EVALUATION OF ALGORITHM PERFORMANCE – 2009/10 GAS YEAR
SCALING FACTOR AND WEATHER CORRECTION FACTOR

1.0 Background

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

- Daily values of scaling factor (SF) and weather correction factor (WCF)
- Reconciliation variance data for each end user category (EUC)
- Daily consumption data collected from the NDM sample

The material presented here refers only to SF and WCF data. The other strands of this evaluation will be available for consideration at a subsequent DESC meeting.

At the outset, it is worth setting out the characteristics of the key variables: the scaling factor (SF) and the weather correction factor (WCF).

The SF is a multiplier used to ensure that within each LDZ, aggregate NDM allocations equal total actual NDM demand. The ideal value of the SF is one, but variations may occur for a number of reasons including imperfections in the algorithms, but also errors in aggregate AQs and in measured LDZ and DM consumption (because aggregate NDM consumption is determined by difference: i.e. LDZ consumption-DM consumption), and deviations in aggregate NDM demand in the LDZ under average weather conditions away from the sum (for all end user categories (EUCs) in the LDZ) of ALP weighted daily average consumption based on EUC AQs. If other factors (most notably AQs) are not material, a scaling factor of less than one indicates a tendency of the NDM profiling algorithms to over allocate.

Up to the end of gas year 2007/08, the WCF represented the extent to which actual aggregate NDM demand in the LDZ differed from the forecast (before the year) seasonal normal demand (SND) for aggregate NDM in the LDZ. When actual aggregate NDM demand equalled seasonal normal demand, then WCF was zero. Typically, demand would have been above SND when it was colder than normal and below SND when it was warmer, and the WCF responded accordingly. However, if there had been an unforeseen growth in demand, then this would have been reflected in generally higher values of WCF than implied by the weather alone. Similarly, if demand had been unseasonably depressed (e.g. with early heating load switch-off or sustained demand loss due to high energy prices), then the WCF would have taken on a value lower than that expected solely due to the weather.

As a result of adoption of UNC Modification 204, the WCF applied from the start of gas year 2008/09 was redefined. WCF is now the extent to which actual aggregate NDM demand in the LDZ differs from the sum for all EUCs of ALP weighted daily average consumption based on EUC AQs in each LDZ. In the computation of WCF, the sum of ALP weighted daily average consumption for all EUCs in each LDZ (based on EUC AQs at the start of the gas year and potentially subject to revision periodically within the gas year) replaced year ahead forecast aggregate NDM SND in each LDZ. Broadly, WCF is still expected to take on positive values under conditions of cold weather and negative values under conditions of warm weather. Moreover, the effect on WCF of unforeseen growth in demand or unseasonably depressed demand would also broadly remain the same as before, with WCF respectively taking on higher or lower values than otherwise in these instances. However, the sum of ALP weighted daily average consumption for all EUCs in a LDZ is clearly not the same as a forecast value of aggregate NDM SND in the LDZ. Thus, the effect on WCF of unforeseen growth in demand or unseasonably depressed demand is now less clear. An excess in EUC AQs would tend to depress WCF and a deficit would tend to inflate WCF from the values it would otherwise have taken. So, UNC Modification 204 has replaced one potential source of error in the WCF calculation with another.

Up to the end of gas year 2007/08, any bias in WCF caused by seasonal normal demands for aggregate NDM in the LDZ being under or overstated would be observed by monitoring the quantity WCF-EWCF. The EWCF (estimated weather correction factor) is calculated directly from the demand model for aggregate NDM in the LDZ and captures the effects of weather alone on demand. The difference between WCF and EWCF thus isolates the non-weather component of the WCF. From 1st October 2008 onwards, WCF-EWCF merely reflects the difference between actual NDM demand relative to ALP weighted daily average demand (based on EUC AQs) and computed NDM demand relative to NDM SND. The EWCF (derived from a demand model for aggregate NDM as before) still captures the impact of weather alone on demand, but, for gas years 2008/09 and 2009/10, the difference WCF-EWCF is no longer a measure of bias in the WCF due to SND for aggregate NDM in the LDZ being under or overstated. An equivalent measure to WCF-ECWF that captures the bias in the new definition of WCF due to EUC AQ error cannot be formulated, since there is no means of separately and differently computing in a manner free of EUC AQ error, the sum for all EUCs of ALP weighted daily average consumption based on EUC AQs in each LDZ.

Figures 1 to 13 show graphs of the daily values of SF and WCF for each LDZ for two whole gas years 2008/09 and 2009/10. This is a change from previous practice which was to show SF and WCF-EWCF. Additionally, the scale used to display SF has been greatly increased in these figures in response to feedback received. Note that SF behaviour has not degraded since last year; the change of scale is the reason why these SF patterns look very different to equivalent figures in previous assessments. Tables of average values of SF, WCF-EWCF and WCF, for gas years 2008/09 and 2009/10, along with the improvement or degradation in these averages between the two gas years, are presented in Tables 1 to 9. It should also be noted that SF and WCF values have been obtained for the period 1st to 10th October 2010 (the start of the new gas year 2010/11) and appended to the graphs of the previous two completed gas years. The root mean square deviation of SF from 1 has also been computed for each discrete month during the previous gas years 2008/09 and 2009/10, and the respective figures can be found in Tables 10 and 11. The differences in these RMS values between the two gas years are presented in Table 12. These figures provide a very useful measure of the variability of SFs about one (the ideal value). In addition, Tables 13 and 14 provide monthly values of weather corrected NDM demand expressed as a percentage of aggregate NDM seasonal normal demand (SND) for each month of gas years 2008/09 and 2009/10 respectively.

2.0 Overall Results

These various graphs and tables indicate the following notable points:

- During gas years 2008/09 and 2009/10 SF values were lower than one (over days of the week, weekends, winter and summer) except for NO and WN LDZs in 2008/09 and NT LDZ in 2009/10.
- For 7 out of 13 LDZs, on weekdays, Fridays, Saturdays and Sundays, average values of SF were improved in 2009/10 (i.e. were closer to one) compared to the previous gas year (2008/09). SC, NO, NW, NE, WN and SO LDZs showed deterioration from the previous gas year on all days of the week.
- Average SF behaviour for all of winter 2009/10 was mixed: an improvement over winter 2008/09 in 6 LDZs (namely NE, WM, WS, EA, NT and SW LDZs), a very small worsening in 3 LDZs (of -0.001) relative to winter 2008/09 (namely NO, EM and SE LDZs) and a somewhat greater worsening in 4 LDZs (namely SC, NW, WN and SO LDZs).
- Over the summer period of 2009/10 for 7 out of the 13 LDZs (namely EM, WM, WS, EA, NT, SE and SW) average values of SF were closer to the ideal value of one than over the summer period of the previous gas year (2008/09).
- The RMS deviation of SF from the ideal value of one provides a measure of the variability of SFs. Winter 2009/10 was exceptionally cold during December 2009 to February 2010. However, October and November 2009 were months of strongly warmer than average weather while the weather in March 2010 was average over the month as a whole. For October and November RMS deviations improved over the previous gas year (2008/09) in 7 and 6 LDZs respectively and overall across all LDZs RMS deviation was worse than the corresponding months of the previous gas year. However, during the very cold months of December to February, the majority of individual LDZs and all LDZs considered overall showed improved RMS deviations from the corresponding periods of the previous gas year. In March 2010 (with average weather overall) 7 LDZs and all LDZs considered overall showed improved RMS deviations.
- RMS deviations of SF from the ideal value of one exhibited a mixed picture during the summer period (April to September) of gas year 2009/10. In each summer month, in a majority (7 or more out of 13) of LDZs and overall across all LDZs, the RMS deviation of SF from the ideal value of one was better in April, August and September and worse in May, June and July than in gas year 2008/09. Note that April 2010 was warmer than average (but not as warm as April 2009), May 2010 was average overall but had one very warm week, June and July 2010 were warmer than average, August 2010 was colder than average (the coldest since 1993) and September 2010 was around average.
- Considered overall SFs during 2009/10 generally were less variable than over the previous gas year.
- Examination of the average weekday and weekend day values of WCF-EWCF in Tables 4, 5 and 6 indicates that the deviation of WCF from EWCF, appeared to be less marked (i.e. closer to zero) for nearly all individual LDZs, compared to that over the equivalent days of the previous gas year. Exceptions were SC on all days, WS on weekdays, Saturdays and Sundays, WN on Saturdays and Sundays and NW on Saturdays. For winter 2009/10 as a whole the deviation of WCF from EWCF was less marked over that for winter 2008/09 in all LDZs apart from SC. For summer 2009/10 as a whole

the deviation of WCF from EWCF was less marked over that for summer 2008/09 in all LDZs apart from SC, WN and WS. However, as previously explained WCF-EWCF is no longer a measure of bias in the WCF due to SND for aggregate NDM in the LDZ being under or overstated.

- WCF is the difference between actual aggregate NDM demand and ALP weighted daily average consumption in each LDZ (based on EUC AQs) divided by the ALP weighted daily average consumption in each LDZ. During gas years 2009/10 and 2008/09 average WCF values were negative for all LDZs on all days of the week, for all LDZs during the summer periods, for 9 LDZs in winter 2008/09 and for 6 LDZs in winter 2009/10 (see Tables 7 and 8). Negative values can be caused by factors such as the EUC AQs being too high or by the weather being warmer than seasonal normal.
- WCF was closer to zero in 2009/10 than in 2008/09 on weekdays in 12 LDZs, on Fridays in 10 LDZs, on Saturdays in 8 LDZs and on Sundays in 11 LDZs (see Table 9). In summer 2009/10 WCF was closer to zero in 12 out of 13 LDZs and in winter 2009/10 WCF was closer to zero in 8 LDZs. The differences between the years are the result of differences in factors such as weather or EUC AQ excess.
- Comparison of weather corrected aggregate NDM demand as a percentage of aggregate NDM SND in 2008/09 (Table 13) and 2009/10 (Table 14) indicates that for a majority of the month/LDZ combinations these percentages for 2009/10 are higher than those for 2008/09. This suggests that *relative to observed demand on a weather corrected basis,* the SND values that applied (for computing DAFs for example) in 2009/10 were lower than in 2008/09. This is also consistent with the generally lower WCF-EWCF deviations observed in 2009/10 compared to 2008/09 (see Table 6).
- Note that 2 of the LDZs (SC and SO) were affected by significant offtake measurement errors in 2009/10 (resulting in actual LDZ demand being under-recorded for most of the year to mid-August in SC and for late-January to late-April in SO LDZ). This may account for the average SF values in these LDZs being further below one in 2009/10 than in 2008/09, the WCF-EWCF values being worse in SC in 2009/10 and the weather corrected demand being below 100% in the affected months in both LDZs.

3.0 Commentary

It is customary in this note on WCF and SF values to identify and provide a commentary on any unusual occurrences of SF and WCF-EWCF values, in the most recent gas year (2009/10). In part, these instances (up to May 2010) have previously been reported in Appendix 13 of the NDM report published on 28th June 2010. They are all included here for completeness. This is not a comprehensive set of all observed perturbations, instead it is a set of the more marked instances along with examples of typical cases:

- October 2009 was generally warmer than the 17 year seasonal normal basis and in every LDZ the period from approximately 21st October 2009 to the end of the month was very warm with the last four days of the month being the warmest in the period. The extended period of warm weather led to depressed aggregate NDM demands in all LDZs, which reached their lowest levels in these last days of the month. This caused a marked decrease in WCF on these days in every LDZ. While a reduced WCF would act on SF to increase its value, the direct effect of depressed aggregate NDM demand on SF is to decrease its value. In most LDZs (NO and NT excepted) this direct effect was predominant leading to corresponding but smaller decreases in SF on these days. Average values for WCF over the month of October 2009 were strongly negative reflecting the warmer weather experienced.
- November 2009 was another month that was generally warmer than the 17 year seasonal normal basis and average monthly values of WCF in all LDZs were strongly negative, although less so than in October. The main period of warm weather was during 12th to 27th November 2009, within which the warmest spell was 19th to 21st November. Most LDZs show a trough in WCFs during this broader period and a negative spike in WCF is evident over the particularly warm days within the period. In some LDZs a corresponding small decrease in SF is also evident over these warmest days of the month (most clearly seen in LDZs: SC, NW, NE, EM, and WM). While a reduced WCF due to depressed aggregate NDM demand would act on SF to increase its value, the direct effect of depressed aggregate NDM demand on SF is to decrease its value and this appears to have been the predominant effect on these days.
- Although December 2009 as a whole was clearly colder in every LDZ than the 17 year seasonal normal basis, the first part of the month was actually warmer than average. This is reflected in the observed trough in WCF values during this part of the month, with the lowest WCF values observed around 9th and 10th December when the warmest weather for the month occurred. Later in the month around 19th to 21st December a positive spike in WCF occurred in all LDZs corresponding to the coldest weather experienced during the month. In some LDZs (most evident in LDZs: NW, NE, EM, WM, EA and SE) SF behaviour showed corresponding small perturbations during these warmest and coldest days, declining slightly during the warmest days (indicating depressed aggregate NDM

demand) and increasingly slightly during the coldest days (indicating elevated aggregate NDM demand).

- In all LDZs the month of January 2010 was very cold (the coldest since 1987) with weather well below the 17 year seasonal normal basis for most of the month. This was particularly so during the first half of the month and within this period the three days 7th to 9th January 2010 were the coldest experienced in this month in every LDZ. Elevated levels of actual aggregate NDM demand were, observed in every LDZ during the month and in particular this caused a marked increase in WCF over these coldest three days. While an increased WCF value acts on SF to depress its value, the direct effect of elevated aggregate NDM demand on SF is to increase its value. In most LDZs this direct effect was predominant leading to corresponding but smaller increases in SF on these coldest days. However, whereas the day of coldest CWV and highest WCF value was on 8th January 2010 in most LDZs, the SF spike occurred on 7th January 2010 in most instances. LDZs NO, WN and WS did not show SF increases during these days. These increases in SF were small: on 7th January 2010 in those LDZs that showed a SF spike, the largest observed increased SF value was 1.009 in NW LDZ and the smallest increased SF value was 1.001 in NT LDZ. In all LDZs, monthly average values of WCF in January 2010 were strongly positive and more so than in December 2009.

- Nationally, the month of February 2010 was the coldest February since 1996, although the coldest day experienced during the month was actually not as cold as the coldest day that occurred in February 2009. A spell of particularly colder weather occurred between 20th and 23rd February 2010 and in the more northerly LDZs and Wales (i.e. SC, NO, NW, NE, EM, WM, WN and WS) a clear positive spike in WCF occurred during this period due to elevated aggregate NDM demand under these sharply colder conditions. While the increase in WCF would have tended to depress the SF, the direct effect on the SF of the increased aggregate NDM demand resulted in a corresponding small increase in the SF, in some of these northerly LDZs. NW LDZ was a typical case: 23rd February 2010 was a very cold day and aggregate NDM demand was at its highest level for the month in that LDZ and consequently WCF took on its highest value for the month and SF increased slightly to 1.006 whereas the average SF value for the month was 1.002.

  In the more southerly LDZs (namely EA, NT, SE, SO and SW) 5th February 2010 was a single warm day (warmer than the 17 year seasonal normal basis) in this otherwise very cold month and aggregate NDM demand was depressed, leading to the lowest WCF value in the month, which would have tended to inflate SF on the day. However, the direct effect on SF of depressed aggregate NDM demand was more marked and resulted in a small drop in the SF on this day. The days immediately following 5th February saw progressively colder weather taking hold in these LDZs leading to the coldest day in the month occurring on 11th February 2010. Aggregate NDM demand rose steadily during this period and was very high on 11th February, leading to the highest WCF value in the month, which in turn would have tended to depress SF on the day. However, the direct effect on SF of elevated aggregate NDM demand was more marked and caused a small increase in SF on this day. A typical case is SE LDZ where SF was 0.995 on 5th February and 1.002 on 11th February, whereas the average SF for the month was 0.999; in other words very small divergences of 0.4% and 0.3% from the monthly average.

- Nationally, the month of March 2010 was average relative to the 17 year seasonal normal basis. However, the cold winter weather continued in the first half of the month which was colder than seasonal normal. The second half of the month was warmer than seasonal normal but with sharply colder weather returning on the last two days of the month. In nearly all LDZs the warmest two days of the month were 19th and 25th March 2010 and 31st March was a cold day in all LDZs. On these two warmest days aggregate NDM demand was sharply depressed leading to two negative WCF spikes in most LDZs. The lower WCF would have tended to inflate the SF. However, the direct effect of depressed aggregate NDM demand on SF would have tended to depress the SF and it was this direct effect that prevailed in many LDZs, most notably in NW and EM LDZs, but also evident in SC, NE, WM, EA, SE and SO LDZs. In those LDZs where the effect on SF was less evident, the opposing effects on SF would have tended to broadly balance out. On the cold day at the end of the month (31st March) aggregate NDM demand was greatly increased and consequently WCF showed a strong positive spike in all LDZs. The increased WCF would have tended to deflate the SF, but again the direct effect on the SF of inflated aggregate NDM demand resulted in a corresponding increase in SF. The effect on SF was most noticeable and/or evident in the same LDZs that showed the opposite effects on the two warmest days.

- Nationally, the month of April 2010 was not as warm as April 2009 but was still the 7th warmest April in the past 50 years. Broadly the month as a whole was warmer than average (relative to the 17 year seasonal normal basis) after a cold start to the month. A number of WCF spikes may be observed during the month. In all LDZs on 10th and 29th April 2010 WCF was strongly negative. Both these days were very warm for the time of year and aggregate NDM demand was depressed leading to these negative WCF spikes and also in many LDZs to reductions in the SF due to the direct impact of reduced aggregate NDM demand. In all LDZs on 20th April 2010 there was a sharp increase in WCF due to increased aggregate NDM demand in response to colder weather on this day. In LDZs, WM and EM there was an additional positive WCF spike on 15th April 2010 for the same reasons – i.e. increased aggregate NDM demand on a colder day. In many LDZs these days of positive WCF spikes also showed increased SF values in response to the increased aggregate NDM demand.

- The month of May 2010 was notable for the extended period of warm weather that occurred in all LDZs during approximately 17th/18th May to 26th/27th May. Within this period 22nd/23rd May saw the unseasonably hot weather across all LDZs. The resulting effect was marked reductions to aggregate NDM demand levels during this period as a whole and extreme reduction over the hottest couple of days within the period. For example in SC and SW LDZs aggregate NDM demand on 22nd/23rd May fell to 50% of typical average levels for the time of year, while in WM LDZ the level was ~44%. Across all LDZs, over these two hottest days, aggregate NDM demand levels ranged between 40% and 70% of typical average demand for the time of year. This sharp reduction in aggregate NDM demand resulted in correspondingly extreme negative spikes in WCF and sharp downward reductions in the values of SF in most LDZs. Since the reduced WCF also acted indirectly to increase SF, the observed downward spikes in SF were less directly related to the extent of reduction in aggregate NDM demand on the warmest two days.

  Additionally in WN LDZ, SF dropped to a new lower level during the last days of April and remained at this lower level during the first part of the month of May 2010, until the aforementioned spell of hot weather occurred. This fall in SF to a new lower level is consistent with a sudden increase in aggregate NDM EUC AQs. The increase could be a data error or could be related to new supply points going live on the system and being allocated gas but not yet actually consuming gas.

  Note that in WN LDZ, the ALP weighted daily average consumption (used to calculate WCF) changed with effect from 1st July 2010 as a result of changes in aggregate NDM EUC AQs above the 1% tolerance limit. This was the only LDZ for which the ALP weighted daily average consumption was revised during gas year 2009/10.

- Nationally the month of June 2010 was much warmer than seasonal normal (the 6th warmest June in the past 50 years) with particularly warm periods occurring between the 3rd and 7th and at the end of the month (22nd onwards) with the warmest days on the 4th to 6th and the 26th and 28th. Most LDZs show a trough in WCFs during these warm periods and negative spikes in WCF are evident over the warmest days within the period. A corresponding decrease in SF is also evident over these warmest days of the month (most clearly seen in LDZs: SC, NW, NE, EM, and WM). While a reduced WCF due to depressed aggregate NDM demand would act on SF to increase its value, the direct effect of depressed aggregate NDM demand on SF is to decrease its value and this appears to have been the predominant effect on these days.

- The month of July 2010 was also warmer than seasonal normal (nationally July 2010 was the 8th warmest July in the past 50 years) with the warmest weather occurring during the first 11 days of the month. Most LDZs (particularly those in the South and East of England show a trough in WCFs during this period. A corresponding decrease in SF is also evident in most LDZs (most clearly seen in LDZs: SC, NW, NE, EM, and WM). While a reduced WCF would act on SF to increase its value, the direct effect of depressed aggregate NDM demand on SF is to decrease its value and this appears to have been the stronger effect during this period.

- August 2010 was colder than seasonal normal (nationally the coldest since 1993) with the coolest days on the 12th to 14th and the 24th to 30th. Most LDZs show an increase in WCFs during these cool days and positive spikes in WCF are evident over the coldest days (particularly the 13th and 26th). Positive SF values also occurred in most LDZs during these days (most clearly seen in LDZs in the south and east of the country where the weather was much cooler and wetter than normal: NE, EM, WM, EA, NT, SE and SO). While the increase in WCF would have tended to depress the SF, the direct effect on the SF of the increased aggregate NDM demand resulted in increased SF values in these LDZs on these days.

- Nationally, the month of September 2010 was average relative to the 17 year seasonal normal basis with the warmest temperatures occurring on the 9th to 12th and 21st to 23rd and the coolest temperatures on the 16th to 19th and the 24th to 27th. On the warmest days aggregate NDM demand was depressed leading to negative WCF values and SF values below one in most LDZs. The lower WCF would have tended to inflate the SF. However, the direct effect of depressed aggregate NDM demand on SF would have tended to depress the SF and it was this direct effect that prevailed in most LDZs. On the coolest days aggregate NDM demand was increased and consequently WCF was positive in most LDZs. The increased WCF would have tended to deflate the SF, but again the direct effect on the SF of inflated aggregate NDM demand resulted in a corresponding increase in SF in most LDZs.

In WS LDZ on 15th September 2010 there was a sharp positive spike in the WCF (and a small positive SF value). This was probably caused by an erroneous low consumption reading for a single very large DM supply point in the LDZ. This resulted in a corresponding error in actual aggregate NDM consumption (total LDZ demand less LDZ shrinkage less sum of DM consumption) which was incorrectly too high giving in turn a WCF value that was much too high.

4.0 Assessment

In the demand attribution process as currently formulated, it is principally deviations of scaling factor from the perfect value of one that causes misallocations of aggregate NDM demand to individual EUCs. Scaling factor deviations from one (offsets from one and also day to day volatility) are related to the closeness of correspondence (or otherwise) between aggregate NDM seasonal normal demand on the day and the sum for all EUCs of ALP weighted daily average demand on the day (in other words the ALP*(AQ/365) term in the NDM demand attribution formula summed across all EUCs in the LDZ). Since NDM SND has hitherto been a forecast quantity while AQ is a backward looking quantity based on historical meter read data, this correspondence could never be perfect. However, adoption of Modification 204 has resulted in this correspondence now essentially being met - except for perturbations due to small day to day changes in EUC AQs and unexpectedly high or low actual NDM demand levels (whether these are real or due to LDZ or DM measurement error). This is the main reason for the markedly improved SF behaviour since the start of gas year 2008/09.

Prior to 1st October 2008, the ratio of aggregate NDM SND to the sum across all EUCs of ALP weighted daily average demand [$\sum_{EUC} ALP * (AQ / 365)$] was broadly inversely related to the deviation of SF from the ideal value of one. However, the effect was more pronounced in summer than in winter, and moreover, the summer was also affected by warm weather cut-off and summer reduction effects in some EUC models.

Warm weather cut-offs in EUC demand models give rise to summer scaling factor volatility by a mechanism involving the DAF parameter. If weather on a day in summer is significantly different from normal for that time of year, the DAF value that is applied on that day to EUCs with cut-offs may not be appropriate for the prevailing weather. Thus overall the (1 + WCF*DAF) terms in the demand attribution formula may be either too low or too high and the scaling factor has to change abnormally to compensate. This effect is not mitigated by the changes brought about by Modification 204. Thus, greater scaling factor volatility may still be seen in a number of LDZs in the summer in gas years 2008/09 and 2009/10.

Hitherto, EUC demand models with summer reductions also gave rise to summer scaling factor volatility. Here, the mechanism involved the ALP parameter. If weather on a day in summer was significantly different from normal for that time of year, the ALP value that was applied on that day to EUCs with summer reductions may not have been appropriate for the prevailing weather. Thus, overall the ALP*(AQ/365) terms in the demand attribution formula may have been too low or too high and the scaling factor changed abnormally to compensate. However, with the change to WCF resulting from Modification 204, errors in the ALP*(AQ/365) terms should be (at least partly) compensated for in the revised definition of WCF. Thus, this effect is now expected to not contribute as significantly to summer scaling factor volatility.

In years prior to 2008/09, examination of the average monthly value of WCF-EWCF and weather corrected aggregate NDM demand as a percentage of aggregate NDM SND allowed an approximate assessment to be made of the "equilibrium level" of SF in each LDZ; that is to say the likely level of SF if any WCF deviation is discounted. This assessment was an approximate one and was based on identifying a period (of a month's duration preferably during the winter period) over which WCF deviation was small (at or near zero) and weather corrected aggregate NDM demand was close to (~100% of) aggregate NDM seasonal normal demand over the period, then identifying the average value of SF that applied to the period and adjusting this SF for any residual WCF deviation that applied in the period. When applicable to a LDZ, this assessment then provided an approximate indication of the prevailing level of aggregate NDM AQ in the LDZ.

As previously noted, with the implementation of UNC Modification 204 the difference WCF-EWCF is no longer a measure of bias in the WCF due to SND for aggregate NDM in the LDZ being under or overstated. From 1st October 2008 onwards, WCF-EWCF merely reflects the difference between actual NDM demand relative to ALP weighted daily average demand (based on EUC AQs) and computed NDM demand relative to NDM SND. In other words, the WCF itself now depends on NDM EUC AQs, and therefore assessing and removing the impact of a notional WCF "bias" on observed SF values to ascertain the impact of the prevailing level of aggregate NDM AQ on the residual SF is no longer feasible. One consequence of this is that the previously applied approach to inferring AQ excess or deficiency in each LDZ from an assessment of the impact of WCF bias on SF values, is no longer valid.

Table 15 shows the percentage changes in aggregate NDM AQs at the start of gas year 2010/11 as observed on the Gemini system. It is clear that a significant reduction in aggregate NDM AQs has taken place for gas year 2010/11. The reduction is 9.0% overall across all LDZs and the reductions range from 7.7% in NT LDZ to 10.1% in WS LDZ. These reductions in AQ are caused in part by the new EP2 seasonal normal weather basis that came in to effect from 1st October 2010.

Figure 1

Weather Correction and Scaling Factor: SC

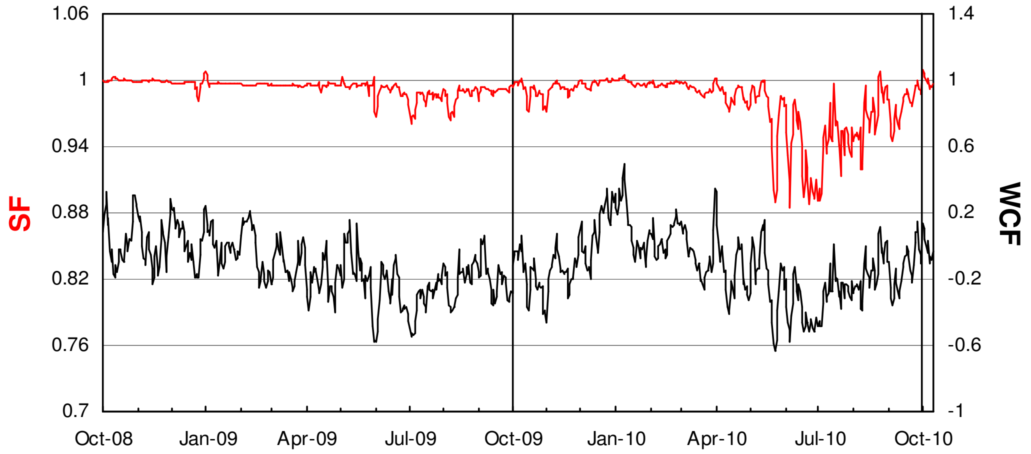


Figure 2

Weather Correction and Scaling Factor: NO

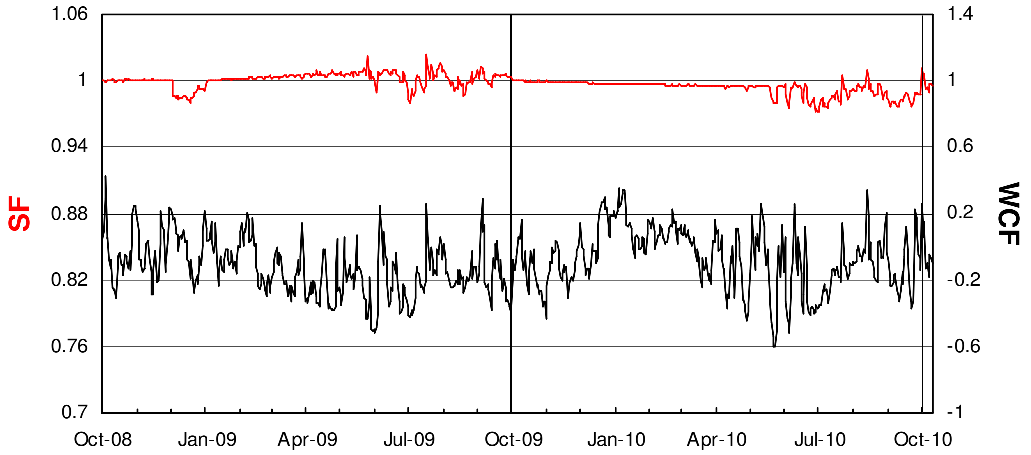


Figure 3

Weather Correction and Scaling Factor: NW

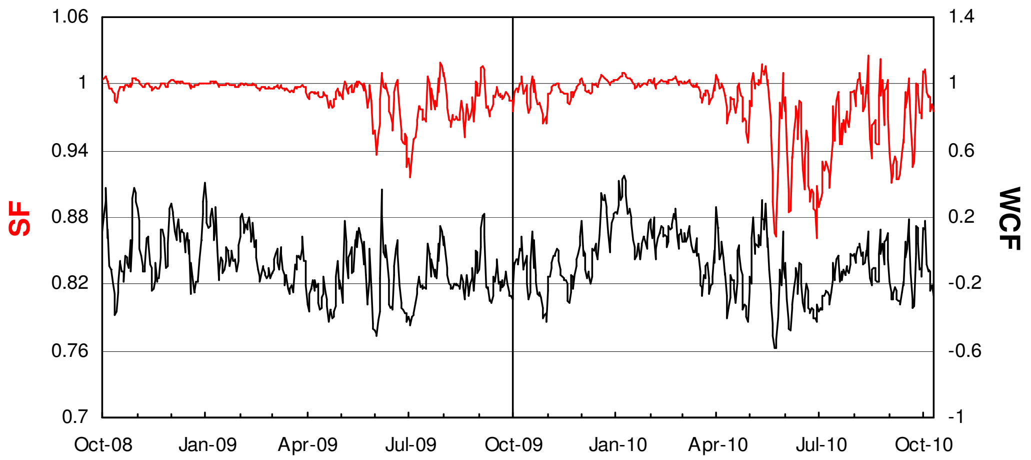


Figure 4

Weather Correction and Scaling Factor: NE

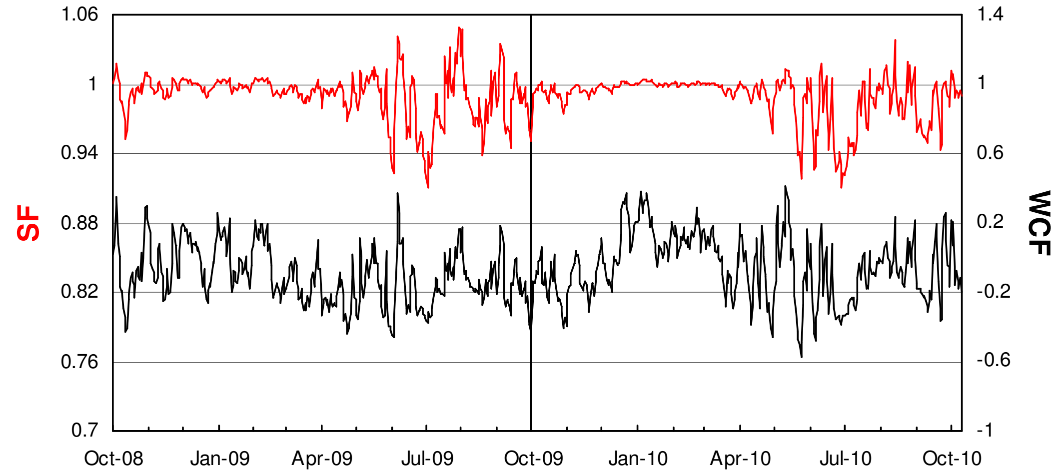


Figure 5

Weather Correction and Scaling Factor: EM

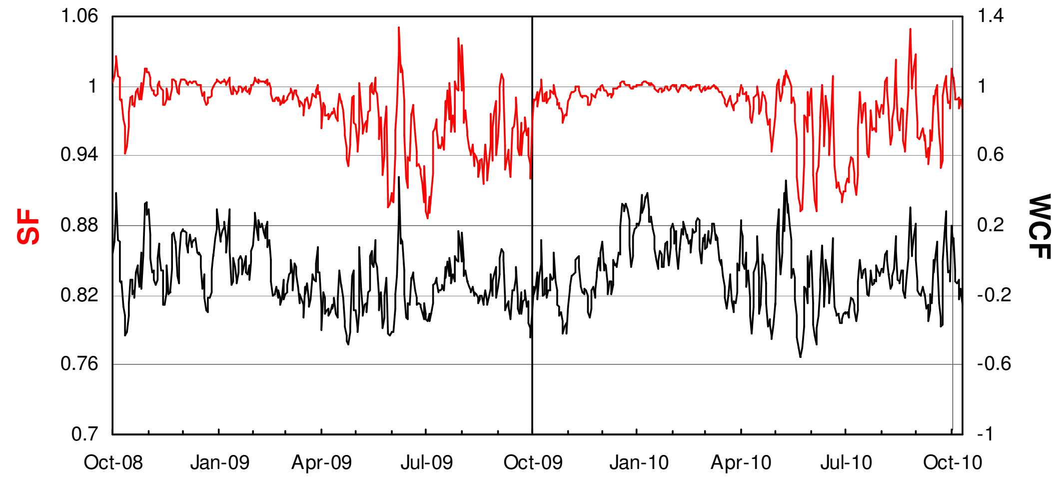


Figure 6

Weather Correction and Scaling Factor: WM

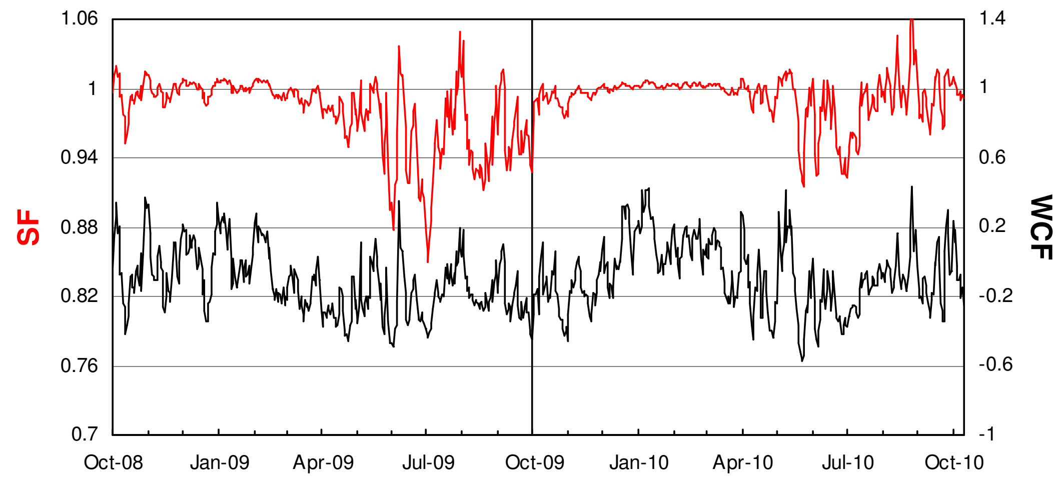


Figure 7

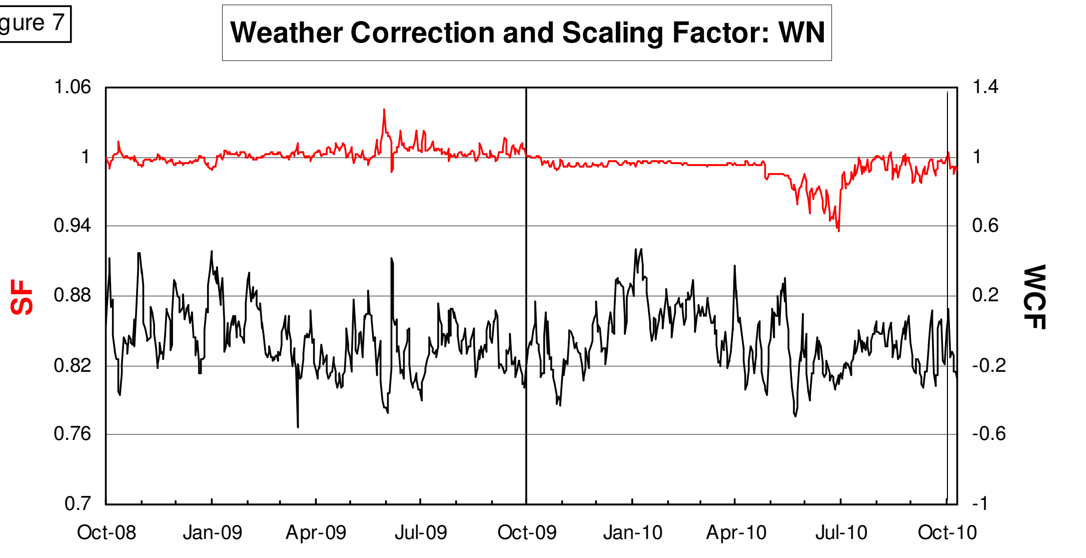


Figure 8

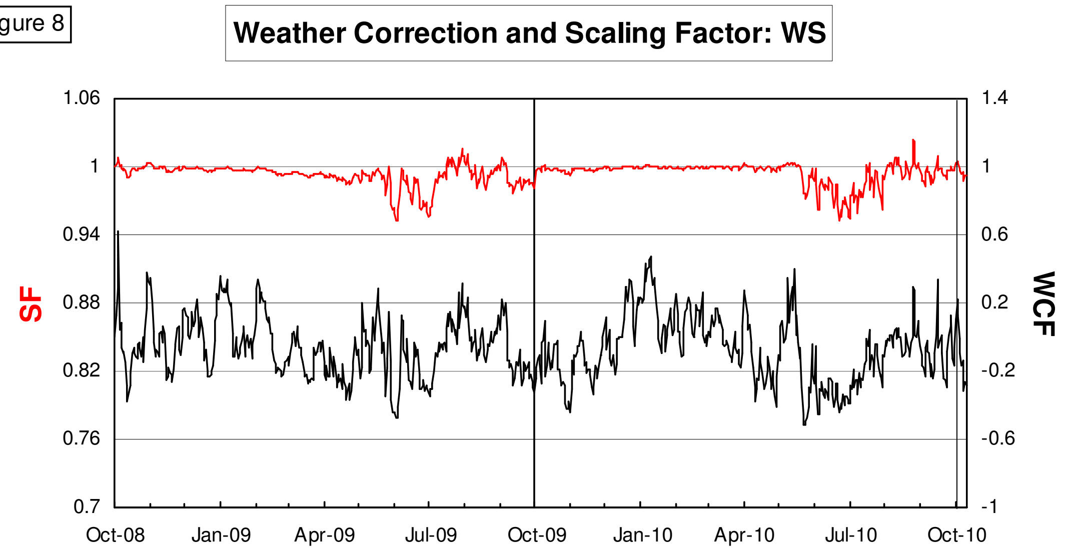
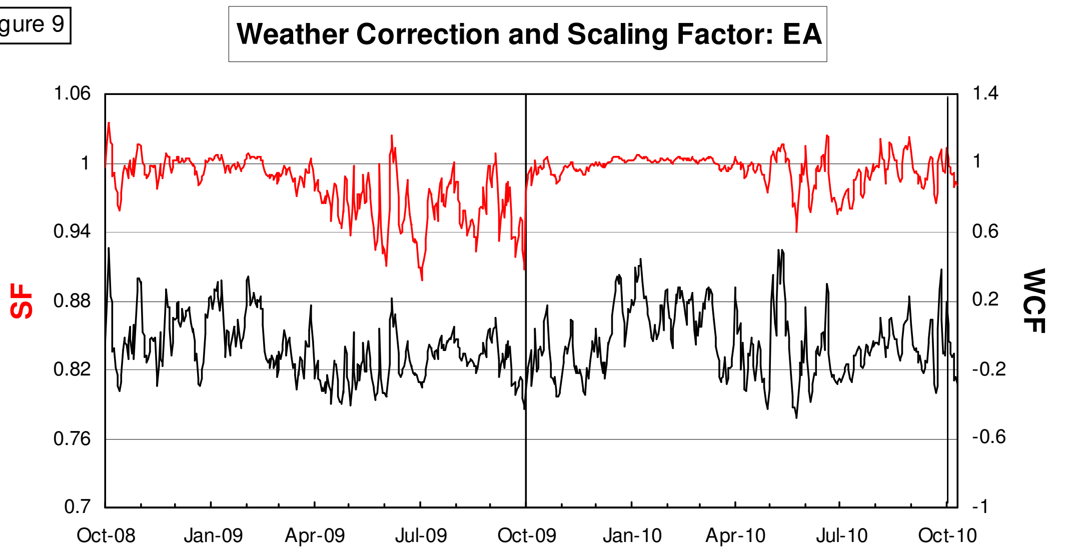


Figure 9



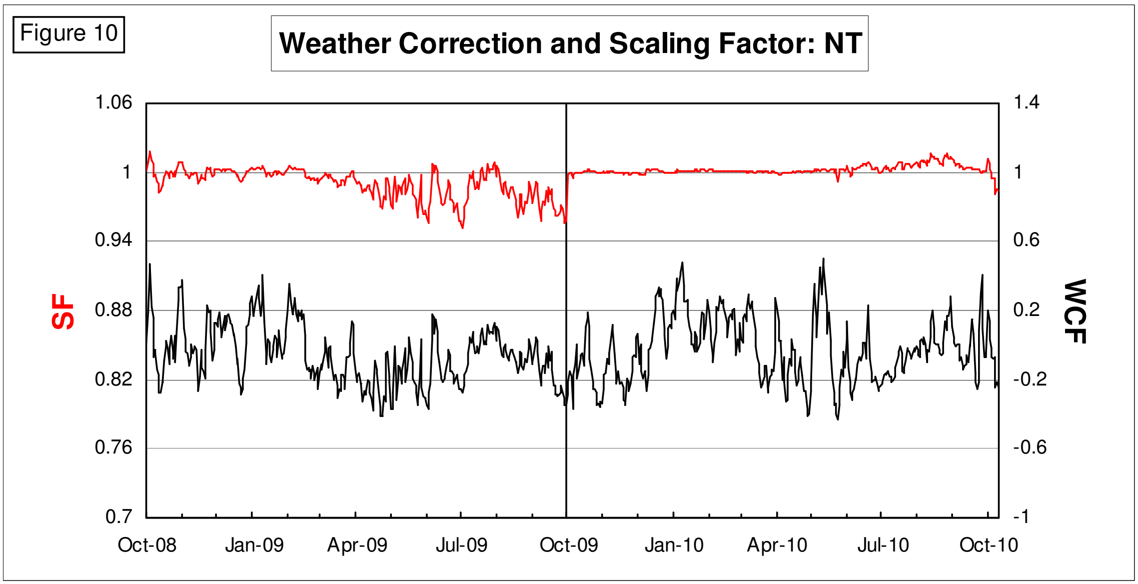


Figure 10
Weather Correction and Scaling Factor: NT
SF
WCF
1.06
1
0.94
0.88
0.82
0.76
0.7
1.4
1
0.6
0.2
-0.2
-0.6
-1
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10

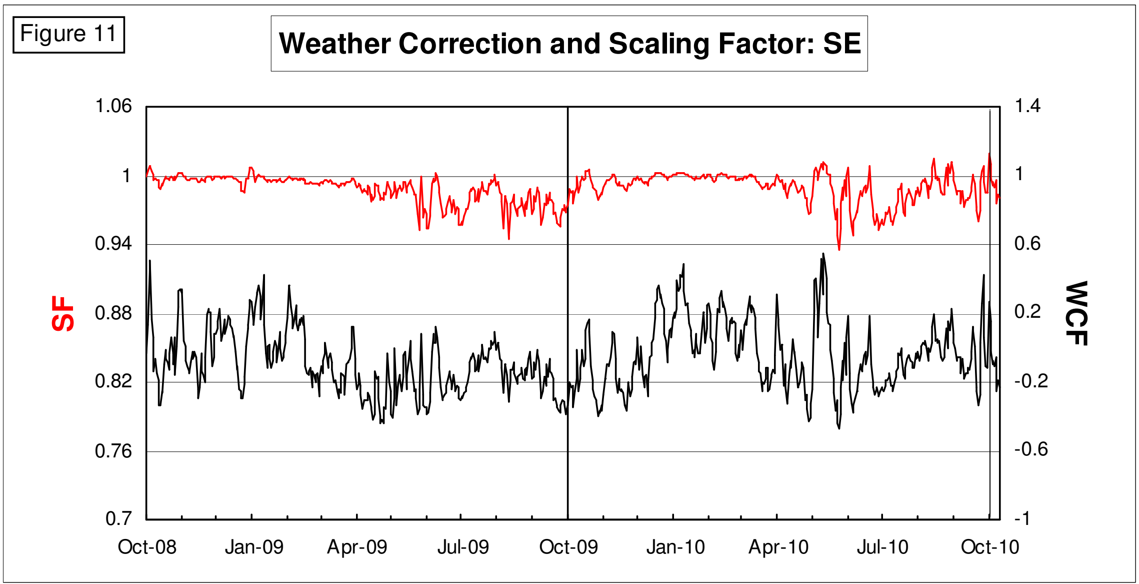


Figure 11
Weather Correction and Scaling Factor: SE
SF
WCF
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1
0.94
0.88
0.82
0.76
0.7
1.4
1
0.6
0.2
-0.2
-0.6
-1
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10

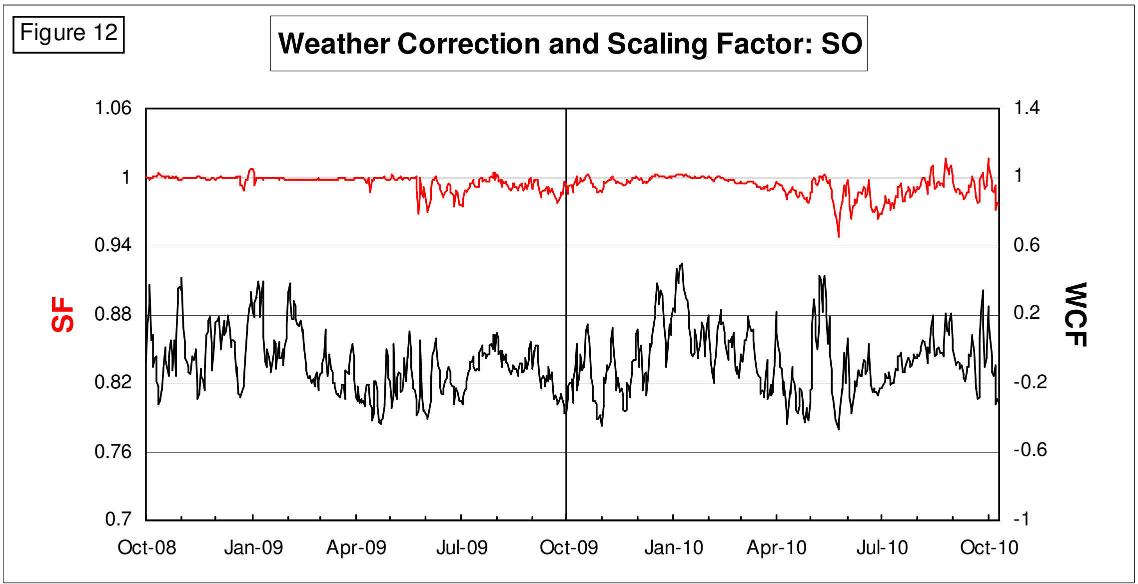
Figure 12
Weather Correction and Scaling Factor: SO
SF
WCF
1.06
1
0.94
0.88
0.82
0.76
0.7
1.4
1
0.6
0.2
-0.2
-0.6
-1
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10

Figure 13

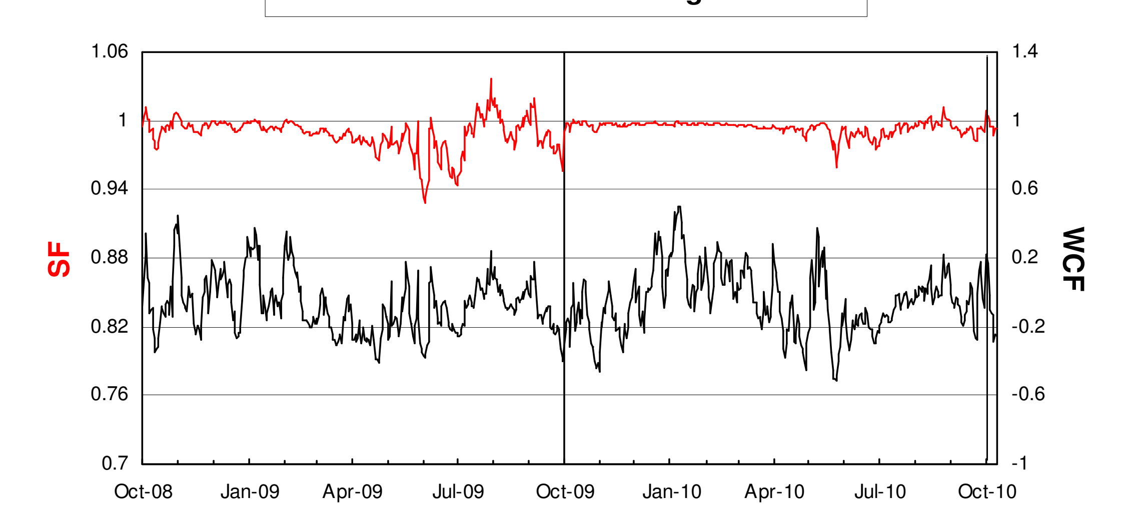
Weather Correction and Scaling Factor: SW
SF
WCF
1.06
1
0.94
0.88
0.82
0.76
0.7
1.4
1
0.6
0.2
-0.2
-0.6
-1
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10

Table 1: Average Values of SF Gas Year 2008/09

LDZ	Mon-Thur	Friday	Saturday	Sunday	Winter	Summer
SC	0.993	0.994	0.994	0.993	0.997	0.990
NO	1.001	1.003	1.001	1.001	0.999	1.004
NW	0.989	0.992	0.993	0.992	0.999	0.983
NE	0.990	0.995	0.992	0.991	0.996	0.986
EM	0.978	0.979	0.977	0.978	0.996	0.960
WM	0.978	0.980	0.980	0.980	0.998	0.960
WN	1.002	1.002	1.004	1.004	0.999	1.006
WS	0.992	0.993	0.993	0.993	0.997	0.988
EA	0.977	0.979	0.981	0.980	0.996	0.960
NT	0.989	0.991	0.992	0.991	0.999	0.982
SE	0.987	0.989	0.991	0.989	0.997	0.980
SO	0.995	0.996	0.997	0.997	0.999	0.993
SW	0.987	0.989	0.990	0.989	0.994	0.983
AVG	**0.989**	**0.991**	**0.991**	**0.991**	**0.997**	**0.983**

Table 2: Average Values of SF Gas Year 2009/10

LDZ	Mon-Thur	Friday	Saturday	Sunday	Winter	Summer
SC	0.980	0.976	0.976	0.978	0.995	0.962
NO	0.993	0.993	0.994	0.994	0.998	0.989
NW	0.980	0.979	0.978	0.982	0.997	0.962
NE	0.988	0.988	0.989	0.990	0.997	0.980
EM	0.982	0.981	0.980	0.982	0.995	0.968
WM	0.993	0.993	0.991	0.992	0.999	0.987
WN	0.988	0.989	0.992	0.991	0.995	0.984
WS	0.994	0.995	0.994	0.995	0.999	0.991
EA	0.995	0.995	0.995	0.995	0.999	0.991
NT	1.002	1.002	1.002	1.002	1.000	1.004
SE	0.990	0.990	0.992	0.992	0.996	0.985
SO	0.991	0.992	0.993	0.993	0.997	0.987
SW	0.993	0.994	0.995	0.995	0.996	0.992
AVG	**0.990**	**0.990**	**0.990**	**0.991**	**0.997**	**0.983**

Table 3: Difference Between Average Values of SF in Gas Year 2008/09 and 2009/10

LDZ	MON-THUR	FRIDAY	SATURDAY	SUNDAY	WINTER	SUMMER
SC	-0.013	-0.018	-0.018	-0.015	-0.002	-0.028
NO	-0.006	-0.004	-0.005	-0.005	-0.001	-0.007
NW	-0.009	-0.013	-0.015	-0.010	-0.002	-0.021
NE	-0.002	-0.007	-0.003	-0.001	0.001	-0.006
EM	0.004	0.002	0.003	0.004	-0.001	0.008
WM	0.015	0.013	0.011	0.012	0.001	0.027
WN	-0.010	-0.009	-0.004	-0.005	-0.004	-0.010
WS	0.002	0.002	0.001	0.002	0.002	0.003
EA	0.018	0.016	0.014	0.015	0.003	0.031
NT	0.009	0.007	0.006	0.007	0.001	0.014
SE	0.003	0.001	0.001	0.003	-0.001	0.005
SO	-0.004	-0.004	-0.004	-0.004	-0.002	-0.006
SW	0.006	0.005	0.005	0.006	0.002	0.009

Table 4: Average Values of WCF – EWCF Gas Year 2008/09

LDZ	Mon-Thur	Friday	Saturday	Sunday	Winter	Summer
SC	-0.080	-0.072	-0.089	-0.090	-0.020	-0.142
NO	-0.079	-0.080	-0.079	-0.092	-0.063	-0.098
NW	-0.085	-0.092	-0.071	-0.086	-0.037	-0.131
NE	-0.089	-0.089	-0.075	-0.080	-0.070	-0.102
EM	-0.079	-0.101	-0.091	-0.087	-0.056	-0.114
WM	-0.109	-0.128	-0.113	-0.113	-0.066	-0.160
WN	-0.054	-0.051	-0.020	-0.031	-0.005	-0.085
WS	-0.051	-0.071	-0.072	-0.068	-0.055	-0.064
EA	-0.068	-0.082	-0.064	-0.065	-0.050	-0.088
NT	-0.050	-0.058	-0.028	-0.036	-0.040	-0.052
SE	-0.079	-0.089	-0.064	-0.078	-0.056	-0.100
SO	-0.093	-0.114	-0.088	-0.097	-0.066	-0.125
SW	-0.072	-0.091	-0.070	-0.079	-0.068	-0.084
AVG	**-0.076**	**-0.086**	**-0.071**	**-0.077**	**-0.050**	**-0.103**

Table 5: Average Values of WCF – EWCF Gas Year 2009/10

LDZ	Mon-Thur	Friday	Saturday	Sunday	Winter	Summer
SC	-0.094	-0.116	-0.119	-0.116	-0.064	-0.144
NO	-0.044	-0.065	-0.063	-0.053	-0.023	-0.079
NW	-0.072	-0.076	-0.079	-0.063	-0.017	-0.128
NE	-0.044	-0.056	-0.040	-0.025	-0.012	-0.073
EM	-0.043	-0.065	-0.071	-0.055	-0.016	-0.087
WM	-0.074	-0.084	-0.091	-0.091	-0.045	-0.116
WN	-0.053	-0.051	-0.042	-0.039	0.000	-0.099
WS	-0.070	-0.067	-0.081	-0.072	-0.038	-0.104
EA	-0.046	-0.058	-0.044	-0.041	-0.030	-0.064
NT	-0.037	-0.042	-0.021	-0.018	-0.033	-0.032
SE	-0.048	-0.051	-0.033	-0.032	-0.043	-0.045
SO	-0.070	-0.086	-0.087	-0.073	-0.065	-0.086
SW	-0.051	-0.049	-0.051	-0.046	-0.034	-0.066
AVG	**-0.058**	**-0.067**	**-0.063**	**-0.056**	**-0.032**	**-0.086**

Table 6: Difference between average values of WCF – EWCF in Gas Year 2008/09 and 2009/10

LDZ	Mon-Thur	Friday	Saturday	Sunday	Winter	Summer
SC	-0.014	-0.044	-0.030	-0.026	-0.044	-0.001
NO	0.035	0.015	0.016	0.038	0.040	0.019
NW	0.013	0.016	-0.008	0.023	0.020	0.003
NE	0.045	0.033	0.035	0.055	0.059	0.028
EM	0.036	0.036	0.020	0.032	0.040	0.026
WM	0.035	0.043	0.022	0.022	0.021	0.044
WN	0.000	0.001	-0.022	-0.008	0.006	-0.014
WS	-0.019	0.003	-0.009	-0.003	0.017	-0.040
EA	0.022	0.024	0.020	0.024	0.020	0.024
NT	0.013	0.016	0.008	0.019	0.007	0.020
SE	0.031	0.037	0.031	0.045	0.013	0.054
SO	0.023	0.027	0.001	0.024	0.001	0.040
SW	0.021	0.042	0.020	0.033	0.033	0.018

Table 7: Average Values of WCF Gas Year 2008/09

LDZ	Mon-Thur	Friday	Saturday	Sunday	Winter	Summer
SC	-0.121	-0.100	-0.115	-0.121	-0.010	-0.224
NO	-0.134	-0.105	-0.110	-0.137	-0.056	-0.198
NW	-0.099	-0.086	-0.073	-0.092	-0.010	-0.175
NE	-0.114	-0.094	-0.085	-0.096	-0.043	-0.166
EM	-0.107	-0.108	-0.104	-0.104	-0.026	-0.186
WM	-0.122	-0.120	-0.112	-0.118	-0.032	-0.207
WN	-0.066	-0.047	-0.021	-0.036	0.020	-0.125
WS	-0.059	-0.056	-0.057	-0.062	-0.012	-0.106
EA	-0.091	-0.076	-0.060	-0.073	0.005	-0.168
NT	-0.071	-0.052	-0.024	-0.045	0.015	-0.130
SE	-0.104	-0.084	-0.061	-0.087	0.001	-0.185
SO	-0.096	-0.085	-0.071	-0.093	-0.009	-0.172
SW	-0.077	-0.072	-0.056	-0.073	-0.024	-0.122
AVG	**-0.097**	**-0.083**	**-0.073**	**-0.087**	**-0.014**	**-0.166**

Table 8: Average Values of WCF Gas Year 2009/10

LDZ	Mon-Thur	Friday	Saturday	Sunday	Winter	Summer
SC	-0.103	-0.132	-0.144	-0.130	-0.016	-0.218
NO	-0.065	-0.081	-0.087	-0.070	-0.004	-0.138
NW	-0.072	-0.080	-0.086	-0.060	0.005	-0.150
NE	-0.053	-0.064	-0.060	-0.043	0.003	-0.111
EM	-0.053	-0.073	-0.089	-0.073	0.000	-0.127
WM	-0.072	-0.077	-0.091	-0.088	-0.012	-0.143
WN	-0.052	-0.054	-0.047	-0.034	0.021	-0.119
WS	-0.068	-0.074	-0.092	-0.072	0.000	-0.145
EA	-0.037	-0.048	-0.042	-0.030	0.010	-0.087
NT	-0.028	-0.031	-0.018	-0.005	0.008	-0.055
SE	-0.039	-0.044	-0.032	-0.021	-0.002	-0.070
SO	-0.062	-0.071	-0.070	-0.058	-0.026	-0.102
SW	-0.049	-0.055	-0.058	-0.047	-0.001	-0.101
AVG	**-0.058**	**-0.068**	**-0.071**	**-0.056**	**-0.001**	**-0.120**

Table 9: Difference between average values of WCF in Gas Year 2008/09 and 2009/10

LDZ	Mon-Thur	Friday	Saturday	Sunday	Winter	Summer
SC	0.018	-0.032	-0.029	-0.010	-0.006	0.006
NO	0.070	0.024	0.023	0.067	0.052	0.060
NW	0.028	0.006	-0.013	0.032	0.006	0.024
NE	0.061	0.030	0.025	0.054	0.040	0.055
EM	0.055	0.035	0.015	0.031	0.026	0.059
WM	0.050	0.044	0.021	0.030	0.020	0.064
WN	0.014	-0.007	-0.026	0.001	-0.001	0.007
WS	-0.009	-0.018	-0.035	-0.010	0.011	-0.039
EA	0.054	0.028	0.017	0.043	-0.005	0.082
NT	0.043	0.021	0.006	0.040	0.007	0.075
SE	0.065	0.040	0.029	0.065	-0.001	0.115
SO	0.034	0.015	0.000	0.035	-0.017	0.070
SW	0.028	0.016	-0.002	0.026	0.023	0.021

Table 10: Root Mean Square Deviation of SF from 1 Gas Year 2008/09

LDZ	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
SC	0.0013	0.0010	0.0054	0.0032	0.0040	0.0048	0.0048	0.0072	0.0124	0.0194	0.0172	0.0088
NO	0.0007	0.0007	0.0128	0.0013	0.0028	0.0041	0.0063	0.0076	0.0072	0.0103	0.0058	0.0054
NW	0.0061	0.0024	0.0018	0.0014	0.0027	0.0044	0.0121	0.0157	0.0370	0.0339	0.0271	0.0146
NE	0.0163	0.0063	0.0044	0.0033	0.0062	0.0086	0.0129	0.0197	0.0423	0.0404	0.0275	0.0267
EM	0.0209	0.0074	0.0061	0.0040	0.0088	0.0119	0.0324	0.0486	0.0604	0.0535	0.0561	0.0466
WM	0.0169	0.0070	0.0063	0.0043	0.0068	0.0088	0.0262	0.0427	0.0724	0.0638	0.0585	0.0453
WN	0.0044	0.0036	0.0049	0.0044	0.0023	0.0033	0.0064	0.0118	0.0132	0.0084	0.0037	0.0070
WS	0.0040	0.0025	0.0024	0.0027	0.0048	0.0068	0.0104	0.0149	0.0282	0.0154	0.0089	0.0140
EA	0.0188	0.0094	0.0076	0.0047	0.0092	0.0124	0.0340	0.0476	0.0530	0.0466	0.0460	0.0514
NT	0.0083	0.0043	0.0037	0.0026	0.0046	0.0064	0.0171	0.0220	0.0250	0.0171	0.0206	0.0291
SE	0.0047	0.0030	0.0058	0.0037	0.0053	0.0065	0.0140	0.0198	0.0281	0.0193	0.0275	0.0295
SO	0.0012	0.0012	0.0041	0.0022	0.0019	0.0020	0.0030	0.0085	0.0157	0.0094	0.0074	0.0127
SW	0.0110	0.0066	0.0049	0.0058	0.0076	0.0126	0.0208	0.0259	0.0405	0.0208	0.0118	0.0218
AVG	**0.0088**	**0.0043**	**0.0054**	**0.0034**	**0.0052**	**0.0071**	**0.0154**	**0.0225**	**0.0335**	**0.0276**	**0.0245**	**0.0241**

Table 11: Root Mean Square Deviation of SF from 1 Gas Year 2009/10

LDZ	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
SC	0.0140	0.0077	0.0037	0.0034	0.0038	0.0089	0.0164	0.0432	0.0783	0.0598	0.0394	0.0266
NO	0.0007	0.0013	0.0024	0.0028	0.0036	0.0042	0.0052	0.0089	0.0156	0.0169	0.0091	0.0174
NW	0.0173	0.0082	0.0045	0.0045	0.0028	0.0080	0.0216	0.0519	0.0804	0.0569	0.0283	0.0563
NE	0.0116	0.0060	0.0030	0.0020	0.0012	0.0053	0.0138	0.0290	0.0513	0.0375	0.0174	0.0326
EM	0.0156	0.0082	0.0038	0.0027	0.0019	0.0094	0.0232	0.0447	0.0658	0.0528	0.0287	0.0394
WM	0.0139	0.0051	0.0024	0.0036	0.0034	0.0037	0.0123	0.0332	0.0453	0.0323	0.0252	0.0197
WN	0.0050	0.0072	0.0057	0.0047	0.0059	0.0065	0.0085	0.0209	0.0415	0.0151	0.0075	0.0124
WS	0.0035	0.0024	0.0013	0.0010	0.0013	0.0012	0.0022	0.0109	0.0276	0.0224	0.0077	0.0079
EA	0.0104	0.0053	0.0032	0.0037	0.0034	0.0041	0.0098	0.0208	0.0255	0.0240	0.0118	0.0146
NT	0.0016	0.0008	0.0015	0.0014	0.0014	0.0005	0.0007	0.0024	0.0048	0.0056	0.0108	0.0044
SE	0.0127	0.0069	0.0034	0.0019	0.0023	0.0065	0.0151	0.0218	0.0301	0.0277	0.0101	0.0182
SO	0.0079	0.0044	0.0022	0.0014	0.0028	0.0077	0.0143	0.0196	0.0232	0.0187	0.0074	0.0126
SW	0.0051	0.0035	0.0030	0.0028	0.0033	0.0054	0.0084	0.0145	0.0151	0.0097	0.0041	0.0097
AVG	**0.0092**	**0.0052**	**0.0031**	**0.0028**	**0.0028**	**0.0055**	**0.0116**	**0.0248**	**0.0388**	**0.0292**	**0.0160**	**0.0209**

Table 12: Difference between Gas Year 2008/09 and 2009/10

LDZ	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
SC	-0.0127	-0.0067	0.0017	-0.0002	0.0002	-0.0041	-0.0116	-0.0360	-0.0659	-0.0404	-0.0222	-0.0178
NO	0.0000	-0.0006	0.0104	-0.0015	-0.0008	-0.0001	0.0011	-0.0013	-0.0084	-0.0066	-0.0033	-0.0120
NW	-0.0112	-0.0058	-0.0027	-0.0031	-0.0001	-0.0036	-0.0095	-0.0362	-0.0434	-0.0230	-0.0012	-0.0417
NE	0.0047	0.0003	0.0014	0.0013	0.0050	0.0033	-0.0009	-0.0093	-0.0090	0.0029	0.0101	-0.0059
EM	0.0053	-0.0008	0.0023	0.0013	0.0069	0.0025	0.0092	0.0039	-0.0054	0.0007	0.0274	0.0072
WM	0.0030	0.0019	0.0039	0.0007	0.0034	0.0051	0.0139	0.0095	0.0271	0.0315	0.0333	0.0256
WN	-0.0006	-0.0036	-0.0008	-0.0003	-0.0036	-0.0032	-0.0021	-0.0091	-0.0283	-0.0067	-0.0038	-0.0054
WS	0.0005	0.0001	0.0011	0.0017	0.0035	0.0056	0.0082	0.0040	0.0006	-0.0070	0.0012	0.0061
EA	0.0084	0.0041	0.0044	0.0010	0.0058	0.0083	0.0242	0.0268	0.0275	0.0226	0.0342	0.0368
NT	0.0067	0.0035	0.0022	0.0012	0.0032	0.0059	0.0164	0.0196	0.0202	0.0115	0.0098	0.0247
SE	-0.0080	-0.0039	0.0024	0.0018	0.0030	0.0000	-0.0011	-0.0020	-0.0020	-0.0084	0.0174	0.0113
SO	-0.0067	-0.0032	0.0019	0.0008	-0.0009	-0.0057	-0.0113	-0.0111	-0.0075	-0.0093	0.0000	0.0001
SW	0.0059	0.0031	0.0019	0.0030	0.0043	0.0072	0.0124	0.0114	0.0254	0.0111	0.0077	0.0121
AVG	**-0.0004**	**-0.0009**	**0.0023**	**0.0006**	**0.0023**	**0.0016**	**0.0038**	**-0.0023**	**-0.0053**	**-0.0016**	**0.0085**	**0.0032**

Table 13: NDM Weather Corrected Demand as % of NDM Seasonal Normal Demand Gas Year 2008/09

LDZ	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
SC	98.2%	99.0%	98.4%	96.9%	96.1%	93.4%	90.0%	86.7%	86.2%	78.3%	85.6%	91.7%
NO	93.8%	95.8%	97.1%	94.5%	92.6%	89.7%	91.4%	89.7%	84.6%	88.6%	90.8%	93.2%
NW	92.5%	96.5%	97.6%	94.9%	93.7%	90.1%	87.6%	91.6%	84.9%	84.5%	90.0%	91.1%
NE	90.7%	91.7%	95.4%	93.6%	94.7%	90.2%	88.9%	93.3%	85.7%	84.2%	91.2%	90.7%
EM	90.8%	90.2%	94.3%	94.2%	93.8%	89.8%	87.3%	88.2%	89.6%	90.6%	95.2%	89.7%
WM	92.8%	94.0%	95.2%	93.1%	92.7%	89.0%	83.5%	89.2%	84.7%	85.4%	89.3%	90.6%
WN	86.3%	91.2%	91.1%	94.0%	88.8%	83.9%	85.7%	82.1%	77.9%	77.6%	81.5%	80.0%
WS	96.5%	96.8%	95.5%	96.5%	93.9%	89.5%	85.8%	93.5%	91.8%	101.2%	103.7%	93.5%
EA	93.3%	95.6%	94.7%	94.1%	94.7%	94.0%	89.4%	92.2%	97.3%	95.7%	102.0%	93.4%
NT	93.7%	96.9%	96.2%	95.9%	95.2%	93.3%	91.6%	94.1%	97.8%	101.9%	103.0%	96.7%
SE	91.2%	95.6%	96.7%	95.8%	94.0%	93.5%	88.9%	93.8%	93.8%	98.6%	96.9%	91.0%
SO	90.8%	93.4%	93.4%	92.2%	92.8%	87.8%	83.4%	84.8%	90.1%	93.1%	97.2%	91.0%
SW	92.5%	96.4%	95.6%	95.9%	95.1%	89.3%	86.0%	89.2%	91.5%	95.6%	99.2%	92.4%

Table 14: NDM Weather Corrected Demand as % of NDM Seasonal Normal Demand Gas Year 2009/10

LDZ	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
SC	93.7%	93.5%	98.5%	97.7%	92.8%	95.7%	91.9%	88.7%	91.0%	83.5%	91.8%	100.2%
NO	98.0%	98.7%	103.8%	103.4%	102.8%	102.4%	98.0%	94.6%	98.9%	95.4%	90.4%	97.4%
NW	98.9%	98.7%	101.7%	105.3%	102.9%	101.2%	94.2%	93.1%	99.8%	105.3%	103.3%	100.8%
NE	98.2%	102.7%	103.8%	106.8%	103.7%	101.8%	99.6%	99.1%	102.4%	108.6%	103.3%	102.4%
EM	95.9%	99.3%	101.3%	103.3%	100.8%	100.8%	96.2%	93.8%	102.8%	108.3%	105.2%	101.0%
WM	95.1%	98.3%	101.2%	104.2%	101.0%	100.8%	94.5%	92.9%	99.1%	104.0%	102.0%	101.5%
WN	92.2%	95.2%	99.8%	104.2%	102.1%	101.7%	93.4%	88.2%	91.5%	92.8%	86.6%	90.1%
WS	94.2%	99.4%	102.5%	105.5%	101.6%	99.7%	88.7%	92.2%	87.0%	97.7%	104.5%	100.1%
EA	95.6%	99.1%	99.8%	102.3%	103.3%	100.8%	95.3%	98.5%	106.4%	106.4%	104.4%	96.9%
NT	95.3%	99.8%	101.0%	104.5%	103.1%	102.0%	96.1%	100.9%	103.7%	102.0%	100.8%	100.0%
SE	94.1%	98.0%	99.2%	102.0%	100.0%	101.2%	95.5%	103.2%	104.1%	108.5%	107.0%	98.6%
SO	98.5%	100.8%	102.8%	101.8%	91.5%	91.7%	82.7%	94.5%	98.2%	104.5%	107.7%	97.0%
SW	94.4%	99.3%	101.3%	106.4%	102.0%	103.7%	93.0%	92.4%	100.0%	106.3%	105.2%	100.7%

Table 15: Aggregate NDM AQs at Start of Gas Year 2010/11

Based on data extracted from the Gemini system for gas days 29/09/10 and 10/10/2010

LDZ	% NDM AQ Change
SC	-9.2%
NO	-9.2%
NW	-9.7%
NE	-8.8%
EM	-8.7%
WM	-9.4%
WN	-9.0%
WS	-10.1%
EA	-8.1%
NT	-7.7%
SE	-8.5%
SO	-10.0%
SW	-9.6%
Overall	**-9.0%**