Overview of Weather Correction of Gas Industry Consumption Data

The data item provided to DECC for energy consumption analysis for the Gas Industry is the Annual Quantity (AQ). The formula for calculating the AQ is an industry agreed process, and is set out in the Uniform Network Code. 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.

Weather correction 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 (the Local Distribution Zone – LDZ) and is not related to 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 End User Category. There are 33 EUCs in each of 13 LDZs, giving 429 GB EUCs, and there is a weather adjustment factor for each EUC for each Gas Day.

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 an LDZ. To calculate an AQ, Xoserve takes the actual consumption between two reads, at least six months apart but ideally as close to a year apart as available. The actual consumption is then divided by the sum of the daily actual usage factors for the meter read period and multiplied by 365. In one step, this converts an actual consumption for, say, 300 days covering a very cold winter, to a value for 365 days under seasonal normal conditions

The impact of weather correction, in very broad terms, is to make AQ lower than actual consumption where weather has been colder than seasonal normal; and where weather has been warmer than seasonal normal, to make the AQ higher than actual consumption. In other words, the weather correction element converts actual demand for a non-annual period to an estimate of seasonal normal for a 365-day year. For example, given a metered consumption of 12,345 kWh for the period 7 June 2013 to 3 April 2014 (300 effective days) and weather adjustment factors totalling 322.4 for the period, the AQ process would return an AQ value of 13,976

kWh to apply from October 2014 onwards (12,345 x 365/322.4). The underlying assumption is that all supply points within an EUC behave in line with their profile.

It is also worth noting that where Xoserve has not received sufficient suitable reads for an individual meter point since the last annual AQ review process, the previous year's value is carried forward. Since AQs are expressed in seasonal normal terms, this should mean that AQs remain comparable, regardless of the underlying read period which was used to derive them.

The daily values of seasonal normal weather are reviewed every five years or so, with the next review due to be effective for October 2015.

As the Gas Transporter Agency, Xoserve Limited operates the annual AQ process. More background information can be found on their website at:
www.xoserve.com/index.php/our-services/aq-review/

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