UIG Task Force Update

Dear Customers and Industry Colleagues,

In late October the Unidentified Gas (UIG) Task Force published an executive summary of their Sprint 3 findings. The team is now pleased to share the most recent findings from Sprint 4.

Background

Since the implementation of Project Nexus in June 2017, gas shippers have experienced much higher than expected absolute levels and volatility of UIG. This is severely affecting their ability to predict demand and commercially manage their businesses from an immediate cash-flow perspective, because UIG is reconciled (corrected) over an extended and unknown future period. In July 2018 Ofgem approved the UNC Modification 0658 to drive a more centralised and focussed approach to the resolution of UIG, mandating Xoserve as the Central Data Service Provider to take on a leadership role on behalf of the industry. I'm pleased to confirm that the fourth Sprint of the UIG Task Force completed earlier this week.

Sprint 4 Findings

Weather

The priority focus for Sprint 4 was to use the additional procured weather data items (e.g. precipitation, solar radiation) to test whether their inclusion in the Non-Daily Metered (NDM) algorithm would make a material difference to UIG. We have discovered that there are some improvements, particularly when including radiance, although inclusion of all weather data and Composite Weather Variable (CWV) brings the most improved results. Early analysis from machine learning suggests that we could have reduced UIG on 2nd April 2018 from 25% to 16%, by including these additional weather data items. This information will be passed internally to our Demand Estimation Team to support UNC Modification 0659 (use of extra weather data items in the CWV).

Daily Metered Nomination Accuracy

We have drawn the Daily Metered (DM) Nomination accuracy line of investigation to a final conclusion. We can confirm that there is no relationship between DM Nomination Accuracy and UIG. Shipper performance is fairly consistent and shippers with the largest DM energy share generally input the most accurate measurements, so the risk to nomination UIG variability is minimal, and as a result we do not intend to carry out any further analysis on this item.

Standard Conversion Factors

We also committed within Sprint 4 to further investigate the impacts of the standard volume-to-energy conversion factor (1.02264, as prescribed in the Thermal Energy Regulations) by modelling the impact on warm and average Local Distribution Zones (LDZs) and assessing the national impact. We have been able to determine that standard volume to energy conversion factor for all smaller NDM sites contributes to higher UIG in winter and reduces in summer. Annualised impact is weather dependant and was a positive contribution of 0.4% of throughput nationally for the 12 month period analysed. The next step will be to publish the summary findings and consider a suitable set of recommendations to the industry.

Annual Quantities

Annual Quantities (AQs) formed the other main focus area of investigation for Sprint 4. As mentioned previously in Sprint 3, a significant finding was that within the NDM demand sample dataset, there were a small number of sites which have a measured consumption far greater than the AQ recorded on our systems. We have since been able to confirm that within the outliers identified, the majority of these sites have a materially higher usage than the suggested AQ and the remainder have a materially lower usage. Of the erroneous AQ found, 87% are in End User Categories (EUC) bands 6 and above, suggesting that these sites are not in the appropriate Winter Annual Ratio (WAR) band. This analysis was completed on the NDM sample site data only, however it does highlight how a small number of sites which have incorrect AQs can have a significant impact on UIG levels. Assuming that the sample is representative of the market, then the overall impact to allocation and UIG would be material. Over the modelled period 1st June 2017 to 29th March 2018, the difference between allocation and measured energy for these outliers accounts for 0.2% of throughput. This line of investigation will be carried forwards to Sprint 5.

Within the NDM sample set, the sites that we previously identified that were in Class 3 or 4 (Non-Daily Metered), which have AQs above the Class 1 (Mandatory Daily Metered) AQ threshold of 58.6m kWh, have been now been thoroughly assessed and we are able to confirm that these sites fall into 8 LDZs, and over the analysis period they potentially contributed 0.4% of throughput to UIG. This illustrates the importance of regular read submissions to ensure accurate AQ, where possible, is calculated and the impacts that a few large sites can have on national UIG if they are not daily metered and should be.

Furthermore, the difference between actual daily measurements from the NDM sample sites and site level allocation does not show a material impact on the total levels of national UIG. However, in one LDZ, the sites in the NDM sample contributed up to 0.25% of LDZ throughput in the three months following Nexus go live. This again illustrates the significant impact that an inappropriate EUC profile and/or AQ for a handful of sites can have on allocation and therefore UIG.

At this moment in time, we should acknowledge that some sites highlighted within these AQ lines of investigation could be impacted by known UK Link production AQ defects. The Xoserve Issue Management and IS Operations teams are working towards an AQ datafix deadline of Thursday 15th November 2018. Once complete the Task Force will look to work on devising recommendations for these items to propose to our customers.

Analysis of the NDM sample dataset into the simulation of AQs using different meter read frequencies has suggested for EUC Bands 1 and 2 that the longer the interval between AQ calculations, the greater the potential contribution to UIG. To confirm this hypothesis we are developing these findings within the next Sprint.

Non-Daily Metered Sample Data

Amongst all of the Sprint 4 activities using the NDM sample data set, we have discovered that small domestic users with an AQ of less than 7,320 kWh are more weather sensitive than the EUC Band 1 average, and their differences between allocation and actual usage tracked in line with UIG. A simple linear model of the relationship between this difference and UIG suggests it could account for over 40% of peak volatility. Using sample sites with an AQ distribution that differs from the full dataset means that the modelled profile for a given EUC may not be representative of the population as a whole leading to errors in the NDM estimated demand. We believe that the NDM

sample data set could be improved and we will be sharing these findings with recommendations internally, to the Demand Estimation team, with a view to support the UNC Modification 0654.

Sprint 5 Scope

As a result of all of the findings within previous Sprints relating to inaccurate/out of date AQs, we are planning to continue our efforts in this area for Sprint 5. We propose to investigate the optimum read frequencies within EUC bands 1 and 2, and identify any sub-groups within the current EUC bandings that could be recommended to help reduce UIG.

We will also continue to investigate AQs by recalculating the AQs based on actual read energy and compare it to the AQ held on UK Link to understand the impact on UIG. Moreover, we use the NDM sample data set to understand which sites have very low AQs and review internally what processes/initiatives are in place to highlight these. We will then look at the real reads received on these sites to understand the scale of AQ we believe is missing and the percentage UIG this would account for if it were scaled to the market.

Our other area of focus for Sprint 5 is to continue with the use of machine learning techniques on the NDM sample data (split into small AQ band groups), alongside the introduction of the enhanced weather dataset for three LDZs to attempt to create a more accurate model for daily NDM Allocation. If the NDM energy allocated by this model is closer to the actual consumption of the sample sites, the outcome of the task will quantify the benefits of changing the EUC definitions, and suggest longer term improvements to the NDM energy allocation methodology for review by the industry.

Finally, we will also investigate the potential of weighting the existing NDM sample EUC Band 1 Domestic data, so the influence of smaller sites in the sample is closer to their actual contribution to energy usage. We will then use the weighted EUC Band 1 Domestic sample, with the existing demand estimation model to see if we can improve the accuracy of daily NDM Allocation. Improving NDM allocation accuracy will reduce the effects of Model Error on UIG levels.

If time allows, we will also start to tackle other lines of investigation covering read rejections and shipperless sites as from Sprint findings to date, these are other key areas where we may be able to make recommendations.

As the Sprints are progressing and the nature of our investigations are becoming more complex, this is triggering findings in some areas, which are introducing new lines of investigation under other categories; this has led us to take the opportunity to re-vamp our Investigation Tracker on our website. The aim of this is to give you full transparency of the tasks within our lines of investigation, to enable you to have a clear view of what we are progressing and what has been completed. To view the Investigation Tracker, please click here.

We have also reviewed the hit rates produced by our communications team on the number of views to the executive summaries (letter and grid) published following each Sprint. These concur that this letter appears to have the most activity and is being viewed more often in comparison to the summary findings grid. We therefore propose to continue with this formal letter and remove the Sprint findings grid; this was also raised for discussion at the DSC Change Management Committee on Wednesday 7th November by Leanne Jackson, Customer Engagement Manager. As previously mentioned all of this level of detail can now be found in the updated Investigation Tracker.

We will continue to provide monthly updates at the DSC Change Management Committee and in addition we are also introducing a new findings template, which again supports the removal of the executive summary grid; these will also be published on our website. These will detail all findings where a conclusion has been drawn with supporting evidence where available. If you have any further questions or comments, please contact us uigtaskforce@xoserve.com.

Kind regards

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