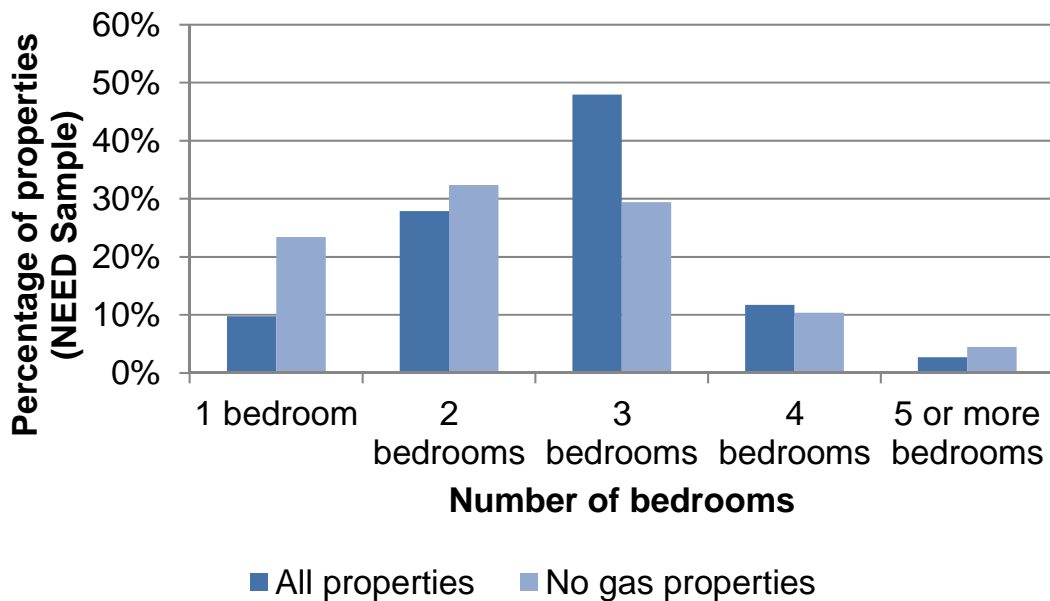
Figure 4 shows the equivalent information for different property types. It shows that purpose built flats are the least likely to have a gas meter, with 41 per cent of these having no gas meter.

**Figure 4: Percentage of properties without a gas meter by property type**



These data can also be used to help understand the composition of the off gas dwelling stock. Figure 5 shows that properties without gas are more evenly spread between one, two and three bedroom properties compared to the housing stock more generally. For example, 48 per cent of all properties have three bedrooms and only 29 per cent of properties without gas have three bedrooms.

**Figure 5: Distribution of total and off gas housing stock by number of bedrooms.**



Further breakdowns of the data from NEED are available on the DECC pages of the Government website (see ad hoc requests 2013, off gas): [www.gov.uk/government/collections/national-energy-efficiency-data-need-framework](http://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework).

**Summary**

The table below shows a summary of the three data sources. It includes a summary of the strengths and weaknesses of each source as well as information on when to use each of the sources.



**Table 1: Summary of data sources**

	<b>DECC Off gas estimates</b>	<b>Xoserve off gas postcodes</b>	<b>NEED Off gas estimates</b>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Provides assessment of level of gas connection in an area – helping to identify general areas and indication for inner city as well as rural areas.</li> <li>• Covers domestic only – so helps with domestic policies.</li> </ul>	<ul style="list-style-type: none"> <li>• Lower level geography (postcode).</li> <li>• Includes gas supply even if no meter yet installed.</li> <li>• Domestic and non-domestic (strength depending on purpose).</li> </ul>	<ul style="list-style-type: none"> <li>• Only source of information about types of properties and occupants.</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Information not available at postcode level.</li> <li>• No information on gas supply if no meter installed.</li> <li>• Domestic cut-off based on arbitrary consumption figure used by industry.</li> </ul>	<ul style="list-style-type: none"> <li>• Binary variable.</li> </ul>	<ul style="list-style-type: none"> <li>• Limited detail on geography.</li> </ul>
<b>When to use</b>	<ul style="list-style-type: none"> <li>• To identify areas with low numbers of households with a gas meter.</li> </ul>	<ul style="list-style-type: none"> <li>• To identify whether a specific geographic location has a gas supply.</li> </ul>	<ul style="list-style-type: none"> <li>• To identify types of properties which may benefit from support.</li> </ul>

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