Evaluation of algorithm performance - 2013/14 gas year

Introduction

The annual gas year algorithm performance evaluation normally considers three sources of information as follows:

- i) daily values of scaling factor (SF) and weather correction factor (WCF) (this was presented separately at the DESC meeting of 17th November 2014)
- ii) reconciliation variance (RV) data for each EUC
- iii) daily consumption data collected from the NDM sample

This note presents the results of the review in respect of RV data and NDM sample derived daily consumption data, with brief explanatory notes.

1.0 Scaling Factor (SF) and Weather Correction Factor (WCF)

This material was discussed at the meeting of DESC on 17th November 2014.

It incorporated SF and WCF graphs and tables, for the two previous gas years, 2012/13 and 2013/14. In addition figures for the mean square deviation of SF from 1 were provided.

2.0 Reconciliation Variance (RV) analysis

2.1 Overview

Reconciliation variances (RVs) are calculated at individual meter point level, usually on receipt of a validated meter read. Reconciliation variance is the difference between the measured consumption (based on the start and end meter reads) and the deemed consumption (given by the algorithm). A positive reconciliation variance indicates under estimation by the NDM profiling algorithm.

In interpreting RV data it must be recognised that reconciliation variances occur due to any of a number of factors. One of these is imperfections in the profiling parameters themselves, but inaccuracies in meter point annual quantities (AQs) and in meter reads can lead to large reconciliation variances.

The reconciliation variance (RV) data presented is based on the complete set of reconciliation variances that have been calculated for meter points in "B" EUCs. RVs for Winter Annual Ratio (WAR) band EUCs have not been included in the analysis. The object of this analysis is to try to assess the EUC profiles applied over the gas year from available RV data.

Therefore, prior to analysis the data has been screened to eliminate RVs which are greater than 50% of either the actual or allocated consumption (i.e. both: allocated $> 2 \times actual$ and allocated $< 0.5 \times actual$). Additional checks have also been made to ensure removal of inappropriate or erroneous data (e.g. actual consumptions should be positive, very low AQs are filtered out).

Over gas year 2013/14, this screening process reduced the available data set by an extent ranging from 14.1% in March 2014 to 46.3% in August 2014. The "raw" input data to this analysis is all RV data relating to the period in question (i.e. both standard and suppressed reconciliation).

The remaining validated RV data is then used to establish, for each EUC, an average profile of actual and allocated demand. On this basis the profiles have been categorised as "peaky", "flat" or "ok".

The generation of this average profile for an EUC involves taking each meter in turn and apportioning the total actual and allocated energy values evenly to all dates in the meter's reconciliation period. The ensuing aggregate values for each date are then divided by the number of contributing meters, and subsequently graphed against time.

The objective with this approach is not to establish a realistic profile resembling an ALP (annual load profile), but rather to highlight any seasonal patterns in the average reconciliation variance.

The RV profile that is thus derived for an EUC can be categorised according to two dimensions, its annual level and its peakiness. The categorisation procedure is undertaken through the calculation of full year, winter and summer average errors expressed as a percentage of the full year average actual figure. The difference between the winter and summer errors is taken to reflect the peakiness of the profile, whereas the size of the full year error indicates whether the average AQ for the meters contributing to each EUC sample is too high or too low. The winter/summer error differences have been classified as acceptable if the absolute value is less than 5% (which is approximately equivalent to a one percentage point change in load factor).

It must be noted that, since gas year 2013/14 ended only a few months previously, RV data relating to meter points that are not monthly read has not fully flowed through to the analysis.

Graphs illustrating the profiles established from the RV data, for EA, NO, SC, NW, SW, EM, and SO LDZs in consumption bands 02, 03, 04, 05, 06, 07 and 08 respectively, are attached as Figures 2.1, 2.3, 2.5, 2.7, 2.9, 2.11 and 2.13. Prior to its being classified as too "peaky" etc., the deemed profile is scaled so that over the year as a whole the level of demand matches the actual level. Figures 2.2, 2.4, 2.6, 2.8, 2.10, 2.12 and 2.14 show each of the revised profiles for the EUC and consumption band combinations stated above. Note again that the uniform apportionment of each reconciliation variance quantity across all applicable days together with fluctuations in the numbers of contributing meters during the period mean that these RV profiles are not comparable to ALP profiles and therefore the various apparent "spikes" in these figures must be seen in this context.

2.2 Analysis

Table 2.1 shows the classification of the EUC profiles as regards their peakiness. Tables 2.2 and 2.3 show the errors expressed as a fraction [(actual-allocated)/actual] over the winter and summer periods respectively, on which the classification is based.

Where the average number of contributing meters across the full year or across the winter or summer six month periods was 2 or less no attempt has been made to derive a classification. Thus, no assessment has been possible for WN LDZ in consumption band 07, WN, WS, NT and SE LDZ in consumption band 08 and for all LDZs (with the exception of SW) in consumption band 09.

It should be noted that not all reconciliation variance data applicable to the period under review (gas year 2013/14) has yet been processed (particularly in those consumption bands with non-monthly read meters). Subject to this caveat, Table 2.1 suggests that during 2013/14 for consumption bands 02 and 03 the profiles have in most cases been too peaky at the 5% level or the 10% level, the only exceptions are for band 02 in LDZ WM and in band 03 in LDZ SC where the profiles were good. Both these bands are the two most likely to contain non-monthly read meter points and therefore (as previously mentioned) RV data for these bands will not have fully flowed through into the analysis.

The profiles for consumption band 04 appear in most cases to be either good (in 7 LDZs), too peaky at the 5% level (in 5 LDZs: SC, NO, NE, EM and WS) or too peaky at the 10% level (in 1 LDZ).

The profiles for consumption band 05 also appear in most cases to be either good (in 9 LDZs) or too peaky at the 5% level (in 3 LDZs). There was also one instance (in LDZ WN) where the profile was classed as too flat at the 10% level.

The profiles for consumption bands 06 are a mixture of those that are good (5 LDZs: NO, NE, SE, SO and SW), too peaky at the 5% level (5 LDZs: SC, WM, WS, EA and NT) and too peaky at the 10% level (3 LDZs: NW, EM and WN).

The profiles for consumption band 07 are again a mixture of those that are good (5 LDZs: NE, EM, NT, SE and SO), too peaky at either the 5% level (3 LDZs: SC, WS and EA) or the 10% level (3 LDZs: NO, NW and SW) and too flat at the 5% level (1 LDZ: WM). An assessment of the profile could not be carried out in 1 LDZ (WN) due to sample size being too small.

The profiles for consumption band 08 are also a mixture, comprised of cases that are good (4 LDZs: SC, NW, SO and SW), too peaky at the 10% level (4 LDZs: NO, NE, WM and EA) and too flat at the 10% level (1 LDZ: EM). An assessment was not carried out in 4 LDZs (WN, WS, NT and SE) due to sample size being too small.

For consumption band 09, an assessment was only possible in 1 LDZ (i.e. SW) and the profile was classed as being too flat at the 10% level.

Considering the overall results, there are a number of instances with profiles that are too peaky at the 5% level, too peaky at the 10% level or good. Overall there are no occurrences of profiles that are too flat in consumption bands 02 to 04. Instances of profiles that are too flat are not common in most bands.

When each consumption band (excluding band 09) is assessed in aggregate across all available LDZs, bands 04 and 05 are good (winter/summer error differences within the 5% level), while bands 02, 03, 06, 07 and 08 have a winter/summer error difference that is too peaky at the 5% level.

The winter and summer period fractional errors are shown in Tables 2.2 and 2.3. The profile assessments (e.g. the 5% and 10% levels) are based on the sum of the differences in the winter and summer errors - e.g. a winter error of -4% and a summer error of +4% for consumption band 03 in WM LDZ means an overall difference of 8% and the profile is too peaky at the 5% assessment level. Note here that the error is defined as "actual – allocated". So, a negative winter % error indicates a profile that is too peaky and a positive winter % error indicates a profile that is too flat.

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Table 2.4 shows the extent of the scaling that was applied in this RV analysis to the deemed demands in each EUC in order to match the annual demands. Most of the scaling applied is seen to be an uplift (>1). Interpreted simplistically, this might indicate a deficit in the level of AQ in these EUCs. In direct contrast, there was a further reduction in aggregate NDM AQs in all 13 LDZs at the start of gas year 2014/15. The percentage AQ changes in each LDZ and overall were reported to DESC in November 2014 as part of the WCF and SF strand of performance evaluation.

However, this RV analysis does not actually reflect the overall population for a number of reasons. Most significantly, there is no reconciliation of consumption band 01 (which makes up 72% of overall NDM load in AQ terms). Moreover, RV data validation results in a significant proportion of the raw data having to be discarded (thus the ensuing results for annual scaling do not necessarily represent the overall population). The largest rejection category when RV data is validated is where "allocated > 2 actual" (which are all likely to be cases where the AQ is too high). So, it could be argued that the data cleaning has removed more of the cases of "too high AQs". In addition, the results cover the recently concluded gas year (2013/14) pertaining to which all RV data in all consumption bands has not yet become available.

If the assumption is made that the RV results indicate correctly that "Larger Supply Point" NDM EUC AQs for the population at large were too low in 2013/14, since it also appears clear from the AQ changes in aggregate for NDM load that took place at the start of gas year 2014/15 that overall aggregate NDM AQs in gas year 2013/14 were too high, that would suggest that "Smaller Supply Point" (consumption band 01) AQs were notably too high. The more plausible viewpoint is to discount the annual scaling from the RV analysis as being unrepresentative for the reasons stated.

3.0 Analysis of NDM sample daily consumption data

3.1 Overview

The performance of the NDM profiling algorithms has been evaluated by comparing actual daily demands for supply points in the NDM sample with estimates of their daily demands (as per the NDM profiling formula) across the range of EUCs. This evaluation covers the period of the gas year 2013/14.

The performance of the algorithms has been evaluated on three bases:

- i) As used gas year 2013/14 ALPs and DAFs, real system WCF and SF.
- ii) Best estimate 13 gas year 2013/14 ALPs, DAFs, estimated weather correction factor (EWCF) consistent with DAFs and SF = 1.
- iii) Best estimate 14 as (ii) above but with ALPs, DAFs, EWCFs based on 2014/15 models adjusted to apply to pattern of days/holidays in 2013/14.

Tables showing the error ("actual-allocated") expressed as a percentage of full year demand, for the whole year and for winter and summer separately, for each of the three bases, are attached as Tables 3.1 to 3.9. Note that positive errors denote under allocation and negative errors denote over allocation by the algorithms.

It is worth noting at the outset that results for band 09 are unreliable and are disregarded in this assessment. Only supply points that are NDM and have passed data validation can be used to assess this band and therefore the band is represented by a very small number of supply points distributed in only some of the 13 LDZs.

Figures 3.1, 3.2 and 3.3 are bar charts showing a simple summary of the overall picture given by these three sets of tables. The overall error and apparent winter/summer bias for EUCs in each consumption band is shown averaged across all LDZs.

The bar chart in Figure 3.1 shows that for the "as used" analysis the percentage errors for all consumption bands over the 12 month period as a whole, are positive and lie within a range of 1.28% to 2.52%. The winter errors are positive for all bands, whereas the summer errors are negative with the exception of bands 01, 02 and 05.

3.2 Analysis

The positive errors over 12 months across all consumption bands indicate under allocation by the models. This under allocation in all consumption bands in the "as used" analysis is an indication of population AQs being higher than the NDM sample derived AQs. Moreover, since allocated consumption is a direct function of AQ, the extent of any AQ excess (in percentage terms) would broadly tend to be of the same order as that noted for this "as used" analysis. The full year errors in the "as used" analysis, across all applicable consumption bands for each LDZ (excluding WN LDZ for which there is no data for band 01) were also computed and are set out in Table 3.10. These errors range from 0.5% to 2.3% for the individual LDZs (and -1.6% overall across all LDZs excluding WN) suggesting an AQ excess of the same extent.

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The "as used" analysis uses real (i.e. Gemini system) SFs that have taken population AQs into account (i.e. if population AQ was too high then this would have led to a decrease of the real SFs from the values that would have otherwise applied).

However, the AQs used in the analysis are not system AQs but are computed from sample data itself. These AQs based on the consumption data of the sample itself would be expected to be lower than the equivalent system AQs. Thus, the resultant "as used" allocations using the real SFs with sample derived AQs, end up being lower than they should be and this gives the positive errors shown in Figure 3.1.

The percentage changes in aggregate NDM AQs at the start of gas year 2014/15 as observed on the Gemini system indicated that a small reduction in aggregate NDM AQs had taken place for gas year 2014/15 in all 13 LDZs. The reduction was 2.5% overall across all LDZs and the changes ranged from a 1.3% reduction in SW LDZ to a 3.3% reduction in NE and WN LDZs.

The "best estimate" analysis is potentially more helpful in assessing the performance of the algorithms themselves, as opposed to the performance of the demand attribution process. For each "best estimate" analysis, a scaling factor of one is used and EWCF is applied instead of WCF. The EWCF is calculated directly from the models of aggregate NDM demand in the LDZ for the period in question, using the relevant aggregate NDM seasonal normal demands and weather sensitivities (the same values used originally to compute the EUC DAF profiles) along with the actual CWV. Use of the EWCF avoids bias which might be introduced in the WCF by any excess or deficiency in EUC AQs in the relevant LDZ, used to compute the sum across all EUCs of ALP weighted daily average demand [$\sum_{zvc} ALP * (AQ / 365)$] for each day. (Note that EWCF = (WSENS/SND) * (CWV – SNCWV)).

The "best estimate 13" analysis is based on the algorithms for 2013/14, while the "best estimate 14" analysis is based on algorithms derived for 2014/15 and applied with appropriate adjustment for the pattern of days of the week and holidays in 2013/14.

On the evidence of the bar chart in Figure 3.2 ("best estimate 13"), there was very little overall error in the algorithms for any of the consumption bands over the whole of gas year 2013/14 (full year errors range between 0.00% and +0.10% for all bands). Overall consumption band winter period errors range from +0.97% to +2.40% and overall consumption band summer period errors range from -6.44% to -2.05%. Actual summer demands are lower and hence percentage errors can be somewhat greater in the summer. The signs of the winter and summer period errors suggest that for all consumption bands (01 to 08) the profiles in 2013/14 were a little too flat. There are (of course) exceptions to this broad generalisation in some individual LDZs (see Tables 3.5 and 3.6).

The bar chart in Figure 3.3 ("best estimate 14") shows that the algorithms derived for 2014/15 would (if applied to gas year 2013/14) have resulted in a similar outcome for each overall consumption band considered. Whole year errors are very small overall for all the consumption bands, but for this "best estimate 14" case they range between +0.01% and +0.09%. Winter and summer period errors are slightly improved in bands 01 and 03. However, the winter and summer period errors are slightly worse for bands 02, 04, 05, 06, 07 and 08.

The reconciliation variance analysis for gas year 2013/14 indicated profiles (excluding bands 09) that were good (within the 5% level of winter/summer error differences) for bands 04 and 05 and too peaky at the 5% level for bands 02, 03, 06, 07 and 08.

It must be borne in mind that the two analyses are based on different data sets, neither of which are necessarily representative of the population as a whole. The RV analysis cannot assess consumption band 01 and is based on a validated sub-set of available reconciliation data relating to gas year 2013/14. Moreover, not all RV data pertaining to the period has been received at the time of this analysis (i.e. RVs resulting from non-monthly meter reads have not all come in). On the other hand, the "best estimate" analyses are based on validated NDM sample data. Furthermore, both analyses suffer from small numbers of contributing meter/supply points at the higher consumption bands.

A selection of monthly charts is also presented: Figures 3.4 to 3.11 are monthly bar charts comparing actual and allocated demands, across all LDZs for consumption bands 01 to 08 respectively. These show for each month, actual demand, and allocated demand on the "as used", "best estimate 13" and "best estimate 14" bases.

In interpreting these monthly charts it is relevant to recall the weather conditions that prevailed during gas year 2013/14. Over the winter 6-month period, October 2013 was a mixed month with the beginning and end of the month being much warmer than seasonal normal and the middle of the month being much colder than seasonal normal. November 2013 was colder than current seasonal normal overall with most days in the month having much colder than normal temperatures. December 2013 was fairly average although there was a 7 day period of warmer than normal weather in the middle of the month, resulting with it being ranked as the 5th warmest in last 50 years. January 2014 was slightly warmer overall (despite a few colder days at the

end of the month) ranking as the 9th warmest January in the last 50 years. February 2014 was a mixed month (the first half of the month being slightly colder than current seasonal normal and the second half being substantially warmer) resulting in it being ranked 11th warmest in the last 50 years. March 2014 was also a generally mixed month with predominantly days of warmer than normal temperatures resulting in the month being ranked as 7th warmest in last 50 years. Nationally during the summer 6 month period, April 2014 was much warmer than normal (the 3rd warmest in the last 50 years). May 2014 was a mixed month (10th warmest in the last 50 years) with the beginning and end of the month being colder than normal and a notably warmer than normal 6 day period in the middle of the month. The months of June and July 2014 were both warmer than current seasonal normal overall (despite a few colder days) resulting in them both being ranked as 5th warmest in the last 50 years. August 2014 was colder than seasonal normal (9th coldest in last 50 years) whereas September 2014 was consistently warmer than normal and ranked as the 3rd warmest September in the last 50 years.

Consideration of these monthly bar charts focuses on the actual consumption compared to the allocations arising from the "best estimate" analyses, which better reflect the performance of the profiles themselves.

The monthly chart for band 01, in Figure 3.4, indicates winter under allocation (except in March 2014 which was predominantly warmer than normal). It also shows slight summer over allocation (most noticeably in April 2014 which was much warmer than normal).

Table 3.11 shows the percentage errors (on the "best estimate 13" basis) for band 01 over the months of April, May and the rest of the summer months (June to September). For band 01 during April and May, over allocation occurred in all LDZs (except SC, NO in April and WM in May), and this was also the case for most LDZs over the rest of the summer with the exception of EA, NT, SO and SW LDZs.

Table 3.12 shows the percentage errors overall across all LDZs (on the "best estimate 13" basis) for each band (except band 09) over the months of April, May and the rest of the summer months (June to September). In this table, in contrast to Table 3.11, the errors are expressed as a percentage of the actual demand over the month or set of months rather than as a percentage of actual demand over the full 6 month summer period. Over allocations occurred in bands 01, 02, 03 and 04 in April. Over allocations also occurred in the majority of bands (01 to 04 and 07) in May. Over the rest of the summer period over allocations occurred in bands all bands (01 to 08).

The monthly chart for band 02, in Figure 3.5, indicates winter under allocation in October, November, December, January and February and the majority of the summer months showing over allocation.

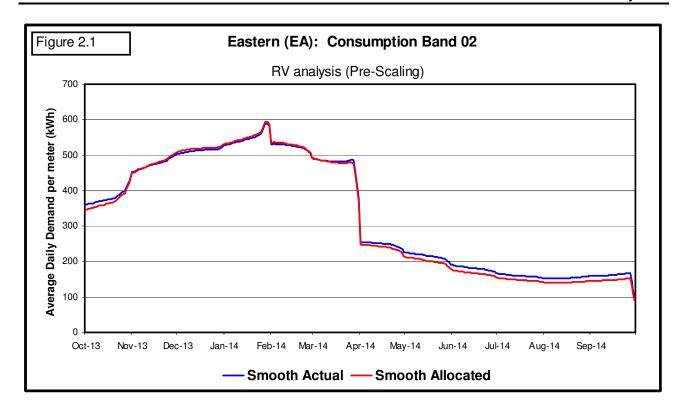
Figure 3.6 is the monthly chart for band 03, which shows under allocation during the winter months (with the exception of March 2014) but also shows slight summer over allocation, most evident in April 2014 which was a particularly warm month.

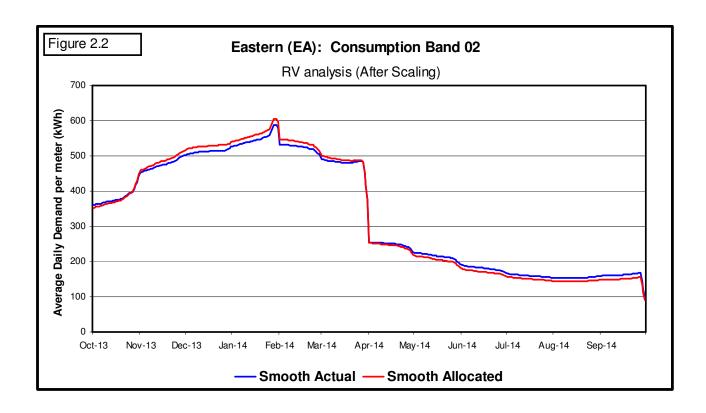
Figure 3.7 is the monthly chart for band 04, which shows winter under allocation (especially so during February 2014) and summer over allocation.

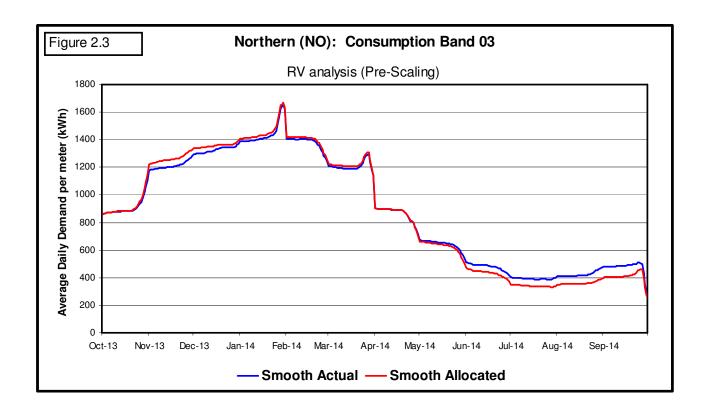
The monthly charts for bands 05 to 08 are in Figures 3.8 to 3.11. Overall, bands 05, 06, 07 and 08 show a small winter under allocation and a small summer over allocation (with exceptions for some months in some bands). For example, under allocation in bands 05 to 08 is evident for April 2014.

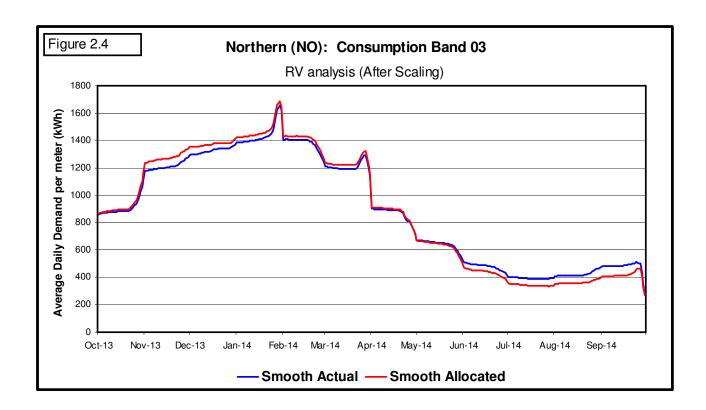
Additionally examples of monthly bar charts for individual EUCs, for some of the EUC bands (namely EA:E1302B, SC:E1303B, SO:E1304B, WM:E1305B, NT:E1306B, SE:E1307B and EM:E1308B) are shown in Figures 3.12 to 3.18 respectively. There is no consistent monthly pattern across all these examples, but in a majority of the examples October 2013 shows an under allocation and September 2014 an over allocation.

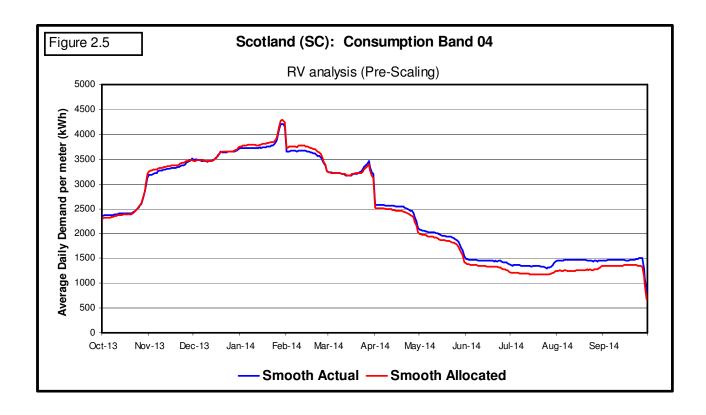
The final set of graphs (Figures 3.19 to 3.26) show actual demand and allocated demand on the "best estimate 13" and "best estimate 14" basis for each consumption band. In general, the allocated demand for both bases was close to the actual demand for each consumption band on most days. For band 01, the most notable exceptions occurred during the particularly cold days in February 2014 and the generally warmer period in mid March and throughout April 2014. For the other bands 02 to 08, the most notable exception appears to be a general over allocation in the summer months.

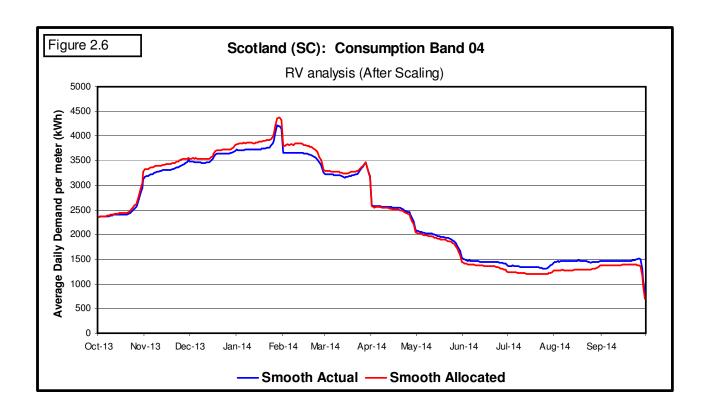


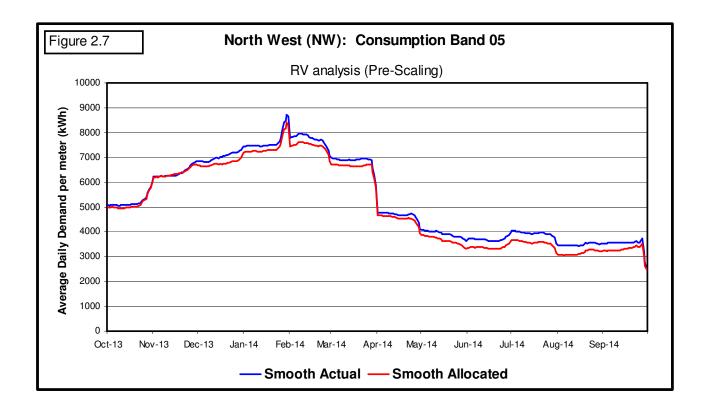


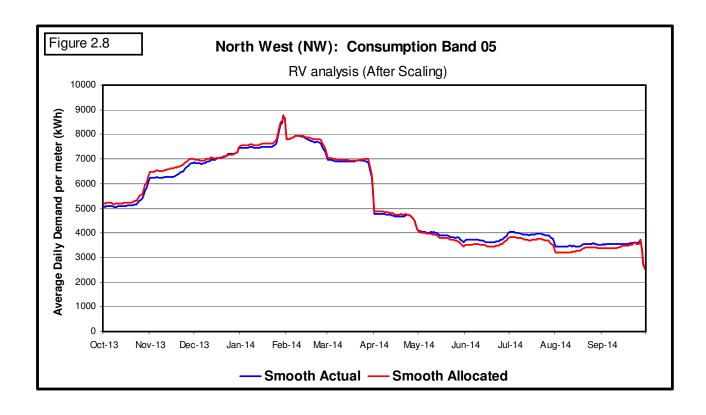


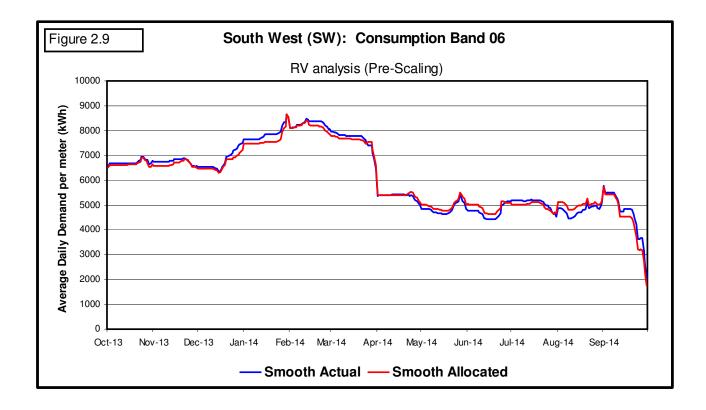


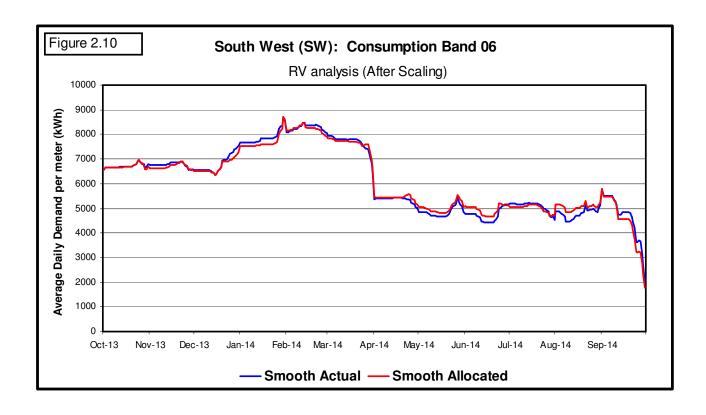


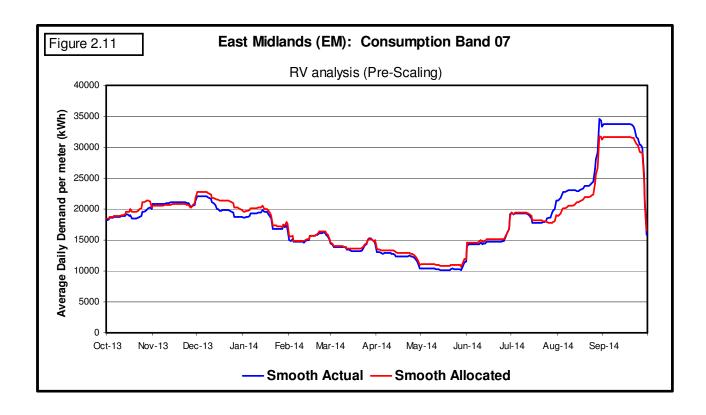


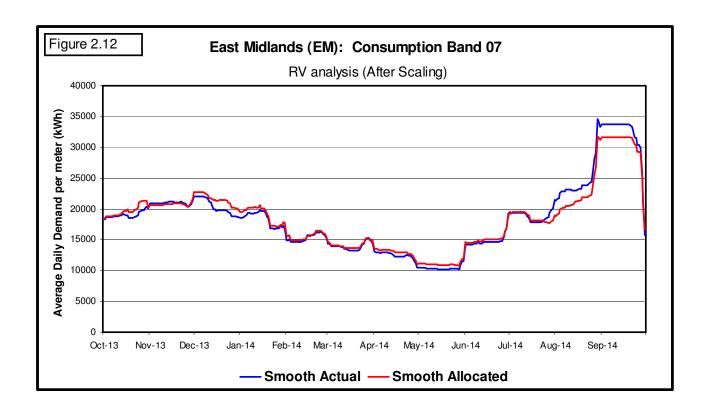


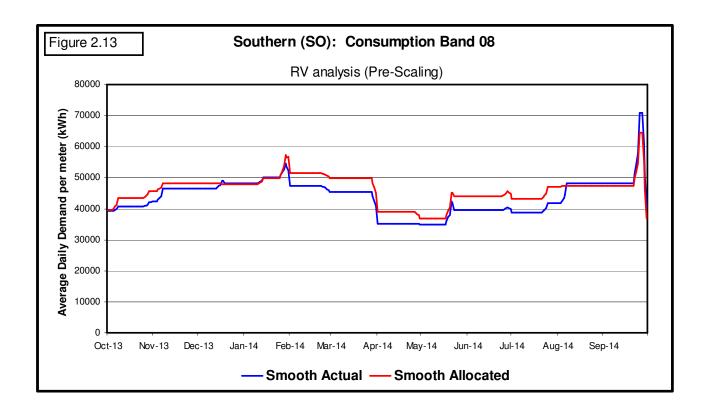












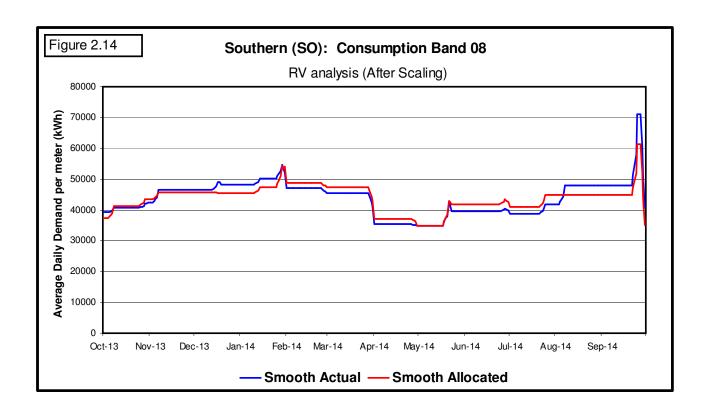


Table 2.1 - RV Categorisations: Profile (Gas Year 2013/14)

Based on average errors (after scaling) over the period as a percentage of average actual over the full year

EUC	Band	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	so	SW
02	В	↑	↑	1	↑	1	~	1	↑	↑	↑	1	1	1
03	В	~	\uparrow	\uparrow	\uparrow	\uparrow	↑	\uparrow	\uparrow	\uparrow	\uparrow	1	1	\uparrow
04	В	\uparrow	\uparrow	~	↑	↑	~	~	↑	~	~	~	\uparrow	~
05	В	~	~	~	\uparrow	~	~	\downarrow	\uparrow	~	~	~	~	\uparrow
06	В	\uparrow	~	\uparrow	~	\uparrow	1	\uparrow	\uparrow	\uparrow	\uparrow	~	~	~
07	В	\uparrow	\uparrow	\uparrow	~	~	\downarrow		\uparrow	\uparrow	~	~	~	\uparrow
08	В	~	\uparrow	~	\uparrow	\downarrow	\uparrow			\uparrow			~	~
09	В													\downarrow



Table 2.2 - RV Categorisations: Winter (Gas Year 2013/14)

Based on average errors (after scaling) over the period as a percentage of average actual over the full year

EUC	Band	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW
02	В	-0.03	-0.03	-0.03	-0.03	-0.03	-0.02	-0.05	-0.04	-0.03	-0.04	-0.03	-0.03	-0.04
03	В	-0.02	-0.04	-0.05	-0.04	-0.04	-0.04	-0.06	-0.06	-0.05	-0.03	-0.05	-0.05	-0.07
04	В	-0.04	-0.04	-0.01	-0.03	-0.03	-0.01	-0.01	-0.04	-0.01	-0.01	0.00	-0.05	-0.02
05	В	0.00	0.00	-0.02	-0.03	-0.02	-0.01	0.11	-0.04	-0.01	0.00	0.01	-0.02	-0.05
06	В	-0.03	0.00	-0.05	0.00	-0.06	-0.03	-0.12	-0.03	-0.03	-0.03	-0.02	-0.01	0.01
07	В	-0.03	-0.06	-0.08	0.02	-0.02	0.04		-0.05	-0.03	0.01	0.01	0.00	-0.09
08	В	-0.03	-0.10	-0.02	-0.07	0.06	-0.07			-0.07			0.00	-0.02
09	В													0.23

Table 2.3 – RV Categorisations: Summer (Gas Year 2013/14)

Statistics are average errors (after scaling) over the period as a fraction of average actual over the full year

EUC	Band	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW
02	В	0.03	0.03	0.03	0.03	0.03	0.02	0.05	0.04	0.03	0.04	0.03	0.03	0.04
03	В	0.02	0.04	0.05	0.04	0.04	0.04	0.06	0.06	0.05	0.03	0.04	0.05	0.06
04	В	0.04	0.04	0.01	0.03	0.03	0.01	0.01	0.04	0.01	0.01	0.00	0.05	0.02
05	В	0.00	0.00	0.02	0.03	0.02	0.01	-0.11	0.04	0.01	0.00	-0.01	0.02	0.05
06	В	0.03	0.00	0.05	0.00	0.06	0.03	0.12	0.03	0.03	0.03	0.02	0.01	-0.01
07	В	0.03	0.06	0.08	-0.02	0.02	-0.04		0.05	0.03	-0.01	-0.01	0.00	0.09
08	В	0.02	0.09	0.02	0.07	-0.06	0.07			0.07			0.00	0.02
09	В													-0.22

Table 2.4 – RV Categorisations: Annual Scaling (Gas Year 2013/14)

Statistics are total actual over the full year divided by the total allocated over the full year

EUC	Band	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW
02	В -	1.03	1.01	1.02	1.02	1.03	1.04	1.02	1.02	1.02	1.03	1.04	1.03	1.04
03	В	1.03	1.01	1.02	1.02	1.03	1.04	1.02	1.02	1.04	1.03	1.04	1.02	1.01
04	В	1.02	1.00	1.02	1.03	1.02	1.02	1.02	1.01	1.01	1.02	1.04	1.02	1.02
05	В	1.02	1.06	1.05	1.00	1.04	1.06	0.93	1.02	1.02	1.02	1.03	1.04	1.06
06	В	0.99	0.99	1.05	1.05	1.05	1.08	1.01	1.07	1.04	1.05	1.02	1.07	1.01
07	В	1.08	0.99	1.02	1.06	1.00	1.01		0.94	1.08	1.05	1.27	1.02	1.11
08	В	1.05	1.05	0.81	0.95	0.92	1.16			1.05			0.95	0.92
09	В													0.94

Table 3.1 - Oct 13 to Sep 14: Actual WCF and SF, ALPs and DAFs 'As Used'

EUC	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW	ALL
01B	2.43%	0.84%	3.37%	1.63%	2.50%	3.47%	-	3.24%	2.34%	1.51%	2.98%	3.08%	2.82%	2.51%
Num S.pts	227	229	229	253	253	247	-	237	274	238	234	257	247	2925
02B	2.43%	0.78%	3.60%	1.87%	2.41%	3.41%	3.11%	3.21%	2.12%	1.18%	2.52%	2.83%	2.67%	2.39%
Num S.pts	104	94	128	106	106	104	2	81	117	137	138	107	118	1342
03B	2.34%	0.88%	3.36%	1.70%	2.30%	3.39%	2.74%	2.34%	2.22%	1.16%	2.63%	2.63%	2.59%	2.33%
Num S.pts	121	71	107	90	138	94	9	23	121	124	150	108	63	1219
04B	2.12%	0.45%	3.09%	1.74%	2.08%	3.00%	2.75%	2.29%	2.08%	1.12%	2.27%	2.60%	2.41%	2.15%
Num S.pts	259	127	248	172	204	229	23	54	226	269	225	193	123	2352
05B	1.95%	0.51%	2.63%	1.51%	1.56%	2.48%	2.50%	1.97%	1.83%	0.93%	2.00%	2.65%	2.11%	1.87%
Num S.pts	209	84	161	95	159	176	13	43	106	193	120	105	84	1548
06B	1.95%	0.87%	2.21%	1.36%	1.25%	1.78%	2.45%	1.76%	1.52%	0.60%	1.87%	2.44%	1.93%	1.62%
Num S.pts	86	48	78	67	86	84	6	27	62	66	43	42	54	749
07B	1.84%	0.83%	1.96%	1.23%	0.96%	1.40%	2.25%	1.89%	1.41%	0.23%	1.31%	2.17%	1.91%	1.43%
Num S.pts	26	19	53	45	50	38	5	11	24	20	19	19	26	355
08B	1.61%	0.83%	1.73%	1.11%	0.81%	1.22%	2.11%	1.47%	1.51%	0.42%	1.40%	1.99%	1.70%	1.28%
Num S.pts	8	10	36	20	36	40	3	11	20	15	5	8	13	225



Table 3.2 - Oct 13 to Mar 14: Actual WCF and SF, ALPs and DAFs 'As Used'

Analysis of daily percentage error: Statistic is total errors as percentage of full period

EUC	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW	ALL
01B	2.87%	0.54%	3.57%	1.54%	2.34%	3.63%	-	2.76%	1.91%	2.29%	3.85%	1.80%	2.29%	2.42%
Num S.pts	227	229	229	253	253	247	-	237	274	238	234	257	247	2925
02B	4.34%	-0.58%	3.17%	1.21%	1.83%	4.19%	41.88%	0.99%	3.54%	2.14%	3.63%	3.39%	2.72%	2.61%
Num S.pts	104	94	128	106	106	104	2	81	117	137	138	107	118	1342
03B	3.68%	-1.32%	0.69%	-0.35%	3.35%	6.95%	6.29%	3.54%	4.02%	6.03%	4.57%	3.17%	3.38%	3.44%
Num S.pts	121	71	107	90	138	94	9	23	121	124	150	108	63	1219
04B	3.09%	1.35%	5.76%	2.00%	2.38%	4.18%	5.44%	0.59%	3.25%	3.73%	4.63%	2.19%	1.13%	3.26%
Num S.pts	259	127	248	172	204	229	23	54	226	269	225	193	123	2352
05B	1.21%	0.00%	2.87%	2.03%	1.79%	1.97%	5.68%	9.22%	6.12%	4.24%	2.47%	-0.33%	1.69%	2.56%
Num S.pts	209	84	161	95	159	176	13	43	106	193	120	105	84	1548
06B	1.89%	3.73%	2.23%	-2.23%	3.05%	5.04%	0.07%	0.90%	1.17%	2.44%	8.37%	3.77%	2.48%	2.68%
Num S.pts	86	48	78	67	86	84	6	27	62	66	43	42	54	749
07B	1.56%	3.49%	6.22%	-2.05%	1.36%	3.36%	-6.84%	7.32%	5.41%	8.64%	6.80%	11.64%	-4.98%	3.33%
Num S.pts	26	19	53	45	50	38	5	11	24	20	19	19	26	355
08B	7.71%	1.33%	3.30%	-2.82%	0.32%	4.35%	-2.76%	0.74%	-7.60%	-5.50%	14.00%	14.96%	7.36%	1.83%
Num S.pts	8	10	36	20	36	40	3	11	20	15	5	8	13	225

Table 3.3 - Apr 14 to Sep 14: Actual WCF and SF, ALPs and DAFs 'As Used'

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EUC	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW	ALL
01B	1.13%	1.76%	2.71%	1.92%	3.07%	2.92%	-	4.83%	3.75%	-0.99%	-0.04%	7.13%	4.60%	2.79%
Num S.pts	227	229	229	253	253	247	-	237	274	238	234	257	247	2925
02B	-3.04%	4.39%	4.87%	3.84%	4.24%	0.83%	50.97%	10.06%	-2.17%	-1.32%	-0.60%	1.26%	2.55%	1.78%
Num S.pts	104	94	128	106	106	104	2	81	117	137	138	107	118	1342
03B	-1.04%	6.55%	10.59%	7.31%	-1.01%	-9.83%	-9.84%	-2.12%	-3.29%	13.05%	-3.27%	0.96%	-0.21%	-0.97%
Num S.pts	121	71	107	90	138	94	9	23	121	124	150	108	63	1219
04B	-0.15%	-2.01%	-3.92%	1.12%	1.27%	-0.16%	-4.42%	6.70%	-1.16%	-5.41%	-3.57%	3.69%	5.51%	-0.72%
Num S.pts	259	127	248	172	204	229	23	54	226	269	225	193	123	2352
05B	3.38%	1.50%	2.18%	0.47%	1.12%	3.50%	-4.43%	- 15.71%	-8.58%	-6.63%	1.06%	8.82%	2.91%	0.46%
Num S.pts	209	84	161	95	159	176	13	43	106	193	120	105	84	1548
06B	2.03%	-3.81%	2.18%	6.33%	-1.62%	-3.65%	5.83%	3.02%	2.08%	-2.74%	13.02%	-0.22%	1.07%	-0.11%
Num S.pts	86	48	78	67	86	84	6	27	62	66	43	42	54	749
07B	2.21%	-3.03%	-4.55%	5.25%	0.43%	-1.29%	12.54%	-8.17%	-4.95%	- 14.45%	-7.66%	- 17.36%	11.01%	-1.33%
Num S.pts	26	19	53	45	50	38	5	11	24	20	19	19	26	355
08B	-7.24%	0.20%	-0.28%	5.54%	1.40%	-2.89%	7.59%	2.45%	12.78%	8.05%	26.16%	- 23.11%	-7.05%	0.57%
Num S.pts	8	10	36	20	36	40	3	11	20	15	5	8	13	225

Table 3.4 - Oct 13 to Sep 14: EWCF, with SF=1: 2013/14 ALPs and DAFs 'Best Estimate 13'

Analysis of daily percentage error: Statistic is total errors as percentage of full period

EUC	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	so	SW	ALL
01B	-0.01%	-0.01%	0.00%	0.00%	0.01%	0.00%	-	0.00%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%
Num S.pts	227	229	229	253	253	247	-	237	274	238	234	257	247	2925
02B	0.07%	0.10%	0.05%	0.04%	0.06%	0.06%	0.05%	0.04%	0.01%	-0.01%	-0.01%	-0.03%	0.03%	0.03%
Num S.pts	104	94	128	106	106	104	2	81	117	137	138	107	118	1342
03B	0.05%	0.10%	0.33%	0.25%	0.15%	0.22%	0.33%	-0.36%	0.07%	0.00%	0.02%	-0.05%	0.05%	0.09%
Num S.pts	121	71	107	90	138	94	9	23	121	124	150	108	63	1219
04B	0.11%	0.10%	0.20%	0.10%	0.16%	0.25%	0.20%	-0.17%	0.09%	0.07%	0.01%	-0.01%	0.09%	0.11%
Num S.pts	259	127	248	172	204	229	23	54	226	269	225	193	123	2352
05B	0.06%	0.06%	0.25%	0.19%	0.13%	0.07%	0.25%	-0.03%	0.01%	0.07%	0.01%	0.00%	0.08%	0.09%
Num S.pts	209	84	161	95	159	176	13	43	106	193	120	105	84	1548
06B	0.06%	0.07%	0.02%	0.06%	0.06%	0.13%	0.02%	0.02%	0.01%	0.00%	0.02%	0.03%	0.03%	0.05%
Num S.pts	86	48	78	67	86	84	6	27	62	66	43	42	54	749
07B	0.05%	0.02%	0.00%	0.04%	0.04%	0.03%	0.00%	0.01%	0.00%	0.00%	0.00%	0.01%	0.03%	0.02%
Num S.pts	26	19	53	45	50	38	5	11	24	20	19	19	26	355
08B	0.01%	0.01%	0.00%	0.02%	0.02%	0.01%	0.00%	-0.03%	0.05%	0.05%	0.01%	-0.01%	0.01%	0.01%
Num S.pts	8	10	36	20	36	40	3	11	20	15	5	8	13	225

Table 3.5 – Oct 13 to Mar 14: EWCF, with SF=1: 2013/14 ALPs and DAFs 'Best Estimate 13'

EUC	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	so	SW	ALL
01B	1.54%	1.05%	2.82%	1.14%	1.01%	1.12%	-	2.26%	0.82%	0.50%	1.52%	0.58%	1.03%	1.26%
Num S.pts	227	229	229	253	253	247	-	237	274	238	234	257	247	2925
02B	3.05%	-0.09%	2.18%	0.61%	0.56%	1.81%	- 42.15%	0.61%	2.60%	0.58%	1.62%	2.28%	1.52%	1.44%
Num S.pts	104	94	128	106	106	104	2	81	117	137	138	107	118	1342
03B	2.42%	-0.82%	-0.34%	-0.98%	2.09%	4.50%	6.12%	3.28%	3.07%	4.56%	2.52%	2.07%	2.12%	2.19%
Num S.pts	121	71	107	90	138	94	9	23	121	124	150	108	63	1219
04B	1.84%	1.82%	4.84%	1.40%	1.18%	2.02%	5.15%	0.28%	2.33%	2.36%	2.79%	1.08%	-0.06%	2.12%
Num S.pts	259	127	248	172	204	229	23	54	226	269	225	193	123	2352
05B	0.02%	0.32%	1.94%	1.43%	0.85%	0.11%	5.26%	8.89%	5.28%	3.02%	0.77%	-1.43%	0.59%	1.49%
Num S.pts	209	84	161	95	159	176	13	43	106	193	120	105	84	1548
06B	0.87%	3.83%	1.45%	-2.84%	2.30%	3.73%	-0.58%	0.52%	0.41%	1.36%	6.87%	2.78%	1.49%	1.81%
Num S.pts	86	48	78	67	86	84	6	27	62	66	43	42	54	749
07B	0.63%	3.51%	5.55%	-2.64%	0.75%	2.33%	-7.54%	6.92%	4.73%	7.97%	5.72%	10.76%	-6.04%	2.60%
Num S.pts	26	19	53	45	50	38	5	11	24	20	19	19	26	355
08B	6.93%	1.26%	2.67%	-3.36%	-0.21%	3.47%	-3.49%	0.28%	-8.42%	-6.37%	12.92%	14.15%	6.49%	1.14%
Num S.pts	8	10	36	20	36	40	3	11	20	15	5	8	13	225

Table 3.6 - Apr 14 to Sep 14: EWCF, with SF=1: 2013/14 ALPs and DAFs 'Best Estimate 13'

Analysis of daily percentage error: Statistic is total errors as percentage of full period

EUC	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW	ALL
01B	-4.56%	-3.25%	-9.19%	-3.50%	-3.43%	-3.91%	-	-7.37%	-2.68%	-1.55%	-5.32%	-1.85%	-3.47%	-4.08%
Num S.pts	227	229	229	253	253	247	-	237	274	238	234	257	247	2925
02B	-8.49%	0.58%	-6.29%	-1.66%	-1.49%	-5.72%	44.94%	-1.72%	-7.85%	-1.55%	-4.55%	-6.40%	-4.11%	-4.04%
Num S.pts	104	94	128	106	106	104	2	81	117	137	138	107	118	1342
03B	-5.90%	2.45%	2.15%	3.60%	-5.98%	15.67%	20.26%	13.85%	-9.16%	13.30%	-7.58%	-6.55%	-7.29%	-6.16%
Num S.pts	121	71	107	90	138	94	9	23	121	124	150	108	63	1219
04B	-3.93%	-4.62%	12.00%	-3.06%	-2.53%	-4.47%	- 12.97%	-1.36%	-6.12%	-5.66%	-6.87%	-2.95%	0.46%	-5.05%
Num S.pts	259	127	248	172	204	229	23	54	226	269	225	193	123	2352
05B	0.14%	-0.44%	-3.06%	-2.33%	-1.21%	0.00%	10.63%	21.83%	12.79%	-6.66%	-1.51%	2.98%	-0.91%	-2.77%
Num S.pts	209	84	161	95	159	176	13	43	106	193	120	105	84	1548
06B	-1.21%	-6.09%	-2.10%	4.07%	-3.53%	-5.89%	0.88%	-0.70%	-0.64%	-2.47%	15.65%	-5.48%	-2.28%	-2.82%
Num S.pts	86	48	78	67	86	84	6	27	62	66	43	42	54	749
07B	-0.75%	-5.05%	-8.47%	3.33%	-0.90%	-3.13%	8.55%	- 12.78%	-7.53%	13.91%	-9.33%	22.18%	8.04%	-3.72%
Num S.pts	26	19	53	45	50	38	5	11	24	20	19	19	26	355
08B	-10.00%	-1.56%	-3.44%	3.84%	0.29%	-4.53%	3.92%	-0.45%	10.52%	8.31%	28.22%	27.39%	10.00%	-1.45%
Num S.pts	8	10	36	20	36	40	3	11	20	15	5	8	13	225

Table 3.7 - Oct 13 to Sep 14: EWCF, with SF=1: 2014/15 ALPs and DAFs 'Best Estimate 14'

EUC	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW	ALL
01B	-0.01%	0.00%	0.00%	0.10%	0.00%	0.00%	-	0.00%	0.01%	0.00%	0.01%	0.00%	0.00%	0.01%
Num S.pts	227	229	229	253	253	247	-	237	274	238	234	257	247	2925
02B	0.06%	0.04%	0.01%	-0.03%	0.09%	0.01%	0.01%	0.02%	0.01%	-0.03%	-0.02%	-0.05%	0.01%	0.01%
Num S.pts	104	94	128	106	106	104	2	81	117	137	138	107	118	1342
03B	0.07%	0.09%	0.34%	0.24%	0.14%	0.20%	0.34%	-0.41%	0.05%	0.00%	0.00%	-0.07%	0.11%	0.09%
Num S.pts	121	71	107	90	138	94	9	23	121	124	150	108	63	1219
04B	0.12%	0.08%	0.02%	0.07%	0.17%	0.21%	0.02%	-0.20%	0.09%	0.00%	0.00%	-0.02%	0.08%	0.07%
Num S.pts	259	127	248	172	204	229	23	54	226	269	225	193	123	2352
05B	0.07%	0.06%	0.20%	0.18%	0.12%	0.06%	0.20%	0.04%	0.00%	0.07%	0.01%	0.00%	0.09%	0.08%
Num S.pts	209	84	161	95	159	176	13	43	106	193	120	105	84	1548
06B	0.05%	0.05%	0.01%	0.05%	0.05%	0.05%	0.01%	-0.04%	0.00%	0.00%	0.02%	0.02%	0.03%	0.03%
Num S.pts	86	48	78	67	86	84	6	27	62	66	43	42	54	749
07B	0.04%	0.02%	0.00%	0.03%	0.03%	0.02%	0.00%	0.01%	0.00%	0.00%	0.00%	0.01%	0.02%	0.02%
Num S.pts	26	19	53	45	50	38	5	11	24	20	19	19	26	355
08B	0.01%	0.00%	-0.01%	0.02%	0.02%	0.01%	-0.01%	0.00%	0.00%	0.00%	0.05%	-0.01%	0.01%	0.01%
Num S.pts	8	10	36	20	36	40	3	11	20	15	5	8	13	225

Table 3.8 - Oct 13 to Mar 14: EWCF, with SF=1: 2014/15 ALPs and DAFs 'Best Estimate 14'

Analysis of daily percentage error: Statistic is total errors as percentage of full period

EUC	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW	ALL
01B	1.90%	0.59%	2.95%	1.56%	1.05%	0.88%	-	2.18%	1.00%	0.47%	1.31%	0.26%	1.05%	1.25%
Num S.pts	227	229	229	253	253	247	-	237	274	238	234	257	247	2925
02B	3.45%	-0.21%	3.17%	1.01%	1.25%	2.15%	40.71%	0.85%	1.80%	0.28%	2.51%	1.67%	2.18%	1.68%
Num S.pts	104	94	128	106	106	104	2	81	117	137	138	107	118	1342
03B	2.20%	0.94%	0.60%	-0.45%	2.22%	4.42%	7.00%	1.87%	2.15%	3.81%	1.94%	1.39%	1.30%	2.02%
Num S.pts	121	71	107	90	138	94	9	23	121	124	150	108	63	1219
04B	1.15%	1.59%	4.59%	1.67%	1.52%	2.55%	4.91%	0.01%	2.52%	2.87%	2.66%	0.90%	0.47%	2.17%
Num S.pts	259	127	248	172	204	229	23	54	226	269	225	193	123	2352
05B	0.36%	-0.11%	2.93%	2.32%	1.33%	0.92%	6.21%	7.89%	5.46%	3.06%	1.07%	-0.78%	1.95%	1.95%
Num S.pts	209	84	161	95	159	176	13	43	106	193	120	105	84	1548
06B	2.04%	4.59%	2.10%	-0.94%	3.24%	4.27%	0.08%	1.58%	2.21%	1.82%	6.56%	2.44%	2.37%	2.65%
Num S.pts	86	48	78	67	86	84	6	27	62	66	43	42	54	749
07B	1.06%	4.70%	6.76%	-0.76%	2.30%	2.66%	-6.16%	9.10%	5.80%	9.00%	4.66%	10.43%	-3.63%	3.66%
Num S.pts	26	19	53	45	50	38	5	11	24	20	19	19	26	355
08B	5.60%	0.63%	2.09%	-2.63%	0.24%	2.78%	-4.11%	1.84%	-6.79%	-4.79%	11.60%	13.26%	7.63%	1.29%
Num S.pts	8	10	36	20	36	40	3	11	20	15	5	8	13	225

Table 3.9 - Apr 14 to Sep 14: EWCF, with SF=1: 2014/15 ALPs and DAFs 'Best Estimate 14'

EUC	SC	NO	NW	NE	EM	WM	WN	ws	EA	NT	SE	so	SW	ALL
01B	-5.63%	-1.84%	-9.59%	-4.39%	-3.59%	-3.08%	-	-7.14%	-3.27%	-1.51%	-4.59%	-0.81%	-3.56%	-4.04%
Num S.pts	227	229	229	253	253	247	-	237	274	238	234	257	247	2925
02B	-9.66%	0.69%	-9.43%	-3.12%	-3.52%	-7.06%	43.32%	-2.53%	-5.43%	-0.83%	-7.06%	-4.79%	-6.02%	-4.81%
Num S.pts	104	94	128	106	106	104	2	81	117	137	138	107	118	1342
03B	-5.31%	-2.08%	-0.35%	2.11%	-6.43%	- 15.43%	23.32%	-8.85%	-6.38%	- 11.13%	-5.91%	-4.54%	-4.11%	-5.65%
Num S.pts	121	71	107	90	138	94	9	23	121	124	150	108	63	1219
04B	-2.29%	-4.05%	12.00%	-3.81%	-3.38%	-6.01%	12.97%	-0.75%	-6.63%	-7.19%	-6.58%	-2.48%	-0.88%	-5.33%
Num S.pts	259	127	248	172	204	229	23	54	226	269	225	193	123	2352
05B	-0.50%	0.41%	-5.15%	-4.18%	-2.13%	-1.66%	12.87%	19.13%	13.25%	-6.76%	-2.11%	1.63%	-3.52%	-3.73%
Num S.pts	209	84	161	95	159	176	13	43	106	193	120	105	84	1548
06B	-3.05%	-7.36%	-3.10%	1.43%	-5.05%	-7.00%	-0.09%	-2.41%	-3.51%	-3.31%	14.96%	-4.82%	-3.67%	-4.23%
Num S.pts	86	48	78	67	86	84	6	27	62	66	43	42	54	749
07B	-1.37%	-6.79%	10.34%	0.99%	-2.97%	-3.59%	6.97%	16.81%	-9.24%	15.71%	-7.61%	21.51%	4.84%	-5.27%
Num S.pts	26	19	53	45	50	38	5	11	24	20	19	19	26	355
08B	-8.08%	-0.78%	-2.70%	3.01%	-0.26%	-3.62%	4.61%	-2.45%	8.40%	6.18%	- 25.20%	- 25.68%	- 11.77%	-1.67%
Num S.pts	8	10	36	20	36	40	3	11	20	15	5	8	13	225

Table 3.10 - Aggregate NDM AQs 2013/14						
LDZ	Estimated AQ Excess (+) or Deficit (-) ('as used' analysis full year errors)	Observed AQ Reductions in Gemini at start of gas year 2014/15				
SC	1.9%	-3.2%				
NO	0.8%	-1.8%				
NW	2.1%	-3.0%				
NE	1.3%	-3.3%				
EM	1.1%	-2.4%				
WM	1.7%	-3.0%				
WN	-	-3.3%				
ws	1.8%	-2.9%				
EA	1.6%	-2.1%				
NT	0.5%	-1.5%				
SE	1.6%	-2.0%				
so	2.3%	-3.0%				
SW	2.0%	-1.3%				
Overall	1.6%	-2.5%				

Table 3.11 - Apr 14 - Sep 14: EWCF, with SF=1: 2013/14 ALPs and DAFs 'Best Estimate 13'

Analysis of Daily Percentage Error: Statistic is Total Errors as Percentage of Actual Demand in Specified Period

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Band 01B	Apr 14	May 14	Jun 14 - Sep 14
SC	0.2%	-0.4%	-4.4%
NO	0.7%	-0.01%	-3.9%
NW	-2.0%	-0.4%	-6.7%
NE	-0.5%	-0.03%	-2.9%
EM	-2.0%	-0.04%	-1.4%
WM	-1.7%	0.2%	-2.3%
WN	-	-	-
WS	-1.5%	-0.9%	-5.0%
EA	-2.9%	-0.9%	1.1%
NT	-3.5%	-1.0%	2.9%
SE	-3.5%	-1.2%	-0.6%
SO	-1.8%	-0.9%	0.8%
SW	-2.4%	-1.5%	0.5%

Table 3.12 - Apr 14 - Sep 14: EWCF, with SF=1: 2013/14 ALPs and DAFs 'Best Estimate 13'

Analysis of Daily Percentage Error: Statistic is Total Errors as Percentage of Actual Demand in Specified Period

All LDZs	Apr 14	May 14	Jun 14 - Sep 14
01B	-5.6%	-2.7%	-4.0%
02B	-3.6%	-1.2%	-5.9%
03B	-5.3%	-1.0%	-10.0%
04B	-1.3%	-0.8%	-9.0%
05B	0.5%	1.3%	-6.0%
06B	1.3%	0.2%	-6.1%
07B	2.3%	-1.5%	-7.5%
08B	0.5%	2.4%	-4.3%
09B	-	-	-

