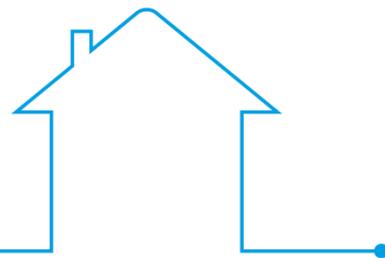




Department
of Energy &
Climate Change

ANNEX B

Scotland



June 2016

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Introduction

Data for Scotland are not included in the NEED analysis in the main report as property attribute data equivalent to that held at the Valuation Office Agency only covers England and Wales. DECC is working with the Scottish Government to acquire equivalent data from the Scottish Assessors. While these data are not available, provisional estimates based on modelled data continue to be produced and are presented in this Annex.

These results have been produced using the same methodology used for England and Wales. This includes using the meter point gas and electricity consumption data for properties in Scotland¹, as published in DECC's sub-national consumption publications^{2,3}. It also takes information from the Homes Energy Efficiency Data-Framework (HEED), Energy Company Obligation (ECO), Green Deal & Feed-in Tariffs on energy efficiency measures installed in households. The main difference is that modelled data from Experian have been used for property attributes and household characteristics in this analysis, while in the analysis for England and Wales modelled data are only used for household characteristics.

The use of modelled data for property attributes in Scotland allows analysis to be undertaken. However, it also increases uncertainty in the estimates. Therefore these results should be treated as provisional and interpreted with caution. To help reduce uncertainty, the results for Scotland are based on all properties in Scotland that could be matched to valid consumption data, unlike England and Wales where a sample of properties is used for analysis⁴.

This annex outlines the domestic gas and electricity consumption statistics for 2014 (and 2011 to 2013 in the accompanying tables) by property attributes and household characteristics. Statistics on gas consumption savings made from properties installing energy efficiency measures in Scotland during 2013 will not be published in this edition of the report. Preliminary assessment of the data showed that there were far too few properties⁵, which satisfied the criteria used in creating the intervention groups for the

¹ Record level consumption data are not available for non-metered fuels.

² <https://www.gov.uk/government/collections/sub-national-gas-consumption-data>

³ <https://www.gov.uk/government/collections/sub-national-electricity-consumption-data>

⁴ Match rates for England, Wales and Scotland combined are shown in Annex A – Quality Assurance.

⁵ Cavity wall – 20 records; loft insulation – 150 records; solid wall insulation – 20 records; and condensing boilers – less than 10 records.

analysis⁶ - this was a result of the CERT and CESP scheme closures at the end of 2012 and the start of the transition of measures installed under the Green Deal and ECO schemes during early 2013⁷. It is expected that the counts will be higher for the analysis in 2017 publication, which will be based on measures installed during 2014.

⁶ Further information on the methodology can be found in the NEED methodology note <https://www.gov.uk/government/publications/domestic-national-energy-efficiency-data-framework-need-methodology>

⁷ Monthly Green Deal statistics can be found online <https://www.gov.uk/government/statistics/household-energy-efficiency-national-statistics-detailed-report-2015>

Domestic consumption

Consumption figures presented in this section of the report are based on all properties located in Scotland with valid domestic gas or electricity consumption⁸ and are rounded to the nearest 100 kWh. All gas consumption data are presented on a weather corrected basis, this means that the consumption for each household has been adjusted to account for differences in temperature and wind in each year within the relevant geographic area. This allows for a more consistent comparison of gas consumption over time; however users should note that the weather correction factor applied to the consumption data is modelled and as such may not entirely remove the effects of extreme weather in a single year.

In 2014, the median⁹ gas consumption for properties in Scotland was 12,900 kWh with median electricity consumption at 3,600 kWh. The equivalent figures for England and Wales are 12,000 kWh and 3,300 kWh respectively, showing that typical consumption in Scotland is higher than in England and Wales (7 per cent difference for both fuels).

Table B1: Annual consumption summary statistics for Scotland, 2014

| | (kWh) | | | | |
|-------------|--------|--------------------|----------------|--------|----------------|
| | Mean | Standard deviation | Lower quartile | Median | Upper Quartile |
| Gas | 14,300 | 8,400 | 8,500 | 12,900 | 18,400 |
| Electricity | 4,700 | 4,300 | 2,300 | 3,600 | 5,400 |

There is more variation in electricity consumption than gas consumption. This is because gas is primarily used for heating and cooking, while electricity can be used for a range of purposes.

⁸ Valid domestic gas consumption is taken to be values between 100 kWh and 50,000 kWh (inclusive). Domestic electricity consumption is considered valid if it is between 100 kWh and 25,000 kWh (inclusive). Gas and electricity consumption values which are suspected to be estimated readings are excluded.

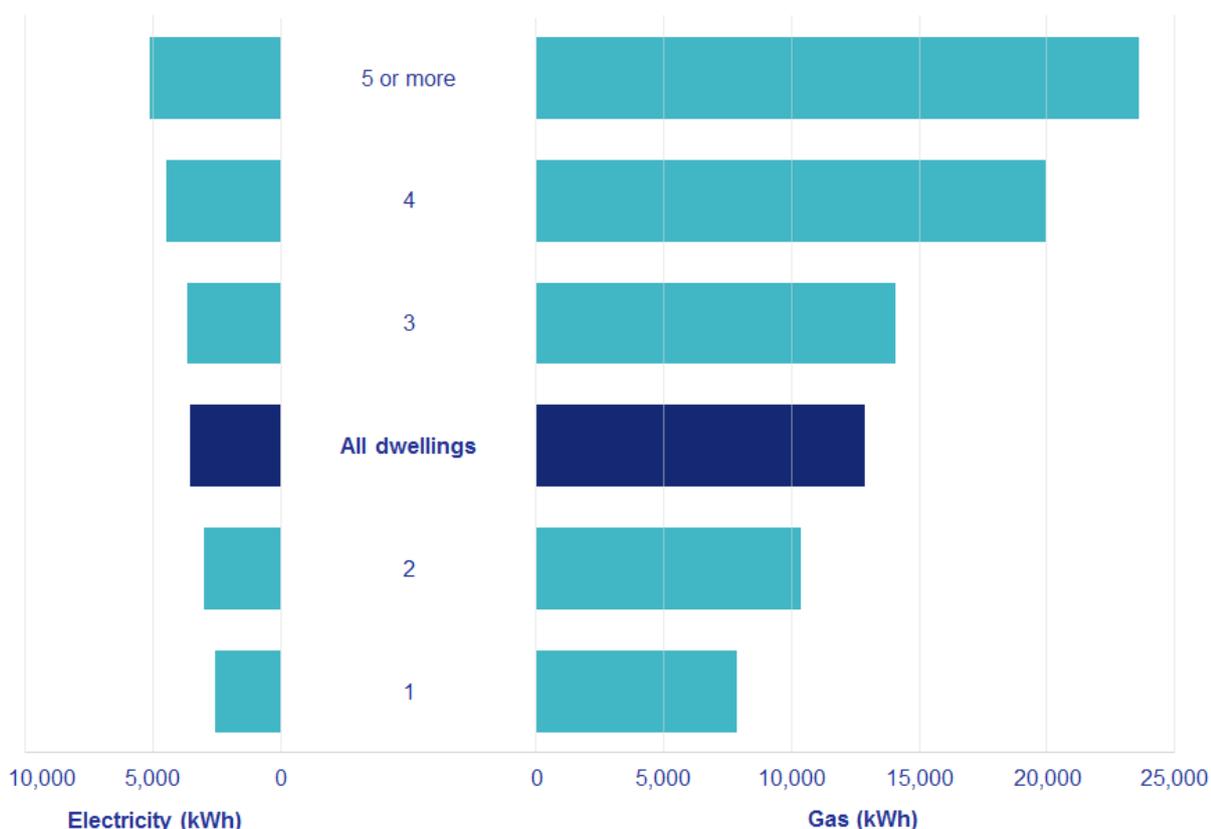
⁹ The median is the middle value of the distribution, i.e. the consumption value where half of the households have lower consumption and half have higher. It is used as a more appropriate measure of typical consumption than the mean because the mean can be influenced by a relatively small number of high consuming households that are not typical of the rest of the population.

Domestic consumption by property attributes and household characteristics

Number of bedrooms

Properties with more bedrooms typically consume a larger amount of gas and electricity than properties with fewer bedrooms since there is more space to heat. Properties with five or more bedrooms typically consumed 23,600 kWh of gas and 5,100 kWh of electricity. The equivalent figures for properties with one bedroom are 7,800 kWh of gas and 2,600 kWh of electricity. When looking at typical consumption for properties in England and Wales by number of bedrooms the same pattern is seen, i.e. properties with more bedrooms typically consume more gas and electricity. There is no relationship between the large amounts of gas and electricity use in properties with more bedrooms and a greater number of adults in a household. Seventy per cent of properties with 5 or more bedrooms contain a maximum of 2 adults.

Figure B1: Median consumption (kWh) by number of bedrooms, 2014



Footnotes:

1. Consumption data from sub-national gas and electricity consumption statistics 2014, <https://www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics>
2. Property attribute data sourced from Experian as at January 2016

The number of bedrooms can also act as an indicator of property size, as there is a strong correlation between the number of bedrooms in a property and the floor area of the property.

Property type

Detached properties have the largest typical consumption for both gas and electricity. Bungalows have the second highest median consumption for gas and electricity at 16,300 kWh and 3,800 kWh respectively - a finding which is not consistent with England and Wales where instead semi-detached properties typically consume the second highest amount of gas and electricity. This is because Scotland has proportionally more, larger sized bungalows (based on number of bedrooms) compared to England and Wales, where there are more semi-detached properties.

Figure B2: Median consumption (kWh) by property type, 2014



Footnotes:

1. Consumption data from sub-national gas and electricity consumption statistics 2014, <https://www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics>
2. Property attribute data sourced from Experian as at January 2016

Household characteristics

The household characteristics of household income, tenure and number of adult occupants for Scotland are based on the same source as data for England and Wales. This allows direct comparisons between typical consumption results from Scotland with those from England and Wales. Scottish households typically consume more gas than households in England and Wales, with this difference generally becoming wider as income increases. Typical gas consumption of households with an income less than £15,000 in Scotland in 2014 was 10,400 kWh compared with 10,000 kWh in England and Wales (a difference of 4 per cent); for households with an income over £150,000 typical gas consumption in Scotland was 27,200 kWh compared with 21,600 kWh in England and Wales (a difference of 26 per cent)¹⁰.

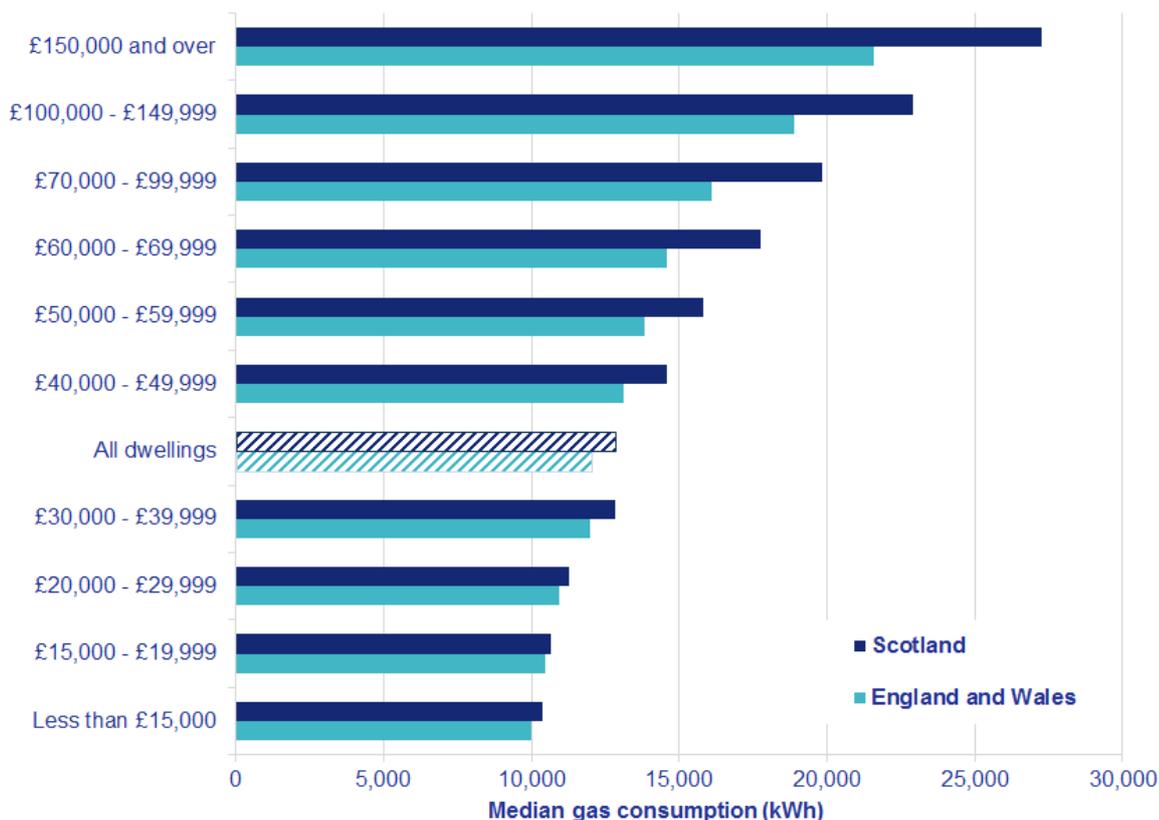
Fifty-one per cent of households with an income of over £150,000 lived in detached properties who typically consumed the most gas (28,600) compared to other property types in this income band compared. This result is similar to England and Wales with 44 per cent of detached properties consuming 25,800 kWh.

Despite this, gas consumption exhibited a very similar pattern when comparing Scotland with England and Wales, with typical gas consumption generally increasing as household income increased.

On average, electricity consumption for each income band follows a very similar pattern to gas.

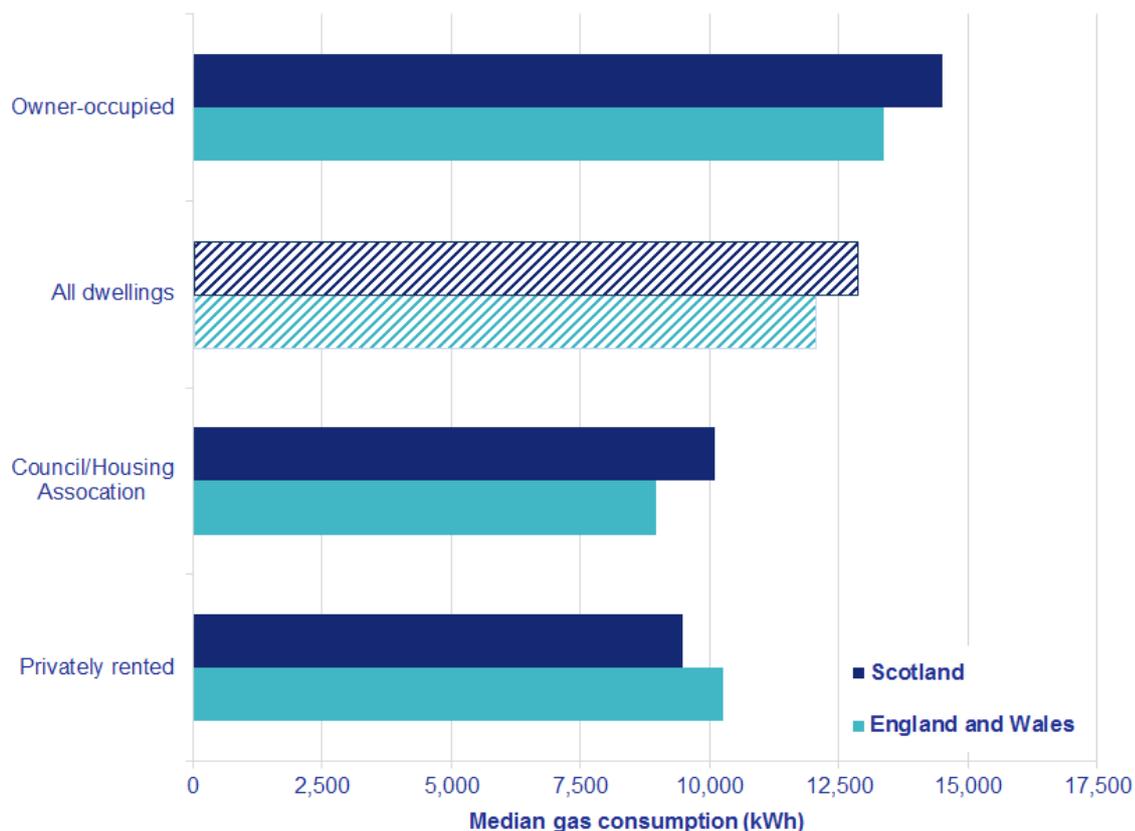
¹⁰ Only 0.4 per cent of all properties in Scotland had household income of £150,000 or more compared to 0.9 per cent of properties in England and Wales. It is possible the figure for Scotland is biased by a relatively small number of very wealthy higher consumers.

Figure B3: Median domestic gas consumption (kWh) by household income, 2014



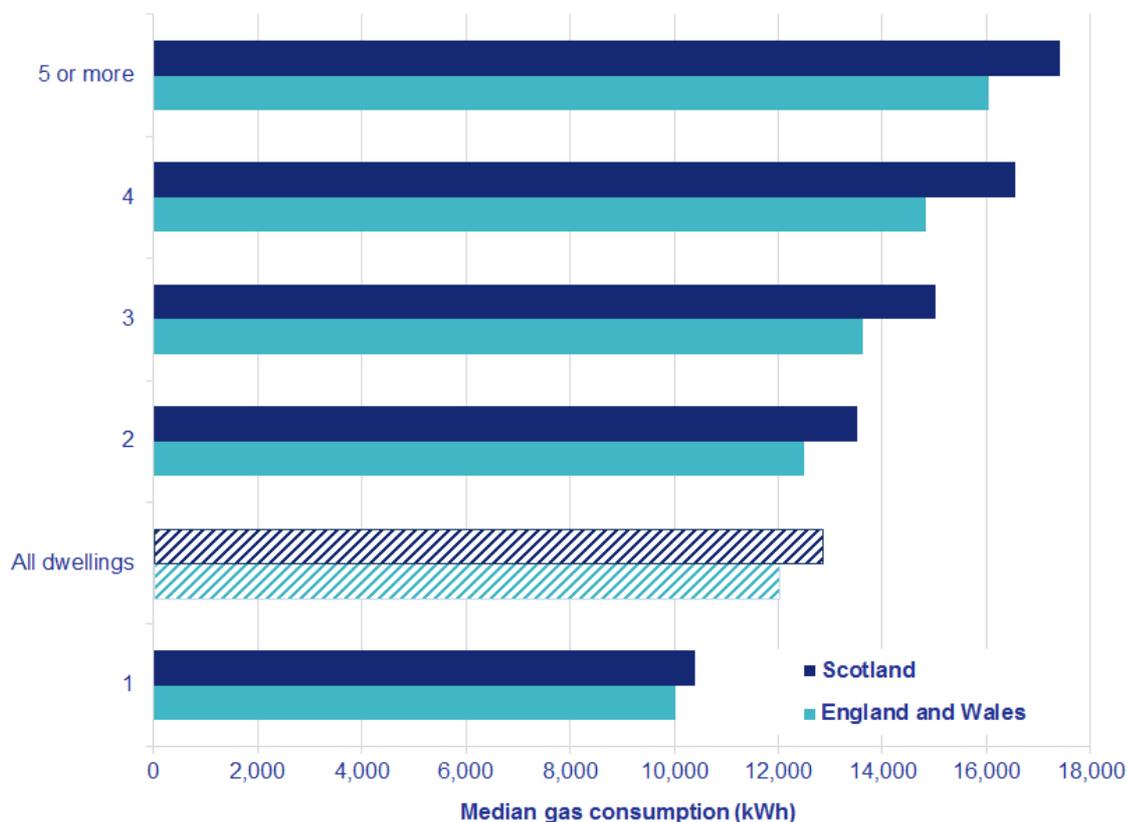
For both Scotland and England and Wales, owner-occupiers were the highest typical consumers for gas compared to the other tenure groups (14,500 kWh in Scotland and 13,400 kWh in England and Wales). This is because 65 per cent of owner-occupied properties in Scotland (and around 75 per cent in England and Wales) were larger in size (3 or more bedrooms) compared to privately rented properties and council housing, which generally consists of smaller properties (1 or 2 bedrooms). Households typically consuming lower levels of gas were in different tenure categories when comparing Scotland and with England and Wales (privately rented, 9,500 kWh in Scotland and council housing, 9,000 kWh for England and Wales).

Figure B4: Median domestic gas consumption (kWh) by tenure, 2014



Owner occupiers also consume more electricity compared to the other tenure groups. Scottish owner-occupiers typically consume 3,700 kWh, higher than England and Wales (3,500 kWh). Council households in Scotland and England and Wales generally consume the least amount of electricity of around 3,000 kWh. Across the tenure groups, in both Scotland and England and Wales, flats typically consumed the least amount of electricity, of which council houses consumed less than privately rented and owner-occupied properties.

Figure B5: Median domestic gas consumption (kWh) by number of adults in a household, 2014



Scottish households typically consume more than households in England and Wales, with this difference generally getting larger as the number of occupants increases. Typical gas consumption of households with one adult occupant in Scotland was 10,400 kWh compared with 10,000 kWh in England and Wales (a difference of 400 kWh); for households with five or more adult occupants typical consumption in Scotland was 17,400 kWh compared with 16,000 kWh in England and Wales (a difference of 1,400 kWh). A similar pattern is observed for electricity consumption.

Figures used in this annex can be found in the headline and additional tables that are published as two Excel documents alongside this annex: Scotland consumption headline tables 2013 and Scotland consumption additional tables 2014. The additional statistics describe the pattern of consumption, such as the standard deviation and quartiles. See Annex F for details of all published tables.