Consultation on rule 37 percentage of error determination under the Gas (Downstream Reconciliation) Rules 2008

Date issued: September 2011
Submissions close: Friday 30 September 2011

GAS INDUSTRY COMPANY LIMITED

About Gas Industry Co.

Gas Industry Co is the gas industry body and co-regulator under the Gas Act. Its role is to:

- develop arrangements, including regulations where appropriate, which improve:
  - the operation of gas markets;
  - access to infrastructure; and
  - consumer outcomes;
- develop these arrangements with the principal objective to ensure that gas is delivered to existing and new customers in a safe, efficient, reliable, fair and environmentally sustainable manner; and
- oversee compliance with, and review such arrangements.

Gas Industry Co is required to have regard to the Government's policy objectives for the gas sector, and to report on the achievement of those objectives and on the state of the New Zealand gas industry.

Gas Industry Co's corporate strategy is to 'optimise the contribution of gas to New Zealand'.

Authorship

This paper was prepared by Andrew Walker

1 Introduction

Each year, Gas Industry Co is required to determine and publish an accuracy threshold, in the form of a permissible percentage of error, for the non-TOU consumption information submitted to the allocation agent for the initial allocation. For each gas gate, the aggregated consumption information in allocation groups three to six must, when compared with submissions for the final allocation, fall within the required percentage of error. This requirement is set out in rule 37 of the Gas (Downstream Reconciliation) Rules 2008 (the Rules), which is reproduced in Appendix A. Table 1 shows the accuracy threshold for each year since the commencement of allocations under the Rules.

Table 1 Previous rule 37 accuracy thresholds

Gas year	Accuracy threshold
1 October 2008 to 30 September 2009	±15.0%
1 October 2009 to 30 September 2010	±12.5%
1 October 2010 to 30 September 2011	±10.0%

In making its determination, Gas Industry Co must have regard to the following matters:

- The primary aim of ensuring consumption information provided for initial allocation is as accurate as possible when compared with consumption information provided for final allocation;
- The extent to which retailers are able to comply with the percentage of error for the accuracy of consumption information provided for initial allocation;
- Any expected costs that would be reasonably incurred by retailers to achieve compliance with the percentage of error for the accuracy of consumption information provided for initial allocation; and
- Any other matter it considers relevant to its determination.

The purpose of this consultation paper is to seek feedback from participants on the appropriate accuracy threshold for the gas year beginning 1 October 2011. Submissions are sought no later than Friday 30 September and can be made by registering on Gas Industry Co's website and uploading your submission, preferably in the form of the submissions template included at the end of this document. All submissions will be published on the website after the closing date. Submitters should discuss any intended provision of confidential information with Gas Industry Co prior to submitting.

2 Analysis of available data

One of the factors Gas Industry Co must consider in determining the accuracy threshold for the new gas year is the extent to which retailers are able to comply with the threshold. This section presents data on retailer compliance with rule 37 to date.

2.1 Compliance data

Allocations under the Rules began in October 2008 and as at the end of August 2011, there have been 22 final allocations, 31 interim allocations and 34 initial allocations. Rule 37 requires a comparison of consumption information submitted for the initial allocation with that supplied for the final allocation, so there is a 13-month lag before a retailer's accuracy for a given month can be determined. In order to increase the number of available data points, this analysis includes comparisons of initial submissions with interim submissions, which are taken to be a good proxy for final allocation submissions.

Chart 1 tracks retailer compliance with the accuracy threshold as illustrated by the number of breaches of the percentage error in each month. The solid line indicates actual breaches (those based on initial versus final submissions) and the dashed line indicates estimated breaches (where interim submissions are used as a proxy for final submissions).

As part of last year's determination of the appropriate accuracy threshold, Gas Industry Co consulted on the idea of introducing a volume threshold on rule 37 breaches. The market administrator issued a guideline note on 10 November 2010, to the effect that any breach which involves a gigajoule difference between the initial and the final of less than 200GJ would be deemed to be not material, in the absence of any circumstances that justify departure from this general approach. The red line in chart 1 shows the number of breaches remaining when the volume threshold has been applied (on average around 20% of the total breaches). Thus far materiality decisions on rule 37 breaches have been made in accordance with this guideline.

Chart 1 **Rule 37 breaches: actual to July 2010 and estimated from August 2010 to April 2011**

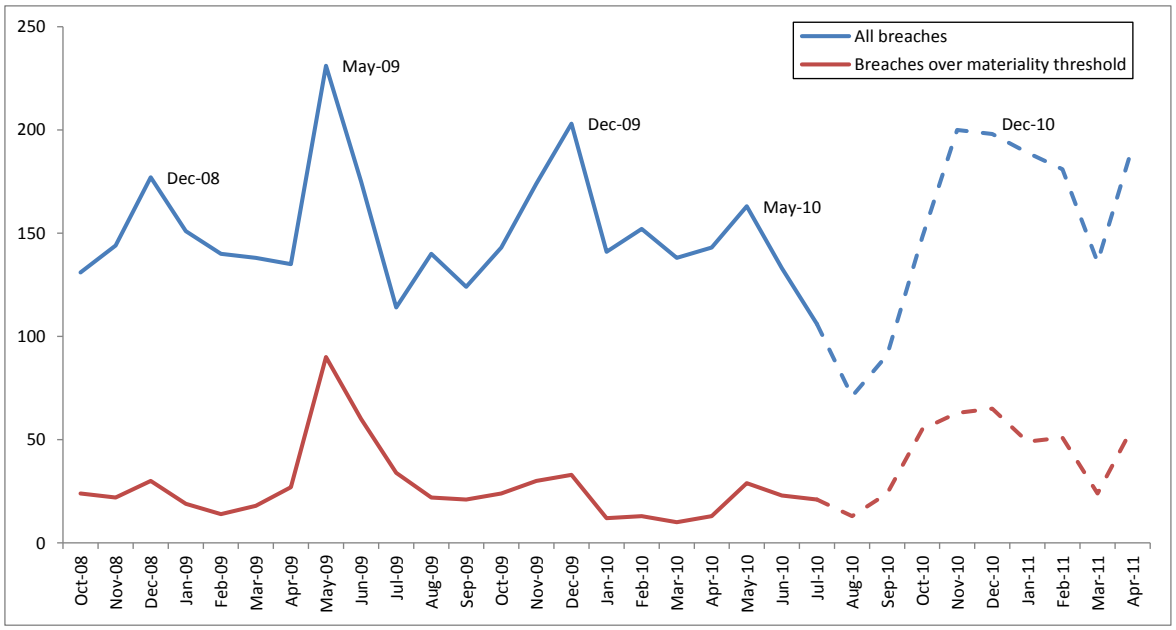


Chart 2 gives a breakdown of actual breaches according to whether they arose from under-estimation or over-estimation; that is, whether the initial submission was less than, or greater than, the final submission. Chart 3 shows the same information but with the volume threshold applied. Whilst chart 2 illustrates that both under- and over-submissions are prevalent in each month at different gas gates, chart 3 shows that applying the volume threshold to remove non-material breaches gives a more seasonal pattern of unders and overs: under-estimation tends to occur in late autumn and winter, while over-estimation generally happens in spring.

Chart 2 **Rule 37 breaches: over- and under-estimation**

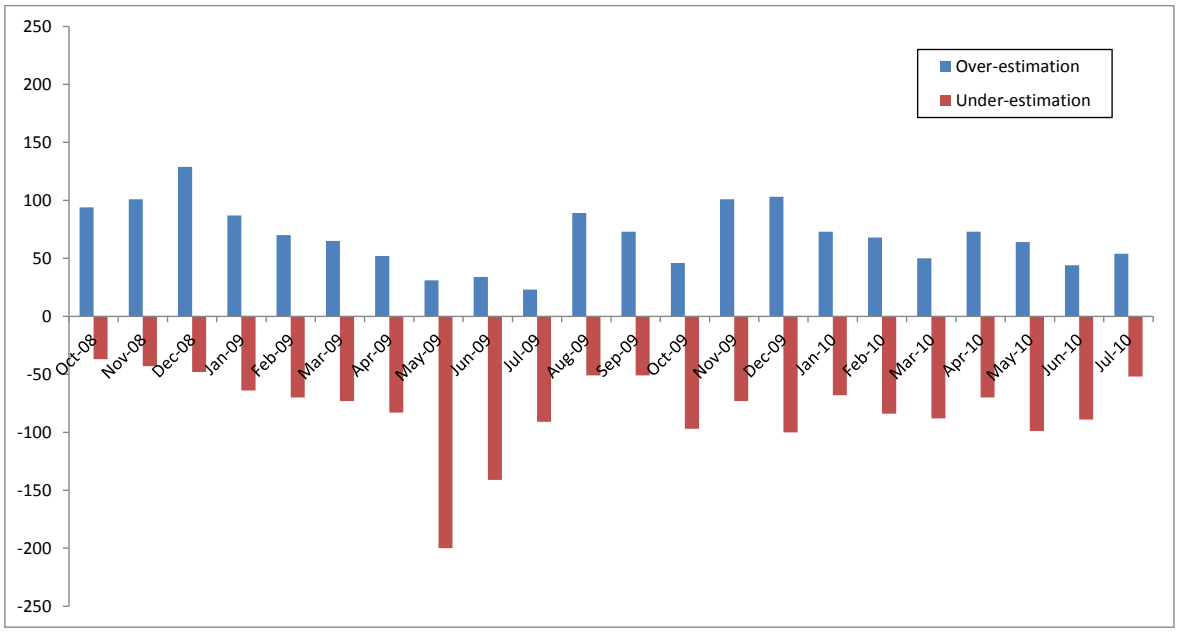
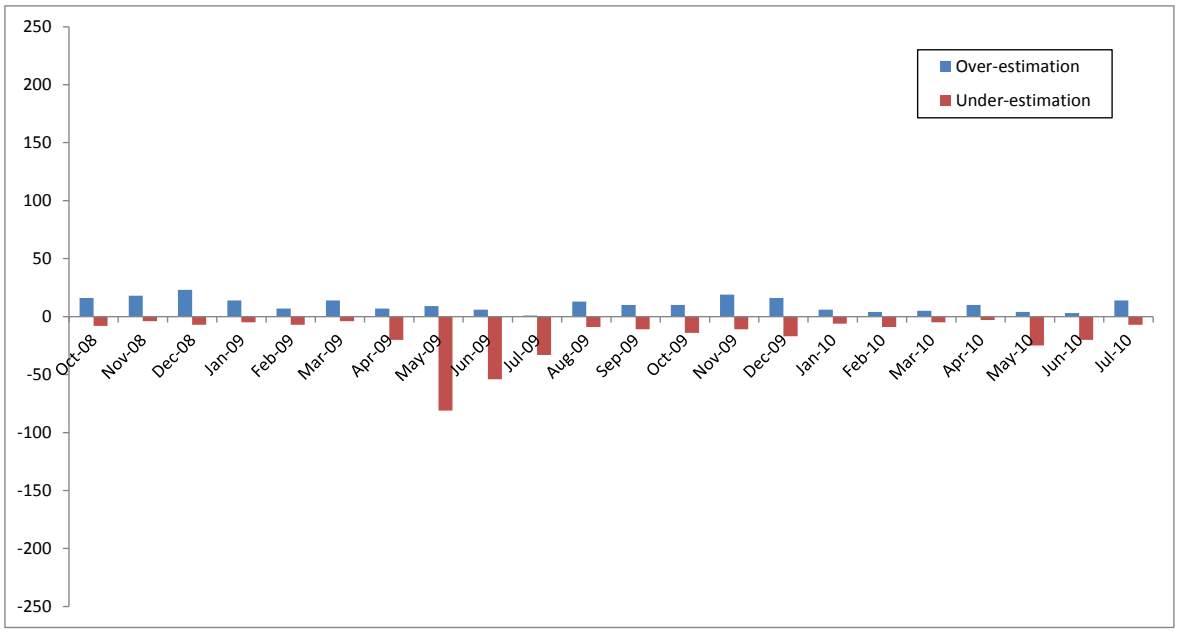


Chart 3 Rule 37 breaches: over- and under-estimation with volume threshold applied



2.2 Observations

Chart 1 shows biannual peaks in total breaches occurring during the shoulder months of May and December, indicating that the change in seasons remains the period when estimation is most difficult. Aside from the seasonal pattern, there does not appear to be a strong upward or downward long-term trend in the total number of breaches in any of the charts[1], despite the accuracy threshold being tightened on two occasions. It is possible to conclude from this that the overall level of estimation accuracy must be slowly improving in order for the breach activity to remain constant against a narrowing target threshold.

One apparent exception to the relative stability of compliance activity is a glut of breaches predicted for the period spanning October 2010 to February 2011. Although the start of this period corresponds with the lowering of the accuracy threshold to ten per cent, the more likely cause of the increase in breaches (if it eventuates when the final allocations take place) is the warmer than average summer in the North Island, and an associated over-estimation of gas demand. This is reflected in the large volumes of negative UFG reported at the time, which have since disappeared at the interim allocation.

The two observations made—that the quality of estimation accuracy varies with the seasons and is affected by unseasonable temperatures —reflect that retrospective measures (such as 'same-month-previous-year' or 'previous-month(s)-same-year') are still the norm for mass market retailers when they produce forward estimates.

[1] For chart 1, based on the initial versus final data only there is a slight downward trend but when the initial versus interim data are included, there is a slight upward trend in total number of breaches.

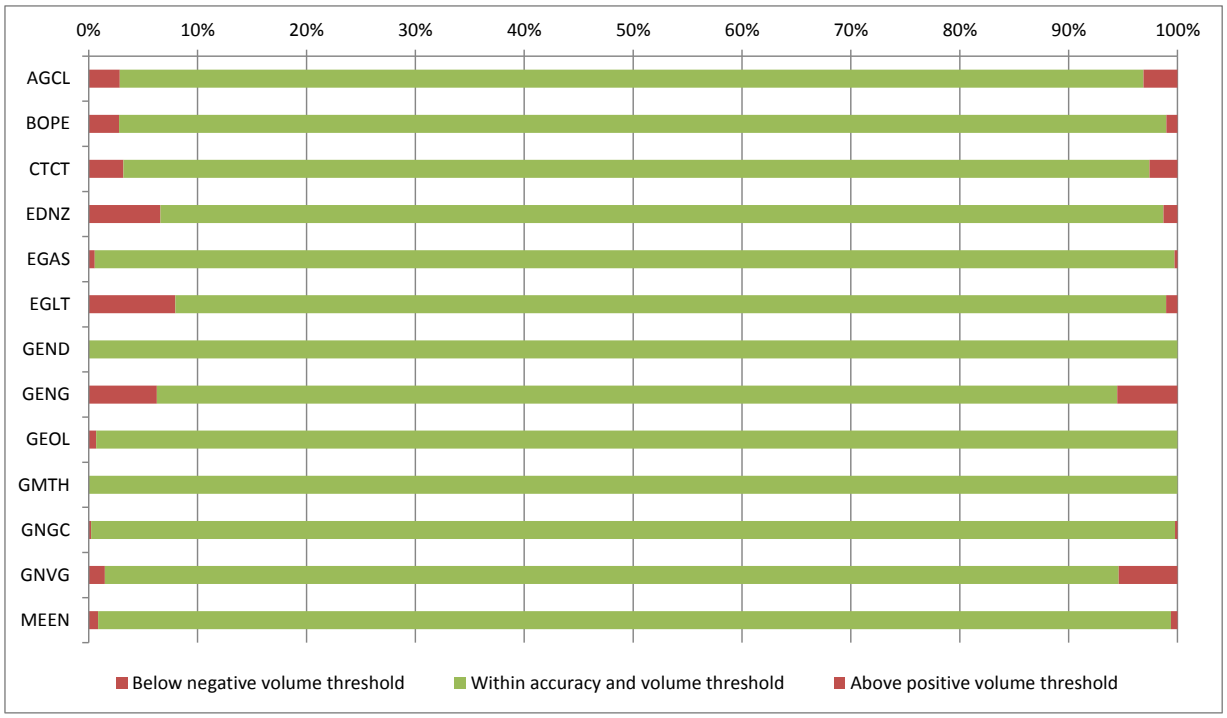
2.3 Individual retailer performance

In addition to the general picture set out above, it is insightful to look at individual retailer performance against the accuracy threshold, in order to identify further trends in compliance. Charts 4 and 5 show individual retailer performance against the accuracy thresholds in the period October 2008 to July 2010, by illustrating the proportion of each retailer's submissions over that period that are inside or outside the threshold.

Chart 4 shows submissions inside the accuracy threshold in green and submissions outside (either above or below) the threshold in red; chart 5 highlights the submissions which were outside the accuracy threshold and also outside the volume threshold in red, with all other submissions (those within the accuracy threshold and those outside of the accuracy threshold but within the volume threshold) in green.

Chart 4 Percentage of retailer submissions above and below accuracy threshold

Chart 5 Percentage of retailer submissions above and below volume threshold



No retailer has a completely clean sheet[2], but consistent with previous assessments, the retailers with predominantly mass market customers and bi-monthly meter reads perform less well than those with TOU customers and daily reads. Some smaller mass market retailers, who perhaps do not benefit from diversity of load at individual gas gates, have a substantial number of submissions outside of the tolerance (shown in chart 4), which disappear when the volume threshold is applied (shown in chart 5). Where retailers do breach the accuracy threshold there is a reasonably even distribution of over- and under-submissions.

Charts 4 and 5 show total submissions across the entire period for which data are available, and so do not reflect any improvements to individual retailer accuracy that may have occurred over time. However, analysis of time series data suggests that for mass market retailers, individual accuracy varies from month to month to such an extent that there is no visible evidence of long-term improvement in numbers of breaches (although, as noted, having relatively constant numbers of breaches while the accuracy threshold tightens suggests that retailers are improving in their estimation accuracy).

[2] The retailers who appear to have 100% compliance in chart 4 have had a very small percentage of submissions fall outside the threshold

3 Threshold analysis

The primary aim of rule 37 is to ensure that consumption information provided for the initial allocation is as accurate as possible. Congruent with this policy aim, rule 37, coupled with the Gas Governance (Compliance) Regulations 2008, provides a means for retailers to seek redress where they have been impacted by a submission that breaches the accuracy threshold. Specifically, as a result of being over- or under-allocated at the initial allocation, retailers may have borne balancing and peaking pool costs for which there is currently no other means of seeking compensation.

As long as inaccuracy in the provision of consumption information causes financial impacts to industry participants, Gas Industry Co considers that the extent to which 'harm-causing' submissions are captured by the accuracy threshold is a matter relevant to its determination of the percentage of error.

3.1 Variations in the accuracy threshold

Sensitivity analysis was conducted on the accuracy threshold to assess the amount of harm that is captured when the threshold is varied, and the results are presented in appendix B. As well as considering the number of submissions caught, Gas Industry Co considers it is relevant to the decision of the optimum threshold to analyse the volumes involved with breaches at various threshold levels; that is, the number of gigajoules of inaccuracy that are captured by various thresholds. This confronts the issue that small percentage changes in large submissions have a greater market impact than larger percentage changes in small submissions.

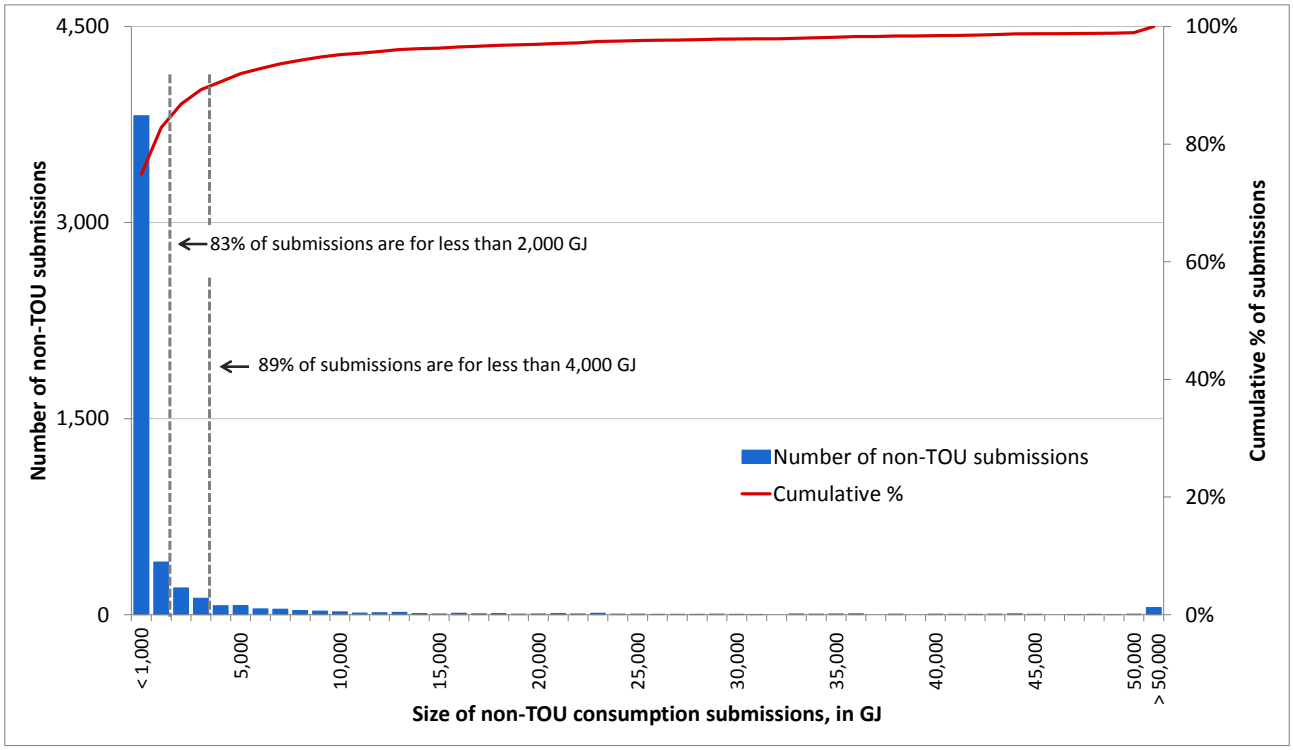
The four charts in appendix B show the effect on number of breaches and number of gigajoules of applying thresholds between 15% and 1% to submissions in the period October 2008 to April 2011. The results are presented both with and without the 200 GJ volume threshold applied. The clear result is that the total number of breaches is highly sensitive to a change in percentage threshold. For example, for a number of months, dropping the threshold from 10% to 5% increases the number of breaches by over 50%. The same is not true once the volume threshold has been applied (the second chart), with the number of material breaches being far less responsive to changes in the percentage error. The number of material breaches still increases as the threshold drops, but the benefit of capturing the small number of extra material breaches has to be offset against having to deal with a large number of extra non-material breaches.

The third and fourth charts in appendix B show sensitivity analysis on the gigajoule volumes captured by breaches as the accuracy threshold varies. Most notable is that the 200GJ volume threshold makes little difference to the volumes captured, which corroborates the point that it is the large gigajoule breaches, rather than the large percentage breaches, that have the highest impact on market participants. As with the first two charts, tightening the threshold from say 10% to 5% increases the amount of volume captured (by as much as several thousand gigajoules in some months), but the increase is small relative to the number of non-material breaches that are added.

3.2 Submissions excluded due to volume threshold

Another way of looking at the effects of different accuracy thresholds is to consider the size distribution of consumption submissions. Chart 7 shows that the vast majority (83%) of non-TOU submissions[3] to the allocation agent are less than 2000GJ, which is the level at which a 10% breach becomes material by virtue of the 200GJ volume threshold. If a final submission of less than 2000GJ is associated with a material breach it must be because the difference between the initial and final submission is more than 10%. The point being that the marginal material breaches captured by tightening the threshold from 10% to 5% must be from the 7% of submissions that are greater than 2000GJ. As the threshold is tightened still further there is a diminishing number of extra material breaches captured, which get steadily larger in gigajoule terms.

Chart 7 Size distribution of non-TOU submissions



[33] Here taken to mean the sum of allocation group four to six submissions, i.e. one non-TOU submission per gas gate

3.3 Effect of threshold on F-F* allocations

As stated above, the purpose of capturing more breaches is to allow a greater proportion of the harm caused by inaccuracy to be compensated for. In recent negotiations to settle rule 37 breaches, an F-F* methodology was developed and used to estimate the harm caused by inaccurate initial submissions. It is possible that the same methodology could be used in future breaches. Table 2 provides an indication of the effect that tightening the threshold has on the number of gigajoules that are re-allocated for a selection of months across all pools.

Table 2 Gigajoules re-allocated under F-F* methodology

Consumption period	15% threshold	10% threshold	5% threshold
May-09	67730	63586	55068
Jun-09	58108	74877	68848
Aug-09	7580	11472	13598
Nov-09	7305	8694	14072
May-10	18407	29594	29603
Jul-10	4367	4206	12932
Feb-10	4844	6890	6522

As would be expected, for the majority of months, tightening the accuracy threshold generally causes the number of gigajoules re-allocated to increase as more harm is captured. An interesting result appears for some months (May 2009 in particular), where the number of gigajoules re-allocated falls as the threshold tightens. This occurs when the submissions of the extra retailers included by dropping the threshold are of sufficient size to mitigate the effect of the extra UFG created for the F* allocation.

4 Proposal for accuracy threshold

4.1 Initial view on matters to be considered

Based on the analyses presented in this discussion paper, Gas Industry Co takes the following view against each of the matters it has to consider in determining the accuracy threshold.

Primary aim that consumption information is as accurate as possible

The intent of rule 37 is to ensure that initial submission accuracy is as accurate as possible, so as to mitigate the harm caused by under- and over-submissions. Analysis of available data suggests that, while retailers in general have improved in their forward estimations somewhat, they are still liable to misestimations during shoulder seasons and in times of unseasonal weather.

At the same time, Gas Industry Co understands that balancing and peaking pool charges have decreased over the past two years, so that the harm experienced due to inaccurate estimations is not as great as it was when the Rules were implemented.

Both of these factors suggest that 10% is an appropriate threshold for the coming gas year.

Extent to which retailers are able to comply

Analysis of available data (charts 1 to 3) shows that, despite the tightening of the accuracy threshold on two occasions, there has not been a noticeable impact on general compliance with rule 37. This suggests that minor improvements have been made against the baseline, although given the small amount of actual data available, the result is not statistically significant in terms of conclusions about changes in retailer accuracy and may merely reflect an underlying trend in weather patterns. The exception to this general trend is more recent performance, where the number of potential over-submission breaches has increased, perhaps as a result of unseasonable weather.

The recent uptick in potential breaches is a reminder of the difficulties retailers face in trying to estimate consumption. Consideration of the extent to which retailers are able to comply also suggests that the accuracy threshold should remain at 10% for the coming gas year.

Any expected costs to achieve compliance

Given the reported difficulty in forecasting gas demand, and the use of retrospective methodologies that involve calculating past average usage to determine forward estimates, it is not expected that

further tightening will drive a step change in retailers' attempts to comply with the accuracy threshold. The data presented in section 2 (charts 4 and 5) suggest that the most successful method of creating accurate submissions is to read meters more frequently. Given that balancing costs have trended downwards over the past couple of years, the benefit of increasing the frequency of meter reads for mass market retailers (in terms of mitigating BPP costs) is not likely to offset the cost of doubling the number of meter reads. Gas Industry Co continues to investigate other approaches to addressing retailer inaccuracy in the hope of finding an alternative effective solution.

Any other relevant matters

A settlement has recently been reached regarding the first wave of rule 37 breaches found material by the market administrator. The settlement involves financial transactions that approximate compensation for the extra charges incurred as a result of over- or under-allocations at the initial stage due to breaching parties' behaviour.

Now that there is a precedent for settling rule 37 breaches, there may be a preference by industry participants for the accuracy threshold to be lowered, say to 5%, in order that a greater proportion of inaccurate submissions can be captured under this process. However, Gas Industry Co analysis of sample months suggests that a lower threshold would not always lead to larger settlements. As noted above, the outcome of the F-F* analysis at any threshold level depends on each retailer's inaccuracy in relation to the others, and a lower threshold can result in more retailers being captured, which in turn leads to fewer gas volumes being reallocated.

Based on this analysis, Gas Industry Co considers that the accuracy threshold should remain at 10% for the coming gas year.

4.2 Proposal for accuracy threshold

Based on the initial views set out above, Gas Industry Co's current recommendation is that the accuracy threshold should be kept at ±10% for the next gas year unless there is substantial support to lower the threshold. Subject to feedback in discussions with retailers and in submissions, this will be formalised in a determination.

Consultation on rule 37 percentage of error determination under the Gas (Downstream Reconciliation) Rules 2008

Submission prepared by: (company name and contact)

QUESTION		COMMENT
Q1	Do you support maintaining the current accuracy threshold of ±10%? Please provide reasons for your preference	
Q2	Do you have any further comments or information relevant to Gas Industry Co's determination?	

Appendix A Excerpt from rule 37

37. Accuracy of consumption information for initial allocation

37.1 This rule applies to consumption information at a **gas gate** provided to the **allocation agent** for **consumer installations** in **allocation groups** 3 to 6 in respect of a **consumption period**.

37.2 For a **consumption period**, the accuracy of the consumption information provided by a **retailer** under rule 31 for **initial allocation** must, when compared with the consumption information provided by that retailer under rule 33 for **final allocation**, fall within the percentage of error determined and **published** by the **industry body** under rule 37.3.

37.3 Prior to the beginning of each **gas year**, the **industry body** must, after consulting with **allocation participants**, determine and **publish** the percentage of error for the accuracy of the consumption information provided for **initial allocation** to be applied to the **consumption periods** in the following **gas year** in accordance with rule 37.2.

37.4 In making its determination under rule 37.3, the **industry body** must have regard to the following matters:

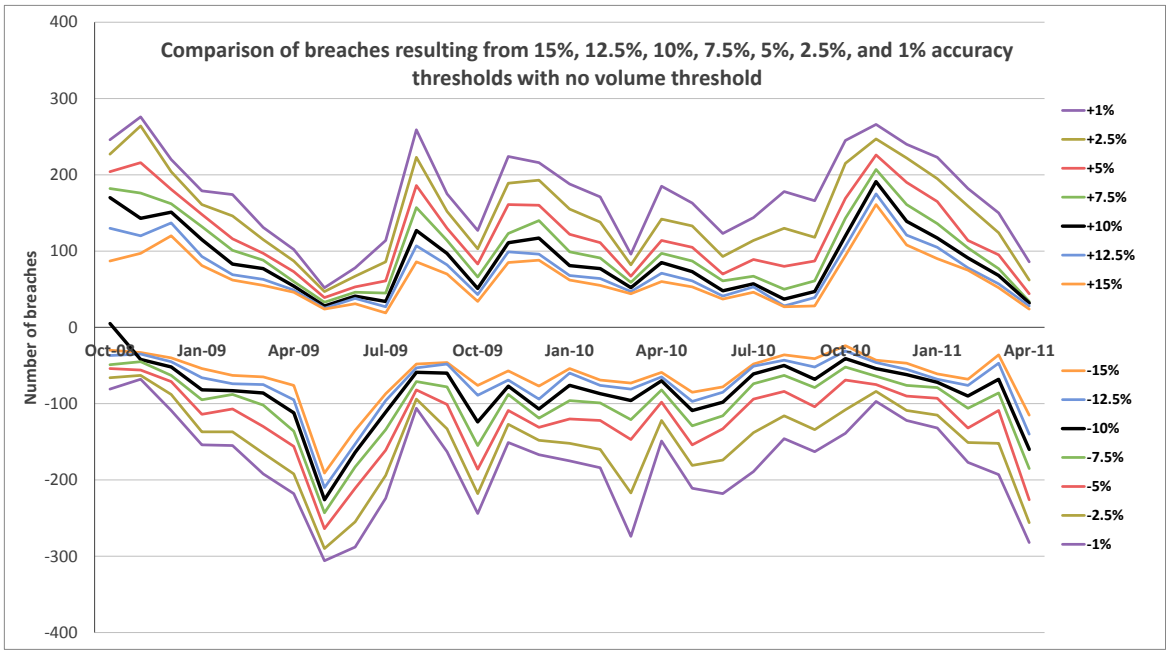
37.4.1 The primary aim of ensuring consumption information provided for **initial allocation** is as accurate as possible when compared with consumption information provided for **final allocation**;

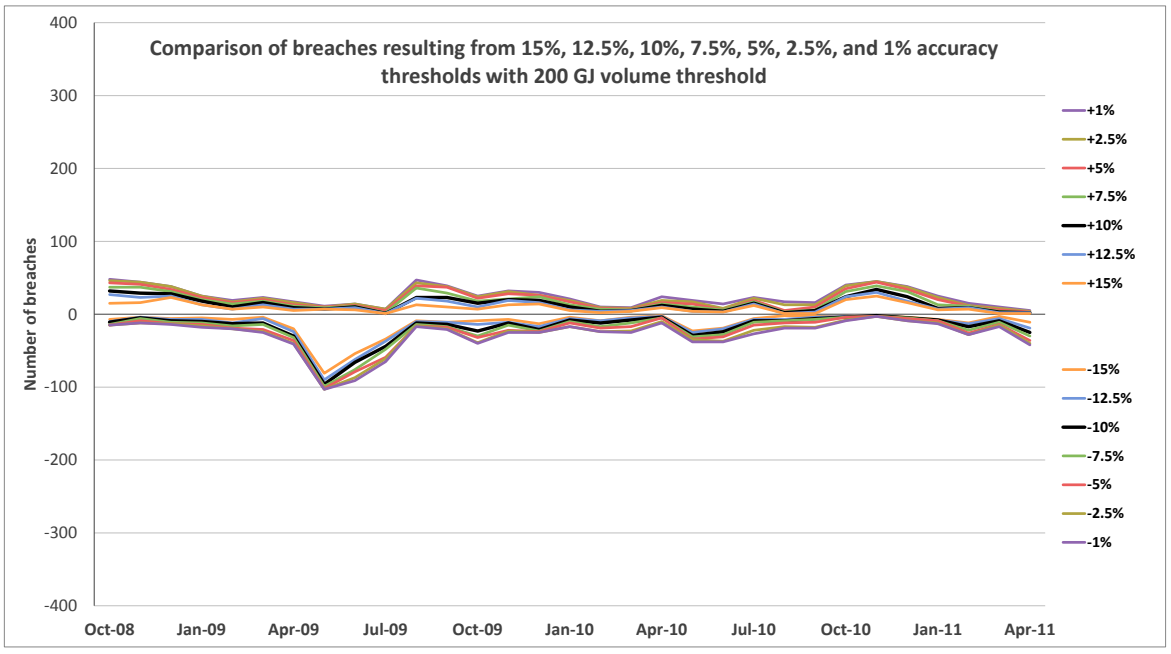
37.4.2 The extent to which **retailers** are able to comply with the percentage of error for the accuracy of consumption information provided for **initial allocation**;

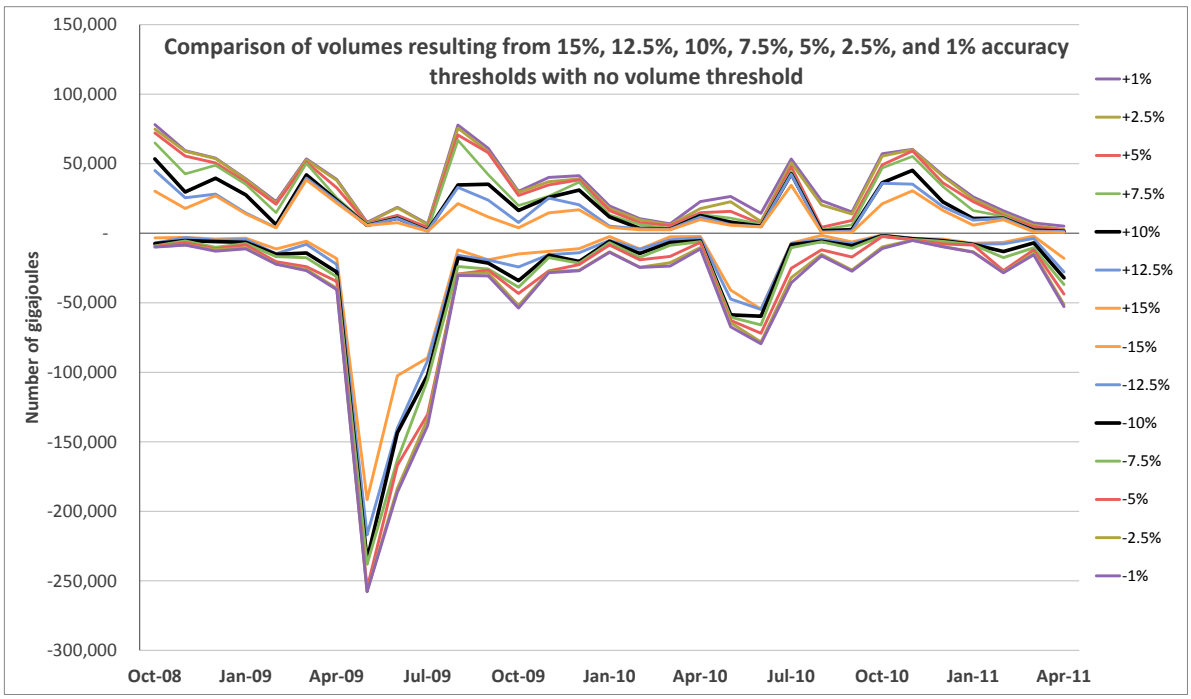
37.4.3 Any expected costs that would be reasonably incurred by **retailers** to achieve compliance with the percentage of error for the accuracy of consumption information provided for **initial allocation**; and

37.4.4 Any other matter it considers relevant to its determination.

Appendix B Sensitivity analysis on accuracy threshold






Comparison of volumes resulting from 15%, 12.5%, 10%, 7.5%, 5%, 2.5%, and 1% accuracy thresholds with no volume threshold
Number of gigajoules
150,000
100,000
50,000
-
-50,000
-100,000
-150,000
-200,000
-250,000
-300,000
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10
Jan-11
Apr-11
+1%
+2.5%
+5%
+7.5%
+10%
+12.5%
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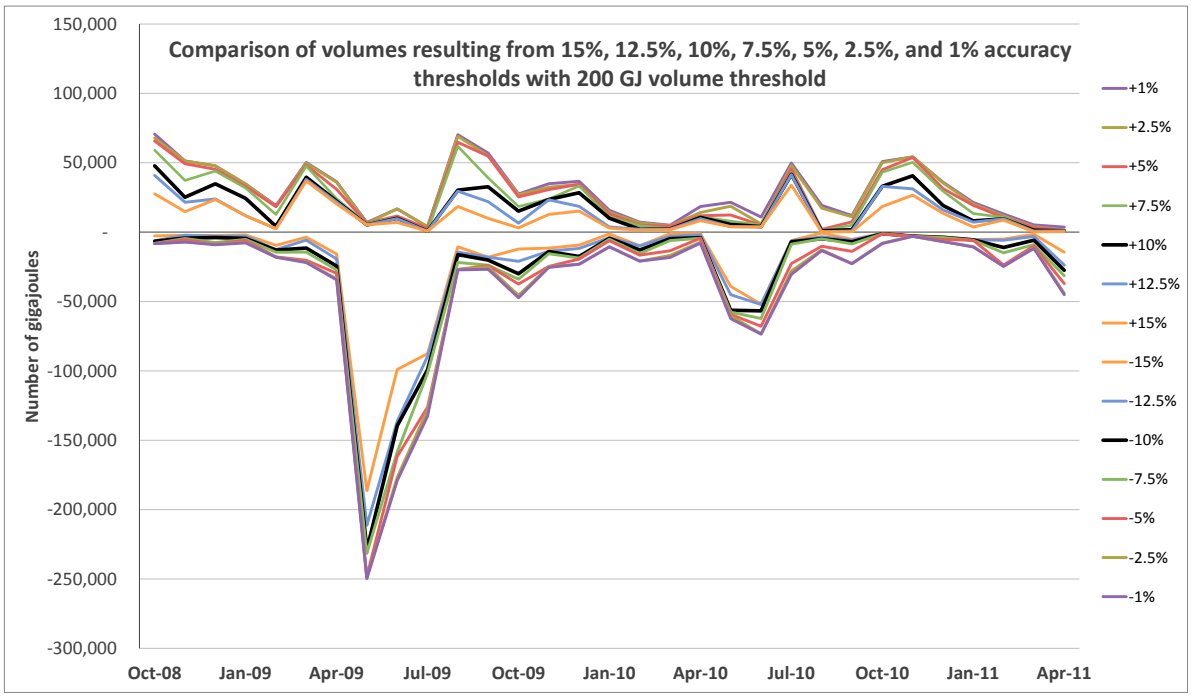
-10%
-7.5%
-5%
-2.5%
-1%


Comparison of volumes resulting from 15%, 12.5%, 10%, 7.5%, 5%, 2.5%, and 1% accuracy thresholds with 200 GJ volume threshold
Number of gigajoules
150,000
100,000
50,000
-
-50,000
-100,000
-150,000
-200,000
-250,000
-300,000
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10
Jan-11
Apr-11
+1%
+2.5%
+5%
+7.5%
+10%
+12.5%
+15%
-15%
-12.5%
-10%
-7.5%
-5%
-2.5%
-1%