

## Visualising non-gas grid households in Great Britain

### Introduction

This article summarises on-going work being carried out by the Department of Energy and Climate Changes (DECC), with support from industry partners, to make more data on non-gas properties available to support policy development and delivery.

DECC has already published a range of evidence on households not connected to the gas grid<sup>1</sup>, including estimates of the number of non-gas households at Lower Layer Super Output Area (LSOAs)<sup>2</sup>. With new information on estimated distance of non-gas properties from the mains gas network, DECC and industry partners are producing better visualisations to make outputs more accessible to a wider audience. A map will also capture other key statistics that will allow better targeting of relevant policies such as fuel poverty, where one of the key focuses outlined in the Fuel Poverty Strategy<sup>3</sup>, published March 2015, is delivering change for non-gas fuel poor households.

### Statistics on non-gas estimates

Estimates of households not connected to the gas network are derived from existing published statistics. DECC publish sub-national gas consumption estimates, using meter point gas consumption data for all meters in Great Britain, based on data provided by energy suppliers and other energy industry representatives.

The meter point data provide an estimate of the number of meters in each area. By comparing the number of domestic gas meters in the area to the number of households, from the 2011 Census, the number of properties without a gas meter can be estimated. Further information on the methodology used, including the limitations of the dataset can be found in 'Sub-national consumption statistics: Methodology and guidance booklet' on the DECC website<sup>4</sup>. It is important to highlight that the published data do not allow the identification of specific households within an area, but do allow small geographic areas which have a few or no gas meters to be identified. Figure 1 provides a snapshot of the 2013 local authority dataset<sup>5</sup>.

**Figure 1: Sample of DECC's 2013 non-gas estimates at LSOA**

LSOA estimates of households not connected to the gas network, 2013 <sup>1</sup>					
LSOA Name	Lower Layer Super Output Area (LSOA) Code	Number of domestic gas meters	Number of households from 2011 Census <sup>2</sup>	Estimated number of households not connected to the gas network <sup>3</sup>	Estimated percentage of households not connected to the gas network (gas meters to number of households)
City of London 001A	E01000001	64	876	812	93%
City of London 001B	E01000002	19	830	811	98%
City of London 001C	E01000003	569	817	248	30%
City of London 001E	E01000005	505	467	0	0%
Barking and Dagenham 016A	E01000006	405	543	138	25%
Barking and Dagenham 015A	E01000007	479	612	133	22%
Barking and Dagenham 015B	E01000008	434	521	87	17%
Barking and Dagenham 016B	E01000009	578	638	60	9%
Barking and Dagenham 015C	E01000010	701	1103	402	36%
Barking and Dagenham 016C	E01000011	464	457	0	0%
Barking and Dagenham 015D	E01000012	427	698	271	39%
Barking and Dagenham 013A	E01000013	655	650	0	0%
Barking and Dagenham 013B	E01000014	631	638	7	1%
Barking and Dagenham 009A	E01000015	848	836	0	0%
Barking and Dagenham 009B	E01000016	636	626	0	0%
Barking and Dagenham 009C	E01000017	660	609	0	0%
Barking and Dagenham 009D	E01000018	627	612	0	0%
Barking and Dagenham 023A	E01000019	503	504	0	0%
Barking and Dagenham 023B	E01000020	632	650	18	3%
Barking and Dagenham 008A	E01000021	504	593	89	15%
Barking and Dagenham 008B	E01000022	481	474	0	0%

<sup>1</sup> [www.gov.uk/government/statistics/energy-trends-december-2013-special-feature-article-off-gas-properties](http://www.gov.uk/government/statistics/energy-trends-december-2013-special-feature-article-off-gas-properties)

<sup>2</sup> Lower Super Output Areas in England and Wales have a minimum size of 1,000 residents or 400 households, but have an average of 1,500 residents. Following the 2011 Census, there are now 34,753 LSOAs. Further information on statistical geographies can be found here, [www.gov.uk/government/statistics/regional-energy-data-guidance-note](http://www.gov.uk/government/statistics/regional-energy-data-guidance-note)

<sup>3</sup> [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/408644/cutting\\_the\\_cost\\_of\\_keeping\\_warm.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/408644/cutting_the_cost_of_keeping_warm.pdf)

<sup>4</sup> [www.gov.uk/government/statistics/regional-energy-data-guidance-note](http://www.gov.uk/government/statistics/regional-energy-data-guidance-note)

<sup>5</sup> The 2013 non-gas grid estimates at Local Authority and LSOA level were published on 19 February 2015 [www.gov.uk/government/collections/sub-national-gas-consumption-data](http://www.gov.uk/government/collections/sub-national-gas-consumption-data)

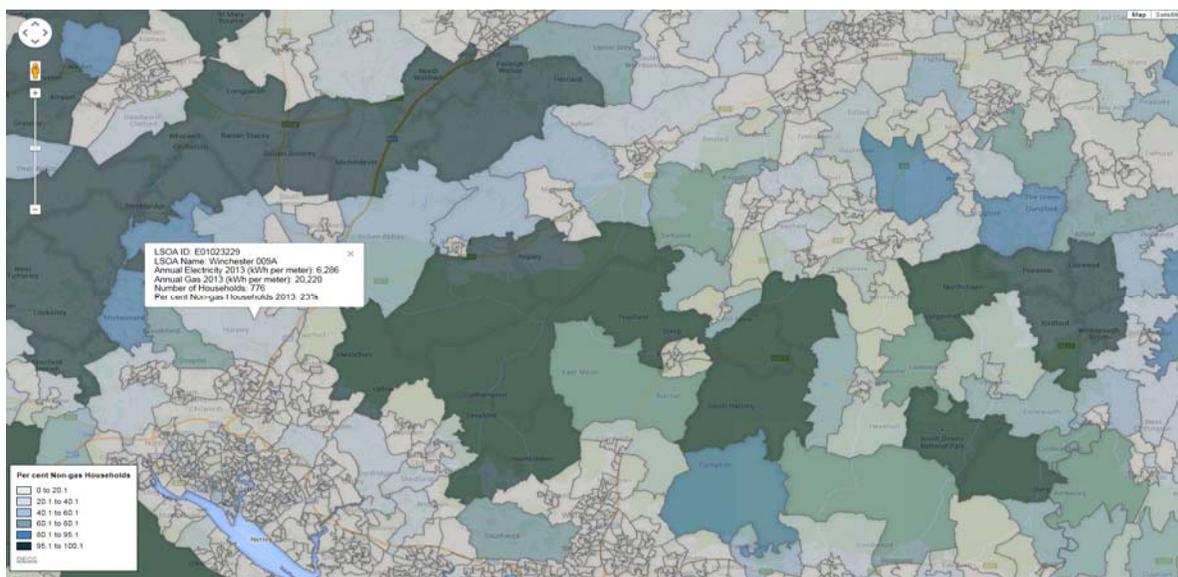
## Special feature – Visualising non-gas grid households in GB

It is estimated that around 10 per cent of household in Great Britain are not connected to the gas network. By region, the South West and Scotland has the highest proportion of properties without a gas meter, with 20 per cent and 17 per cent respectively, although within these regions there are some LSOAs where most of the properties are connected.

### Current non-gas mapping

The first step DECC has taken to visualize the distribution of non-gas households in Great Britain, is by using a free online tool, Google Fusion Tables. This is an experimental data visualization web application to gather, visualize, and share data tables<sup>6</sup>. By loading the non-gas estimates and other data, and using boundary line information of all LSOAs in England and Wales, the map shows the distribution of non-gas grid connections, where the darker shades represent LSOAs with a high percentage of properties not connected to the gas mains, and lighter shades represent low percentages i.e. areas with fewer households not connected to the gas network. The other benefit of this tool is the ability to show additional information for each LSOA on the map, such as electricity and gas consumption; and the number of households (Figure 2). The map is available to view online<sup>7</sup>.

**Figure 2: Snapshot of Google Fusion Table Map with 2013 non-gas estimates at LSOA level**



The dataset containing the non-gas estimates along with the additional information, can be downloaded from the map, by clicking on the DECC hyperlink in the legend of the map. Guidance on how to download the dataset along with instructions on how to create a map using this tool has been published on DECC's sub-national consumption gas statistics webpage<sup>8</sup>.

### New non-gas data

DECC have obtained from industry partners data identifying the location of the gas grid from all the main network operators. These data have been used together with location details of all domestic properties, and all domestic properties with a gas meter from datasets held by DECC to estimate the distances from the mains network to each non-gas property in Great Britain.

<sup>6</sup> <https://support.google.com/fusiontables/answer/2571232?hl=en>

<sup>7</sup> [www.google.com/fusiontables/embedviz?q=select+col3%3E%3E0+from+1Pc8zUyy63Y7GiBOHIQW0\\_i5YMsuQxgWe-Y0F\\_9u4&viz=MAP&h=false&lat=51.046086328970496&lng=-1.0156940307617787&t=1&z=11&col3%3E%3E0&y=2&tmplt=2&hml=GEOCODABLE](http://www.google.com/fusiontables/embedviz?q=select+col3%3E%3E0+from+1Pc8zUyy63Y7GiBOHIQW0_i5YMsuQxgWe-Y0F_9u4&viz=MAP&h=false&lat=51.046086328970496&lng=-1.0156940307617787&t=1&z=11&col3%3E%3E0&y=2&tmplt=2&hml=GEOCODABLE)

<sup>8</sup> [www.gov.uk/government/collections/sub-national-gas-consumption-data](http://www.gov.uk/government/collections/sub-national-gas-consumption-data)

## Special feature – Visualising non-gas grid households in GB

The final dataset will include summaries of the distance of non-gas households from the gas network grouped by properties within 23 meters of distribution network<sup>9</sup> within 50m; within 500m; within 2km; and greater than 2km. They have then been aggregated at LSOA level and are currently in the process of being mapped with an overlay of information including:

- Estimate of number of properties with a mains gas connection (LSOA data)<sup>10</sup>
- Indices of Multiple Deprivation (LSOA data)<sup>11</sup>
- ECO Carbon Saving Communities Obligation and rural sub-obligation (LSOA data)<sup>12</sup>
- Penetration of energy efficiency measures (LA data)<sup>13</sup>
- Rural-urban classification (based on Defra definition)<sup>14</sup>
- Census data e.g. Main heating fuel (split by: no central heating; gas; electricity; oil; solid; other; two or more types)<sup>15</sup>, and
- Benefits claimant counts (aggregate data)<sup>16</sup>

This dataset will then be published on the sub-national gas consumption statistics webpage on the DECC website on Thursday 26th March 2015.

The mapping output based on these data will show more data than the Google Fusion tables shown above, and a postcode level map will also be produced which will be made available under licence to organisations supporting delivery of government policy. The interactive map will be published later in Spring 2015, when available.

### Benefits of visualising non-gas households

The overall purpose of the project is to produce a clear, user-friendly, visually appealing map that is informative, and supports the development and delivery of policy. The maps should help users to understand where there might be potential:

- for specific technologies or energy efficiency measures;
- for gas grid extensions;
- to support to fuel poor households;
- to support delivery of ECO, especially Carbon Saving Communities Obligation and rural sub-obligation.

### Feedback

DECC welcomes your feedback on this project and are keen to learn how these datasets and tools are being used. We would also be interested in suggestions on other free online visualisation tools that could be useful in presenting DECC's local area statistics.

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<sup>9</sup> The Gas Act 1986 contains a provision giving consumers a right to be connected to the gas network if they are within 23m of a distribution main

<sup>10</sup> [www.gov.uk/government/statistics/lsoa-electricity-and-gas-2013](http://www.gov.uk/government/statistics/lsoa-electricity-and-gas-2013)

<sup>11</sup> Making use of the latest indices in each country:

England 2010: [www.gov.uk/government/statistics/english-indices-of-deprivation-2010](http://www.gov.uk/government/statistics/english-indices-of-deprivation-2010)

Wales 2014: <http://wales.gov.uk/statistics-and-research/welsh-index-multiple-deprivation/?lang=en>

Scotland 2012: [www.gov.scot/Topics/Statistics/SIMD](http://www.gov.scot/Topics/Statistics/SIMD)

<sup>12</sup> The CSCO areas are available in a spreadsheet towards a bottom of this page: [www.gov.uk/government/consultations/the-future-of-the-energy-company-obligation](http://www.gov.uk/government/consultations/the-future-of-the-energy-company-obligation).

For the rural sub-obligation, a household must be within a settlement of fewer than 10,000 inhabitants i.e. rural by the Defra definition of Rural-urban), see section 5, of the carbon saving community obligation rural and low income areas publications shows how rural areas are eligible for CSCO:

[www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/48405/5536-carbon-saving-community-obligation-rural-and-low.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48405/5536-carbon-saving-community-obligation-rural-and-low.pdf)

<sup>13</sup> [www.gov.uk/government/statistics/green-deal-energy-company-obligation-eco-and-insulation-levels-in-great-britain-quarterly-report-to-september-2014](http://www.gov.uk/government/statistics/green-deal-energy-company-obligation-eco-and-insulation-levels-in-great-britain-quarterly-report-to-september-2014)

<sup>14</sup> [www.gov.uk/government/collections/rural-urban-definition](http://www.gov.uk/government/collections/rural-urban-definition)

<sup>15</sup> [www.ons.gov.uk/ons/guide-method/census/2011/census-data/index.html](http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/index.html)

<sup>16</sup> [www.gov.uk/government/collections/dwp-statistics-tabulation-tool](http://www.gov.uk/government/collections/dwp-statistics-tabulation-tool)