



Analysis of Meter Reading Validation Tolerances proposed by Project Nexus

January 2014

Description of analysis

- Aim of analysis:
 - To assess the impact of the meter read validation tolerances that have been proposed under Project Nexus in the BRD for Meter Read Submission and Processing and Settlement Arrangements for All Gas Meter Points.
- Data used in the analysis:
 - MPRNs supplied by British Gas for the whole period 01/10/2012 to 01/10/2013.
 - West Midlands LDZ only.
 - AQ below 293,000 kWh.
 - MPRNs with meter exchanges in this period excluded.
 - All reads where a URS10 flow showing acceptance by Xoserve under the current processing rules were used. No reads that were rejected under the current rules were used.
 - This gave a data set of over 500k MPRNs and over 100k reads per month.

Description of analysis

- Two separate simulations were undertaken, to test the two sets of rules relating to periodic reads:
 1. All meter readings sent without the override flag, meaning the reads would be subject to the Override Read Tolerances.
 2. All meter readings sent with the override flag, meaning the reads would be subject to the Market Breaker Read Tolerances.
- Method
 - 12 monthly iterations were run, in line with the monthly AQ timetable.
 - For each month, reads were selected between the 10th of the preceding month and the 10th of the current month.
 - Consumption between the previous accepted read and the current read was calculated and acceptance/rejection calculated based on the Nexus rules.

Results of analysis

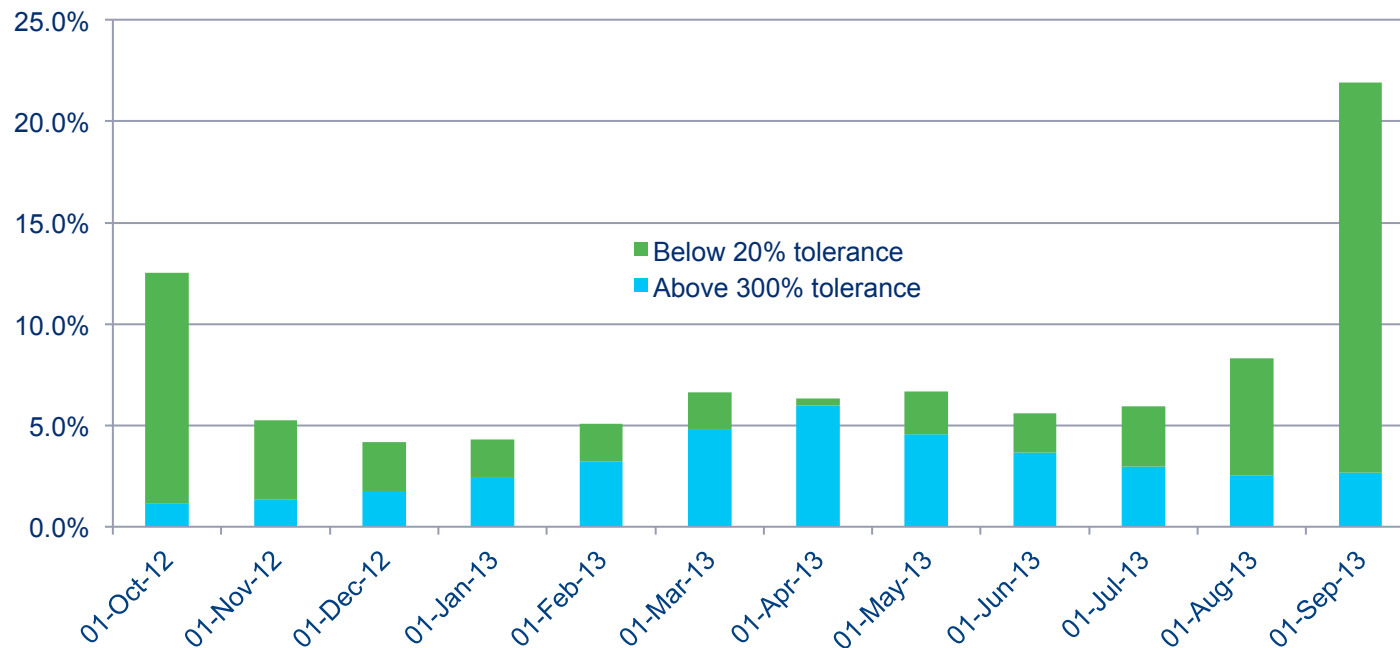
- Where reads are sent without the override flag, on average over a year, 7.86% of readings that were accepted under current rules would be rejected under the Nexus rules (some months have much higher rejection rates)
- Of that 7.86%, most (61%) were rejected for breaching the lower 20% tolerance.
- Where the override flag was applied to all readings, 1.48% of reads that were currently accepted would be rejected under the Nexus rules.

Month Ending	No Override Flag			With Override Flag
	All rejections	Above 300% tolerance*	Below 20% tolerance*	All above 700% tolerance*
10-Oct-12	12.53%	9%	91%	0.86%
10-Nov-12	5.26%	26%	74%	0.90%
10-Dec-12	4.18%	42%	58%	1.04%
10-Jan-13	4.32%	56%	44%	1.31%
10-Feb-13	5.10%	64%	36%	1.42%
10-Mar-13	6.62%	72%	28%	1.72%
10-Apr-13	6.33%	94%	6%	1.64%
10-May-13	6.69%	68%	32%	1.91%
10-Jun-13	5.58%	66%	34%	1.71%
10-Jul-13	5.95%	50%	50%	1.75%
10-Aug-13	8.31%	30%	70%	1.59%
10-Sep-13	21.90%	12%	88%	1.85%
Whole Year	7.86%	39%	61%	1.48%

* Tolerances shown are the values that apply to SSPs only, where the AQ was larger than 73,200 kWh, the appropriate tolerance was applied.

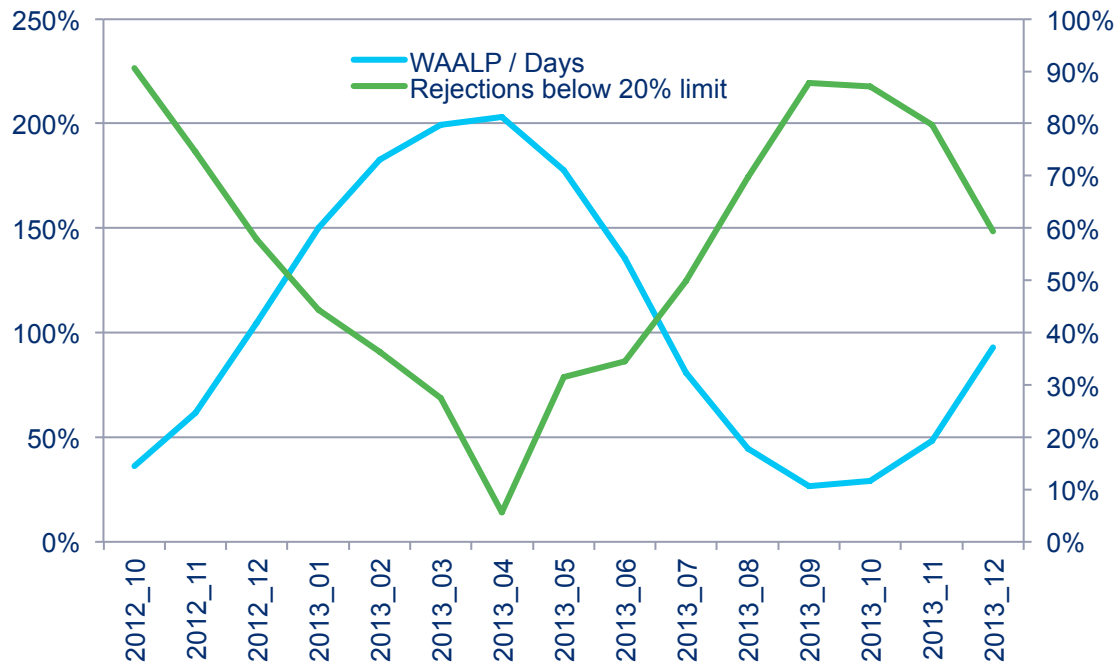
Further analysis of 20% tolerance failures and seasonal shape

- There is a seasonal shape to the rejections where no override flag is applied.
- In Autumn the rejection volumes increase and so does the proportion of reads rejected for failing the lower tolerance.
- We suggest this is due to the relationship between the consumption between two consecutive meter readings and the flat profile used for validation.



Further analysis of seasonal shape

- We compared $[\Sigma\text{WAALPs}/\text{Days}]$ for the 3 months prior to the read submission with the proportion of rejections which breached the upper tolerance.
- There is a strong correlation showing that where consumption (WAALP) in the 3 months prior to read submission was low, the proportion of “low-end” read rejections was higher.
- This suggests that validation using a consumption profile (e.g. WAALP) would allow more reads to be accepted.



Conclusions and considerations

- Higher read rejection volumes than at present will be experienced under Nexus.
- Shippers will have to apply the override flag on, >20% of read submissions in some months in order to ensure that reads showing unexceptional consumption are accepted following seasonal low gas usage.
- Even if the override flag is applied to all reads, between 1% and 2% of reads per month that were accepted under current rules will be rejected.
- This will include cases where consumption is much greater than AQ e.g. consumption on vacant site with an AQ of 1.
- It is proposed that the (undefined) AQ correction process is used prior to submitting reads for these cases.
- AQs change away from 1 in tens of thousands of cases each year, is it realistic to use the AQ correction process for so many cases? The risk is that the population of AQs of 1 will increase rapidly.
- Could the group identify exceptional scenarios where additional validation rules are required?