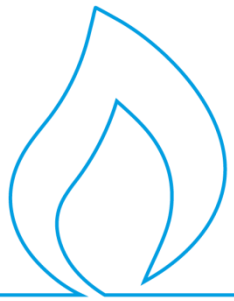
Department of Energy & Climate Change

ANNEX E

Analysis of weather correction on gas consumption statistics, 2014



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Introduction

Since 2005, DECC have been collecting annualised consumption readings for all gas meters in Great Britain in order to produce aggregate statistics at various geographical levels. These readings have been corrected for the effects of weather i.e. any variations in consumption which relate to fluctuations in temperature or wind from normal conditions are removed. The data are obtained from Xoserve and groups of Independent Gas Transporters (IGTs).

This analysis gives the user an insight into how the gas consumption data provided to DECC are weather corrected. With weather correction factor data from Xoserve, the analysis also attempts to re-apply the weather effect to the gas consumption data before assessing the differences between weather corrected and unweather corrected statistics at a regional level. This annex shows that annualised consumption for all regions except the South East have been lowered for 2014 as a result of applying weather correction factors.

DECC have only used non-daily metered data received by Xoserve during 2015, which covers approximately 94 per cent all gas meters in Great Britain. It does not include data received by the IGTs because we do not hold the necessary correction factors at meter point level for all IGTs to be included in the analysis.

Methodology

Xoserve provide annualised estimates of consumption for all Meter Point Reference Numbers (MPRNs) based on an Annual Quantity (AQ). The formula for calculating the AQ is an industry agreed process, and is set out in the Uniform Network Code (UNC). It represents an estimate of the consumption at a meter point (a single point of gas supply) for a 365-day year, under seasonal normal weather conditions. The AQ is derived from the consumption between a pair of meter readings. It is unlikely that the two readings will be exactly 365 days apart so the AQ calculation process adjusts for the bias of the read periods towards winter or summer and for the difference between seasonal normal conditions. Xoserve make this adjustment using a weather correction factor based on a Met Office model which uses historical data and also forecasts 10 years into the future. The adjustment applied to arrive at an AQ is effectively a "weather-desensitisation" rather than a correction, as it aims to convert individual consumptions for differing read periods and durations into a value that is comparable across all meter points within a Local Distribution Zone[1].

Weather-desensitisation is applied at End User Category (EUC) level. An EUC is similar to a profile class in electricity but is derived only from the AQ, the level of winter consumption (where available) and the geographical region (LDZ) and is not related to the type of consumer. For example, all users with an AQ of 73,200 kWh or less would be in the lowest EUC. For each EUC for each year the gas industry agrees a daily usage profile under seasonal normal conditions. The industry also makes an assessment of the daily impact of weather fluctuations.

The daily usage profiles and weather sensitivity values are updated each October, using actual daily consumption data from a sample of over 12,000 GB meter points. The sample is reviewed regularly to ensure that it remains well-distributed in terms of geography and AQ size. Using the weather sensitivity and actual daily weather, Xoserve adjusts the standard usage profile for the impact of actual weather. This is expressed as a daily factor for each EUC. There are 33 EUCs in each of 13 Local Distribution Zones, giving 429 LDZ-EUC codes. This means that there is a weather adjustment factor for each LDZ-EUC for each gas day.

[1] Further information on what Local Distribution Zones is available on the National Grid's website http://www2.nationalgrid.com/UK/Our-company/Gas/Gas-Distribution-Network/

Re-introducing the weather effect

Using Xoserve's weather correction factors, DECC have applied these to the weather corrected meter point gas data used in the production of sub-national gas consumption estimates for 2014[2].

Unweather corrected AQ = Weather corrected AQ * (correction factor/365 days)

Aggregating both the weather corrected and unweather corrected data to regional level yielded the results shown in Table E1.

Table E1

Region	Percentage difference between weather and unweathered corrected gas consumption statistics, 2014	
	Non-domestic	Domestic
East of England	-0.1%	-0.3%
East Midlands	-0.2%	-0.6%
London	-0.1%	-0.2%
North East	-0.1%	-0.2%
North West	-1.2%	-3.8%
Scotland	-1.7%	-4.7%
South East	0.3%	0.4%
South West	-0.3%	-1.0%
Wales	-0.4%	-1.2%
West Midlands	-0.9%	-2.5%
Yorkshire and the Humber	-0.3%	-0.7%

Footnotes:

1. Analysis does not include daily metered customers, which are predominantly made up of non-domestic meters

The impact of weather correction, in very broad terms, is to make the AQ lower than actual consumption where weather has been colder than seasonal normal; and to make the AQ higher than actual consumption where weather has been warmer than the seasonal normal.

Generally, annualised consumption for all regions (except South East) has been lowered for 2014 as a result of applying the correction factor. This suggests that the weather has been colder in these regions than the seasonal normal. The impact of the correction is marginal except in two of the northern regions, with Scotland's

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

domestic sector seeing the greatest difference of 4.7 per cent, implying that Scottish temperatures during 2014 have been significantly colder than the seasonal normal (in comparison to other regions). These differences are specific to two end user categories assigned to meters in the Scottish region – as mentioned in the methodology, EUCs are similar to profile classes in electricity, and therefore have no relationship with the location of the meter. Similar results are seen when aggregating the data at LDZ level.