UIG Task Force Update

Friday 23rd November 2018

Dear Customers and Industry Colleagues,

In early November the Unidentified Gas (UIG) Task Force published an executive summary of their Sprint 4 findings. The team is now pleased to share the most recent findings from Sprint 5.

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 fifth Sprint of the UIG Task Force completed earlier this week.

Sprint 5 Findings

Machine learning

Our main area of focus for Sprint 5 was to develop the use of machine learning techniques on the Non-Daily Metered (NDM) sample site data, plus additional weather data, to attempt to create an alternate and more accurate model for daily NDM allocation. As expected the set-up phase took a considerable amount of time and included the set-up of the data, which involved data collation and data validation. There will be no need to carry out these activities again and are static, however the training and testing elements that followed will need to be completed each time we use a different modelling technique in the future. This approach always starts with applying the simple models first however, results for these did not perform to the current accuracy level of the existing algorithm. This confirms that our existing NDM algorithm is complex and needs to be complex, to ensure that it estimates NDM usage as accurate as possible.

In the interest of improving the performance of machine learning, we will continue with the following in Sprint 6:

- Use of more complex machine learning techniques
- Use of additional historic Annual Quantity (AQ) data to try and better understand consumption patterns
- Expand the analysis to the whole of the NDM market; model all End User Categories (EUC) and both market sectors
- Utilisation of latest gas year NDM sample site data; to include more cold weather data
- Reviewing the weighting of extreme temperature events to ensure that they are modelled well.

Optimum meter read frequencies for sites in end user categories 1 and EUC 2

As promised we have begun to analyse the optimum read frequencies within EUC bands 1 and 2 using the NDM sample site data. The initial results imply that a reading interval for EUC bands 1 and 2 sites could reduce base UIG and volatility. We plan to model this data over a wider range of read

dates, not just the same start point, plotting monthly, quarterly, bi-annual and annual read rates. This should then lead to a firm recommendation on read frequency.

Annual quantities

We have analysed the aggregate daily energy of the sites in the NDM sample site data compared to actual read energy held on UK Link for identical periods. The net difference in consumption for sites consuming between 90% and 110% of the energy recorded by the NDM sample site data (93% of sites analysed) is small at 0.25% of throughput. We have observed that the absolute size of the energy difference in kWh tends to be larger where the UK Link metered consumption is lower than the metered consumption from the NDM sample, and the larger the consumption of the site, the larger the percentage error between the energy from the NDM sample site data and the consumption recorded on UK Link. We will take this forward as a finding and consider what recommendations can be drawn.

We have also used the NDM sample site data to investigate sites that have had very low Annual Quantities (AQs), but have advancing consumption data. The majority of these sites now have increased AQs on UK Link which are more representative of their NDM sample site data consumption. A common theme is that the average AQ, when corrected on UK Link, is over 600,000 kWh per site. This suggests that either the risk that sites may be consuming energy whilst having very low AQs is greater in larger EUCs Band 2 and above, or that it is only these large sites which are being actively corrected. The impact of the identified sites appears to be small, with only 15m kWh AQ in total or 0.003% of throughput (this is only based on approximately 25 sites identified within the NDM sample data that have been investigated). We will carry out further investigations into sites with very low AQs that are not in the NDM sample to see if we can identify any systematic issues. This analysis has also identified a small number of sites with a current AQ of 1, that have advancing consumption in the NDM sample site data, indicative of a significant AQ shortfall. Site level investigations suggest that the AQ may require correction and we will therefore work with the relevant shippers to ensure the data on UK Link is accurate.

As part of AQ investigations, we will also continue to drill down into individual Local Distribution Zones (LDZs) to understand material changes over time and how the AQ mix may impact regional UIG levels.

Whilst working on the above AQ analysis, we have identified an issue with the read validation logic for Meter Points with correctors fitted. We have scheduled an internal working session with members of the Task Force and subject matter experts in this area, where we plan to table the issue, discuss long term solution options and suggest potential interim workarounds, which will enable reads to be submitted successfully for these sites.

Weighting the existing non-daily metered sample, EUC Band 1 domestic data

We have applied weighted EUC Band 1 Domestic data with the existing demand estimation model to see if we can improve the accuracy of daily NDM allocation; our findings do not show any significant benefits. It may be possible that there is too much variation within EUC 1 sites for the current model to be effective and that if EUC 1 is broken up into ‘sub-EUCs’ the current demand estimation model might be able to better model demand and reduce UIG and/or UIG volatility. Therefore, as part of Sprint 6 we now intend to model potential separate profiles (anticipated five) for smaller bands within EUC 1 for at least three LDZs and compare it to the current sample demand error performance for EUC 1.

Sprint 6

The main focus of the Issue Analysis work stream for the coming weeks is to concentrate on all findings to date and create formal findings and recommendation documentation where appropriate. These will be published on our Xoserve website. Where it is a finding which requires follow on action, internal workshops will be held with members of the Task Force and internal subject matter experts to formulate a set of recommendations. Again, these will be published on our Xoserve website. Our third work stream, Industry Change and Governance, will be taking these recommendations into December, time permitting, and January's Change Management Committee meetings. If it becomes apparent the volume of recommendations is too great for the standard meetings, we will look to introduce some extraordinary Change Management Committee meetings to purely concentrate on these recommendations.

We have commenced the analysis on the read rejections; unfortunately we have experienced some internal issues and have been unable to obtain all of the records required for this to be completed within Sprint 5 timescales. We are in the process of working around this issue to obtain the data we need for this to continue and will update you in due course.

In regards to the Shipper-less sites line of investigation, we can confirm that we have obtained a data set for us to analyse as part of Sprint 6 with a view to understanding the potential impact to UIG.

As always, to view the Investigation Tracker to follow individual updates against each line of investigation, please click here.

We will continue to provide monthly updates on Sprint findings at the DSC Change Management Committee and as previously mentioned, upload our findings template(s) on our web page. If you have any further questions or comments, please contact us uigtaskforce@xoserve.com.

Kind regards

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