Energy UK comments on the Proposed Allocation of Unidentified Gas Statement (AUGS) for 2020/21

22 January 2020

2020_7:

Variation between the 2019/20 Table and the 2020/21 Table
Firstly, we would like to question the significant variation between this year's AUG Table and that of 2019/20. We would welcome further clarification outlining the variations based on the information published in the Statement, as the source of such variations is not clear to our members.
Secondly, we noted the considerable differences between last year's final AUG Table that was produced and the version that had been consulted on. For this reason, we would encourage the Allocation of Unidentified Gas Expert (AUGE) to carry out a second short consultation period of five days during March should a similar occurrence happen with the 2020/21 Table. It appears that there is space within the laid-out timetable for further consultation which would allow for industry to input on the official version of the AUG Table.

Response:

The differences between the factor values for 2019/20 and those for 2020/21 are the result of three different issues:

1. The mass migration of sites from PC4 to PC3 has resulted in a significant shift in the population pattern, and hence also the pattern in which UIG is produced.
2. The factor calculations are more accurate this year due to the inclusion of Volume Conversion UIG as a directly calculated component.
3. The CDSP have supplied over 13 million additional meter reads, which were not available for the previous year's analysis.

The mass migration of sites is mostly from PC4 EUC 01B to PC3. This has led to an increase in the factor for PC3 01B because the sites moving across, whilst being (mainly) Smart Meter sites, have a higher rate of theft than those previously making up this category. This phenomenon on its own would also lead to an increase in the factor for PC4 EUC 01B, because the sites being transferred have a lower rate of theft than the average for that category, and so the UIG from it is going down more slowly than the population.

The introduction of the directly calculated Volume Conversion element of UIG decreases the factor for PC4 01B and increases others around it. This is because it removes 642GWh from the Balancing Factor and splits this by throughput of sites without volume conversion, rather than by the Balancing Factor split. The volume conversion split is much less skewed towards PC4 01B, leading to a reduction in the factor for this category and increases in the factors of adjacent categories. This is described in detail in Sections 5.3 and 5.4 of the AUG Statement.

It is recognised that there was a significant change between the draft factors and the final factors in the 2019/20 analysis. This was for two reasons:

1. The adoption of the new theft method, which was approved by the majority of the industry via the consultation process. It was not possible to implement this in time for the first draft of the AUGS due to the length of time it took to obtain authorisation to use TRAS data.
2. The start of the mass migration of sites to Product Class 3.

For the 2020/21 factors there will be no major change in the methodology before the final AUG Statement, and no major change in current population trends is envisaged before this time.

Mod 664 may see the population of PC3 reduce as sites are returned to PC4, but as this modification is still at an early stage any potential effects of it will only be seen in future AUGE years. Therefore, the only changes will be as a result of the availability of additional data, along with any data corrections that may arise.

Whilst the AUGE is open to the creation of a second consultation period, this would require changes to be made to the AUGE Framework, which would need to be agreed by the industry. The AUGE will always work according to the rules of this framework.

2020_8:

Assumptions made about Shipper-Responsible Theft
The calculation process for the UIG factors for the 2020/21 gas year contains the AUGE's method of estimating the split of undetected theft by End User Category (EUC) and Product Class. This is based on historic data for theft investigations and confirmed thefts. As detected theft patterns are heavily influenced by the investigation activity that each supplier chooses to carry out, Energy UK is concerned that the potential under-reporting of theft by some suppliers and heavy reliance on the Theft Risk Assessment Service (TRAS) of Qualified Outliers could be skewing UIG calculations and, therefore, increasing costs allocated to Product Class 4.
The 2019/2020 AUG Table has assigned a 90.52% Balancing Factor contribution to UIG and it is assumed that the Balancing Factor is composed mainly of undetected theft. As underlined in the 2020/21 AUG Statement, using detected theft records to create a set of factors that can be used to split the Balancing Factor is risky as detected theft patterns are not necessarily consistent with wider undetected theft.
As a result we are requesting further transparency around the AUGE's assumptions made about theft and what feeds into its calculations of undetected theft. We would encourage the AUGE to request access to an anonymised breakdown of theft detection by shipper to be able to take into account outliers present in the data. The AUGE ought to adapt its methodology to ensure it is robust to potential under-reporting of theft by others.

Response:

The AUGE fully accepts that detected theft patterns are unlikely to be representative of undetected theft due to the effects of Supplier theft detection strategy. A small number of Suppliers are responsible for the vast majority of confirmed thefts, while a significant minority have no confirmed thefts whatsoever associated with them. In order for the undetected theft analysis to be accurate, it is vital that the bias caused by this is removed.

The AUGE's theft method was developed specifically to detect and remove the effects of this bias so that the detailed record-by-record information available for detected thefts can be used as an objective indicator of underlying undetected theft patterns. The key principle in the calculation process is to adjust detected theft patterns to account for differences in Supplier theft strategies and produce unbiased estimates of how detected theft would be distributed if detection activity was carried out equally across all sites – i.e. the distribution of theft by population and propensity to steal only, with all Supplier bias removed. These are the figures that can be used as an objective indicator of the pattern of undetected theft, and this is what is used to split the Balancing Factor.

The method itself and the data it uses are both described in detail in Section 7.9 of the AUG Statement. The actual calculations have been supplied in spreadsheets on UK Link Secure Docs so that the route to the Balancing Factor split can be fully scrutinised by the industry.

With regard to a theft breakdown by Shipper/Supplier, we have analysed anonymised Shipper data for both TRAS and CMS. Our conclusions from this work are in line with Energy UK's

observations and are as stated above, i.e. that a small number of Shippers are responsible for the vast majority of confirmed thefts, whilst a significant minority have no confirmed thefts at all associated with them. The key to our theft analysis, however, is the identification of the pattern of bias caused by Shipper/Supplier detection activity and the removal of this effect. Individual Shipper/Supplier strategies create this pattern, but it is the pattern itself that must be quantified and corrected for. This is precisely what our theft method has been designed to do, and therefore it is not necessary to go back to the cause of the effect (i.e. differences between Shippers/Suppliers): quantification and removal of the effect itself is the key. This is what our method does, and so it isn't necessary to go back to Shipper-level information in order to achieve this.

2020_9:

Assumptions made about the propensity of Smart customers to steal
The AUG Statement highlights that theft levels from Smart Meters and traditional meters are different and therefore data for each of these populations must be extrapolated individually to the forecast year. We understand that the AUGE is using data from the Department for Business, Energy and Industrial Strategy (BEIS) to best estimate Smart Meter populations. However, Energy UK is seeking further clarity on the assumptions made about the propensity for Smart customers to steal.
We assume that customers with Smart Meters are less likely to thieve because they are more likely to be engaged. We also know that Smart Meter installs are not representative of the entire population. The AUG Statement asserts that, based on current data, there have been 523 confirmed thefts from Smart Meters out of a total of 12,644 confirmed thefts, however this was deemed non-statistically significant. Energy UK would like the AUGE to be explicit about when it would consider this data set to be statistically significant and included within the calculation. Energy UK would welcome additional transparency on how the AUGE extrapolated the figure for Smart Meter thefts that has been applied to derive the current AUGE table.

Response:

There are no direct assumptions made regarding the relative propensity to steal from Smart Meter sites: the approach is fully data-driven and all conclusions in this area are based on information from the TRAS Outcome files. The meter type associated with each theft is derived using the Meter Serial Number, which takes distinct forms for traditional meters, Smart Meters and Electronic Token Meters (ETMs). This is done by the CDSP prior to the data being supplied to the AUGE in order to maintain anonymity. The theft population is then split into components for traditional meters, Smart Meters and ETMs, and each is analysed individually.

All subsequent aspects of the analysis are based on this data: this covers unbiased leads, the relationship between investigations and confirmed thefts, and the average magnitude of theft for each site. For all types of meter, including Smart Meters, these are calculated from TRAS records from the relevant meter type. The differences in such things as Investigation to Detection Ratio and Average kWh per Theft can be found in the calculation spreadsheets on UK Link Secure Docs.

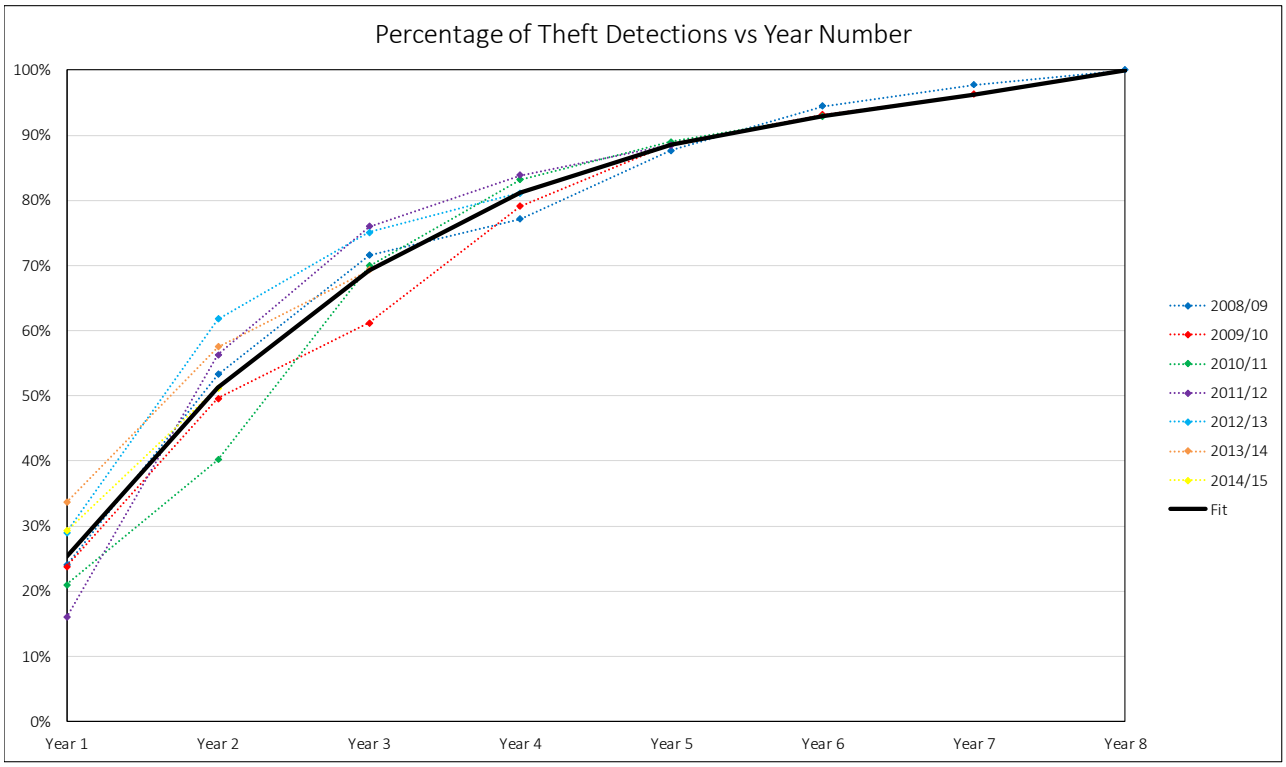
Data from these spreadsheets can be used to calculate confirmed theft rates for whatever population groups are of interest. These are the results that have driven the conclusion that theft levels from Smart Meters and traditional meters are different, rather than this being an assumption that was then applied to the data.

Smart Meter and traditional meter populations are treated separately for two reasons:

1. Theft rates from the two are different, as discussed above.
2. The populations of these meters are changing in different ways.

As stated by Energy UK, the latest installation rates from the quarterly BEIS Smart Meter reports are used to extrapolate Smart Meter installations and estimate the future population.

The observation that there were 523 confirmed thefts from Smart Meters in the dataset received to date was not part of an assessment of whether Smart Meter theft made up a significant proportion of the overall level of theft – it was part of an assessment of whether there is sufficient data to construct a reliable model for the proportion of Smart Meter thefts detected by year. The following graph is taken from Section 7.6 of the AUG Statement, and shows the time elapsed before theft is detected for all thefts.



Percentage of Theft Detections by Year Number

This shows that around 25% of theft (that will go on to be detected) is detected within the first year of the theft starting, by Year 4 this has risen to around 80%, and almost all thefts that will ever be detected will have been within 8 years. This relationship is applied to detected thefts from recent years, to account for the fact that the actual number of thefts that will go on to be detected is higher than the number that have been detected yet.

The Smart Meter theft analysis would benefit from a similar approach based on Smart Meter thefts only, to adjust theft figures from recent years in the same manner. A considerable amount of data is required to construct a reliable relationship, however, with each point on the above graph being based on the analysis of thousands of theft records, and a total of over 45,000 data items used in total.

As such, the 523 Smart Meter confirmed thefts currently available do not provide an appropriate data set for the creation of a similar Smart Meter only relationship. This will be assessed again next year, and such a relationship included in the analysis if this is feasible.

The extrapolation methods used in the theft calculations are the same for both Smart and traditional meters. Bias is removed from the detected theft records using the method described in Section 7.9 of the AUGS, and these unbiased detected theft figures (both in terms of number

of thefts and GWh stolen) are related to the population of such meters at the time. Extrapolated populations for the forecast year are calculated and used in a number of calculation areas, including theft. For Smart Meters, as stated above, this population calculation is based on the latest information on Smart Meter installation rates from BEIS. Theft levels for each meter type are then adjusted based on the expected population change to give the final estimates of detected theft split by EUC, Product Class and meter type for the forecast year. Meter types are aggregated at this point to produce the required EUC/Product Class split for the UIG factor table. These final figures create the split for the Balancing Factor, which is assumed to be largely composed of undetected theft. The extrapolated populations themselves and their use in the theft calculations can be found in the spreadsheets supplied on UK Link Secure Docs.

As with all areas of the theft method, it can therefore be seen that all calculations are data-driven, using theft data from the TRAS Outcome Files and the latest population information available. There are no assumptions made and all calculations can be scrutinised in the spreadsheets.