
Meeting name	BSC Panel
Date of meeting	12 June 2008
Paper title	Standing Issue 34 Report
Purpose of paper	For Information
Synopsis	Standing Issue 34 'Distribution Losses' was raised to consider the level and volatility of distribution losses. The Issue 34 Group agreed the volatility of distribution losses is a market wide issue and is caused by inaccuracies and features of the current profiling arrangements. The Issue 34 Group recommends that the identified profiling issues be considered by the Profile Expert Group. The Issue 34 Group believes the level of distribution losses is not caused by a single, systematic market-wide problem as the analysis suggested there is a mixture of over and under-accounting of energy within the market.

1 Introduction

- 1.1 Standing Issue 34 'Distribution Losses' was raised on 29 April 2008 by ScottishPower Energy Networks ('the Proposer').
- 1.2 Standing Issue 34 was considered by members from the Volume Allocation Standing Modification Group (VASM). The Standing Issue 34 Group met once on 19 May 2008 to consider the issue. This report documents the discussions at that meeting and outlines the recommendations of the Group.

2 Proposer's View

- 2.1 The Proposer closely monitors network losses using Settlement data for their two Licensed Distribution System Operators (LDSOs) – ScottishPower Distribution and ScottishPower Manweb. The Proposer does this by considering sales¹ against purchases² for each Grid Supply Point (GSP) Group. Using this data the Proposer has become concerned about two areas:
- The volatility in the distribution losses; and
 - The overall level of distribution losses.
- 2.2 The Proposer explained that their distribution losses fluctuated between less than 3% to more than 7% over short periods of time. Indeed, at some points, the level of losses had fallen below the levels of technical feasibility (i.e. that volume which, owing to physical phenomena, is bound to be lost through the distribution of electricity). They also noted that the level of losses for their two LDSOs seemed to track each other, indicating that this could be a market issue.
- 2.3 A graph demonstrating the volatility of distribution losses for SP Distribution and SP Manweb for April 2002 to April 2008 is presented as Figure 1 below. The Proposer noted that the volatility of distribution losses made it difficult to set targets for losses.
- 2.4 The Proposer noted that their overall level of distribution losses also appeared to be different to what they would expect. When considering the Annual Demand Ratio (ADR) graphs that ELEXON

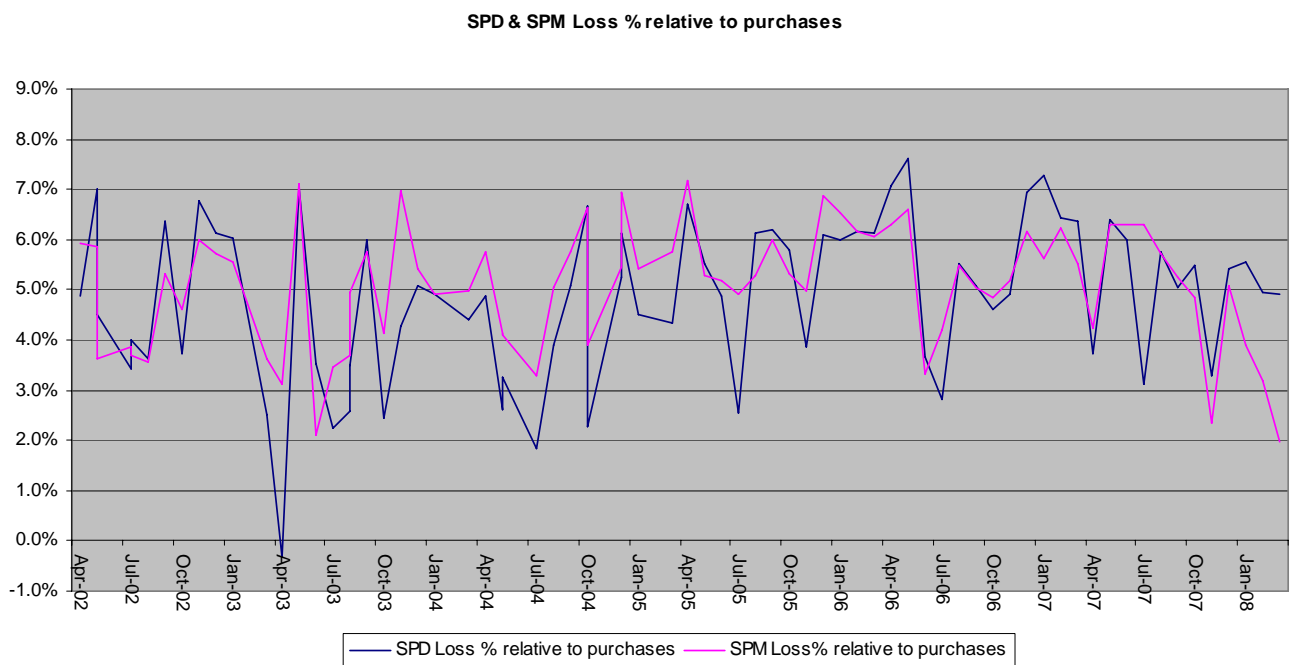
¹ Using the D0030 'Non Half Hourly DUoS Report' and D0036 'Validated Half Hourly Advances for Inclusion in Aggregated Supplier Matrix'.

² The GSP metered volumes provided by the Central Data Collection Agent (CDCA)).

publish as part of the Trading Operations Report (Figure 2), the Proposer's two LDSOs appeared to have an ADR that is higher than the other LDSOs.

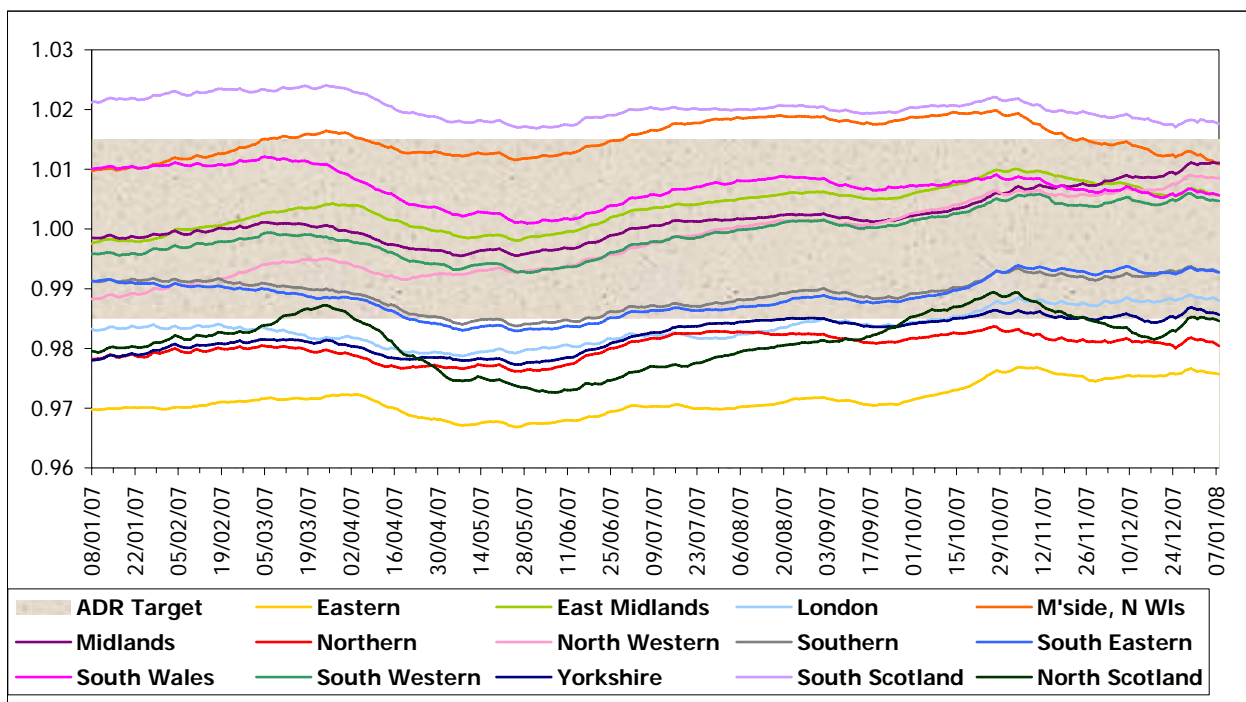
- 2.5 ADR is a measure of the variation between the total annual profiled Non Half Hourly (NHH) consumption and the total annual "metered" NHH consumption (as deduced from Grid Supply Point (GSP) Group Takes and Half Hourly (HH) consumption). The total annual "metered" NHH consumption is effectively the sum over a year of the profiled NHH demand per Settlement Period, after the Line Loss Factor and GSP Group Correction Factor has been applied to the profiled NHH demand for each Settlement Period.
- 2.6 ADRs higher than one suggest that either there is an under-accounting of Import energy in Supplier Volume Allocation (SVA), or the over-accounting of Export energy in SVA, or the over-accounting of Grid Supply Point (GSP) Metering; (i.e. more energy is assumed to be coming off the Transmission System than is being used by the Distribution System).

Figure 1 – Losses relative to purchases for ScottishPower Distribution and ScottishPower Manweb for April 2002 to April 2008



- 2.7 Figure 1 shows that the level of losses for the Proposer's LDSOs has fluctuated over the past 6 years.

Figure 2 - Annual Demand Ratio Values based on Settlement Run Type R2 or later for January 2007 to January 2008³



2.8 The Proposer commented that these issues could be caused by the following reasons:

- the impact of the Long Term Vacant Sites solution introduced by P196 – although the volumes involved appear to be too small to have the impact observed, and the impact is likely to be linear;
- the replacement of traditional types of Prepayment Meter with Key Meter technologies, reducing the scope for illegal extraction – although their assumption is that this would lead to less volatility; and
- the results of data cleansing may be driving out erroneous Estimated Annual Consumption (EAC) values – although where such values have been observed, they have mostly been erroneously large and changes to address these would have the effect of increasing apparent losses, albeit from an erroneously low level.

2.9 The Proposer raised Standing Issue 34 in order to discuss the possible reasons for the level and volatility of the distribution losses they were experiencing and to establish if this was a market wide issue.

3 ELEXON's analysis of the issue

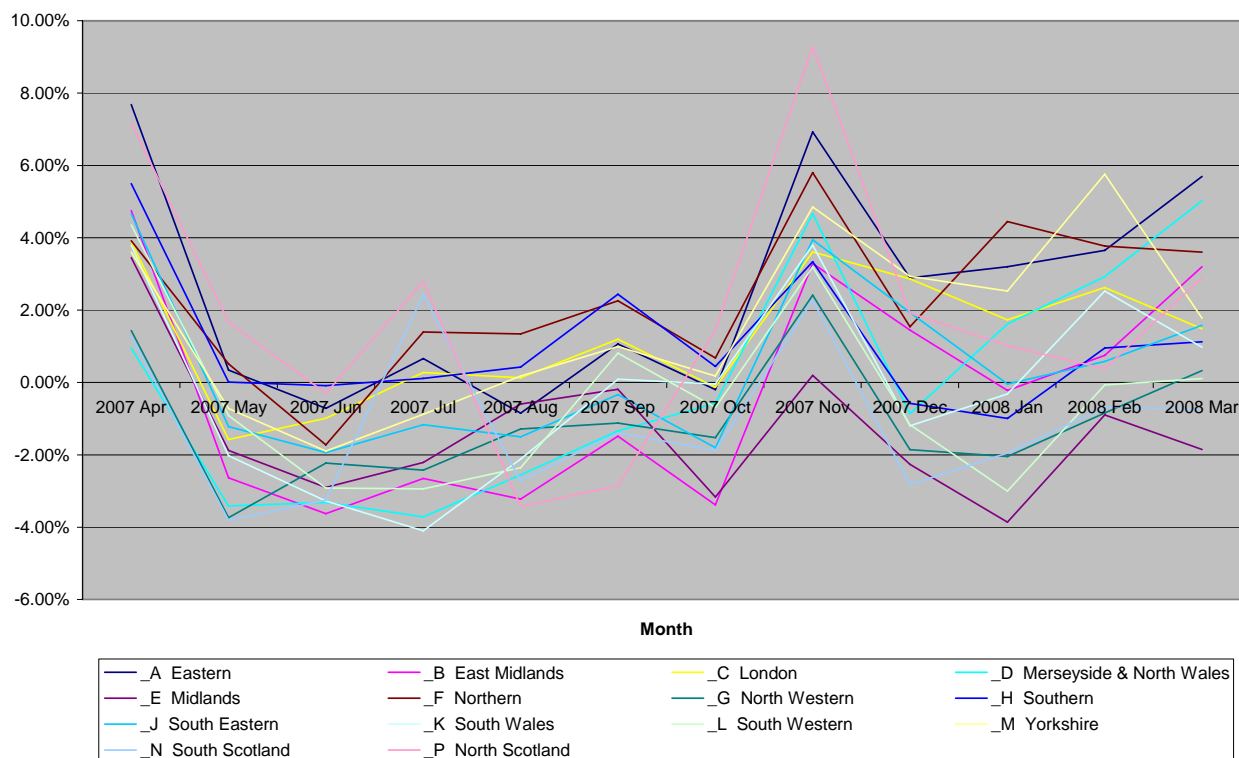
3.1 ELEXON presented analysis of the issue. For the data and an explanation of the analysis see Appendix 3.

3.2 Figure 3 shows the Percentage Error by GSP Group for 2007 – 2008. Percentage Error is the difference in uncorrected and NHH consumption over the uncorrected NHH consumption. A value greater than zero may have resulted from over-accounting of Import energy, under-accounting of Export energy or under-accounting of GSP Metering. This would look like there is a greater level of losses on the Distribution System.

³ The Proposer's GSP Groups are labelled 'South Scotland' and 'M'side, N WIs'.

- 3.3 Figure 3 shows that the percentage error in NHH consumption appears to vary for all GSP Groups. This suggests that distribution losses demonstrate some volatility across all GSP Groups. For further percentage error graphs see Appendix 3.

Figure 3 - Percentage Error by GSP Group for 2007 – 2008



4 Group discussion on the volatility of distribution losses

4.1 Is the issue market wide?

4.1.1 The Group considered whether the volatility of distribution losses was a market wide issue.

4.1.2 The Group agreed that the analysis presented by ELEXON demonstrated that the volatility which the Proposer had identified appeared to be common to all GSP Groups. While different GSP Groups suffered different levels of fluctuations the direction of the peaks and troughs at particular points during the year seemed to be consistent over all GSP Groups. The analysis also showed that there were particular points during the year where there were significant changes in distribution losses. The Group noted that in particular, April and November periods seem to experience high loss volatility each year.

4.1.3 A number of Group members noted that their organisations have experienced volatility in distribution losses on a month to month basis.

4.2 Profiling as the cause of volatility

4.2.1 The Group considered the possible reasons that the April and November periods experienced higher than average levels of volatility. ELEXON commented that around April and November there were a number of interactions to do with profiling which may increase distribution losses volatility. These were:

- Potential for there to be a wide variation in temperature during Spring and Autumn periods;
- Clock changes at end of March and October;
- Difficulty in accurately profiling the Easter and May period due to the many Bank Holidays which do not fall on the same date each year (Good Friday, Easter Monday, the May Bank Holiday, and the Spring Bank Holiday); and
- Line Loss Factor (LLF) changes.

- 4.2.2 ELEXON suspected that the volatility in distribution losses was in part caused by features in the current profile arrangements. For the Non Half Hourly market, a profile coefficient is used to allocate Non Half Hourly Metered consumption to each Half Hourly Settlement Period. In order to take account of changes in electricity use over the calendar year, the year is split into five Settlement seasons (see Appendix 2 for further information). Each Settlement season has its own set of regression coefficients (see Appendix 2 for a definition of regression coefficients) for each Profile Class. At the Settlement season change-over there is a step change in the allocation of consumption. This could lead to an increase in the volatility of distribution losses at the change between Settlement seasons.
- 4.2.3 ELEXON noted that the Spring and Autumn periods are the most difficult to accurately profile as the temperature often varies significantly from year to year (an example of this can be seen in May 2008 when temperatures fluctuated between close to freezing and 28°C). It was also noted that regression coefficients are calculated using a single set of average temperature data for the whole of Great Britain.
- 4.2.4 The Group also noted that changes to LLFs could increase the distribution losses volatility around the LLF change-over periods. New LLFs are approved for 1 April each year. This may or may not mean that the LLF is different from the previous year – this depends on whether the LDSO has recalculated the LLFs. Some LDSOs will also have a winter and summer set of LLFs so there may also be a change around October swapping from summer to winter LLFs.
- 4.2.5 The Group agreed that the most likely cause of distribution losses volatility was inaccuracies and features of the current profiling arrangements. The Group considered whether there were any solutions which could deliver quick wins. ELEXON noted that the Profiling Expert Group (PEG) was already considering ways of improving profiling methodology. The PEG could consider the addition of profiling ‘shoulder days’ for the clock change days, which would spread the electricity usage more evenly around those periods. Analysis in this area has already been undertaken by ELEXON.
- 4.2.6 With regards to temperature the PEG are considering using data from more than one year to produce the regression coefficients to increase the accuracy of temperature forecasting. The Non Half Hourly Technical Advisory Group (NHHTAG) (a now defunct Electricity Pool Trading Stage 2 sub-group which used to carry out the profiling work which is now conducted by the PEG) had previously considered splitting the Winter season into two seasons. However, although this could potentially improve the allocation of electricity over the Winter period, it would reduce the number of observations in each period used to derive the regression coefficient data resulting in no net benefit.
- 4.2.7 The Group also suggested that a pragmatic solution to the Proposer’s issues with distribution losses would be to consider an alternative methodology in its distribution losses calculations – one that did not rely so heavily on profiled monthly Settlement data. It was noted that any change to the distribution losses methodology would need to be done following agreement from Ofgem.

4.3 Potential analysis

4.3.1 The Group questioned whether there was any analysis that could be conducted in order to assess the extent of the issue. The Proposer indicated they would be keen to see analysis similar to that presented in Figure 1 for all GSP Groups. This would allow them to understand whether there was correlation in volatility over the market for seasons, season splits, and particular months. The data could also be split by geographic location so the Group may consider whether there was a bias in volatility in particular areas. This type of analysis would allow the Group to consider whether the volatility in distribution losses was caused by a market problem or one that was unique to the Proposer.

4.3.2 It was noted by one Group member that previous attempts to obtain this type of data from LDSOs at various Distribution forums had been unsuccessful as a number of LDSOs viewed the data as confidential. One member suggested that the data could be anonymised, however this was discounted as it would be impossible to consider a geographic bias with anonymised data.

4.3.3 It was noted that any Profile analysis could be conducted by the PEG. The Group noted that the PEG were already conducting similar analysis and were the experts in the field. The Group considered that it would be best to refer any Profile analysis to the PEG rather than the Group conducting separate analysis. The Group recommended the following areas should be analysed by the PEG:

- The April clock change effect and the impact of Easter and the Spring Bank Holiday period;
- The November clock change effect; and
- Whether the use of a single year of data causes a particular problem in April, when temperatures can change significantly from year to year.

4.4 The purpose of the analysis would be to assess ways that the profiling arrangements could be improved with regards to the areas outlined above.

4.5 Data transparency

4.5.1 In addition to the profiling issues, the Group commented that one of the problems that LDSOs faced was a lack of transparency in consumption data. Currently LDSOs are unable to obtain GSP Group Consumption Totals, which could be used to derive average consumption data per Consumption Component Class (CCCs).

4.5.2 The Group noted that Draft Change Proposal (DCP) 0032 'New Consumption Totals report' was currently issued for industry impact assessment. DCP0032 aims to amend the D0276 'GSP Group Consumption Totals Report' to include a new data item and CCC Metering System ID (MSID) Count. DCP0032 also proposes relevant changes to be made in the Master Registration Agreement (MRA) and Data Transfer Network (DTN). This would allow LDSOs to more easily understand the consumption in GSP Groups. The Group viewed this change as a positive step in helping LDSOs understand the consumption of their customers.

5 **Group discussion on the level of losses**

5.1 The Group considered whether the level of distribution losses which the Proposer was experiencing was a market problem.

5.2 The Group noted that the ADR graph (Figure 2) did not show a correlation between different GSP Groups and the level of distribution losses. It appeared that the Proposer's GSP Groups had higher ADRs than the other GSP groups. This suggests that the Proposer was either under-

accounting Import energy in SVA, over-accounting Export energy in SVA, or over-accounting at GSP Meters.

- 5.3 The Group noted that that there is market wide error in Settlement data, shown by the fact that ADRs vary from unity (see Figure 2). However, there is a mixture of over and under-accounting of energy, with numerous causes, rather than a single, systemic error affecting all GSP Groups. Hence, the Group believed the level of the Proposer's distribution losses is not caused by a single, systematic market wide problem.
- 5.4 The Group discussed the possible reasons for the unusual distribution losses level in these two GSP Groups. Group members suggested that this could be caused by:
- 1 not accounting for all consumption within their GSP Group (e.g. due to a metering problem at a GSP boundary Meter); or
 - 2 using a high number of estimated Meter readings, rather than actual Meter readings.
- 5.5 The Group agreed that if (1) was causing the unusual level of losses, then they would expect to see a clear step change when the error occurred. Given that no step change is seen, the Group agreed that this is unlikely to be the cause.
- 5.6 The Group commented that a way of checking whether (2) is causing the unusual level of losses would be to consider ADRs against the actual Meter data at Reconciliation Final (RF). The target enforced by the Performance Assurance Board is 97% of data being actual Meter readings at RF. The Group considered this was a potential way forward, but noted their previous assessment that the level of distribution losses did not appear to be a market problem, and that PAB already monitor the 97% target. For these reasons the Group decided against doing any further analysis on the level of distribution losses.

6 Group's conclusions

- 6.1 The Group concluded that:
- distribution losses are volatile across the market, on a month by month basis and that this volatility is highly likely to be caused by inaccuracies and features of the current profiling arrangements (due to the times of year when the errors tend to occur);
 - the level of distribution losses in the Proposer's GSP Groups is unusual, compared to the rest of the market, but that no further work is needed to investigate this;
 - DCP0032 would, if approved, increase the data available to Suppliers and LDSOs to monitor the level and volatility of distribution losses across the market;
 - the potential profiling issues noted by the Group should be highlighted to the Profile Expert Group (PEG) to feed into their work to improve profiling. These were:
 - the use of a single year sample data;
 - the April clock change effect and profiling of the Spring and Easter period; and
 - the November clock change effect.
 - no further analysis should be carried out by this Group; and
 - that, therefore, Issue 34 should be closed.

7 Recommendations

7.1 The Panel is invited to:

- a) **NOTE** the conclusions of the Issue 34 Group;
- b) **NOTE** that ELEXON will request the Profile Expert Group consider the profiling issues which the Group identified; and
- c) **NOTE** that, following the submission of this report, Issue 34 will be closed.

Andrew Wright

Change Assessment Analyst

List of appendices

Appendix 1 – Standing Issue 34 Group membership

Appendix 2 – Definitions

Appendix 3 – ELEXON analysis

List of attachments

Attachment A – Proposer's presentation

Appendix 1 – Standing Issue 34 Group membership

Member	Organisation	19/05/08
Ysanne Hills	ELEXON (Chairman)	✓
Andrew Wright	ELEXON (Lead Analyst)	✓
James Nixon	ScottishPower (Proposer)	✓
Garth Blundell	ScottishPower (Proposer)	✓
Phil Russell	Independent	✓
George Moran	Central Networks	✓
Nigel Lloyd	Western Power Distribution	✓
Glenn Sheern	E.ON UK	✓
Malcolm Davies	Bizz Energy	✓
Mo Sukumaran	Scottish and Southern	✓
Rob Garner	Electricity North West Limited	✓
Andy Manning	RWE Npower	✓
Attendee	Organisation	
Jon Spence	ELEXON	✓
Kevin Spencer	ELEXON	✓
Manoj Tank	ELEXON	✓
Nicholas Rubin	Ofgem	✓

Appendix 2 – Definitions

Term	Definition
Regression coefficient	<p>A regression coefficient in load profiling terms is a value that represents an increase or decrease in demand in kW caused by a step change in an associated variable. For example a temperature coefficient of -0.0128 means that for every 1°F decrease in temperature demand will increase by 0.0128 kW (12.8 Watts). There are also regression coefficients related to the time of sunset and days of the week.</p>
Settlement seasons	<p>The year is broken down into the following seasons:</p> <ul style="list-style-type: none"> a Winter: defined as the period from the day of clock change from British Summer Time (BST) to Greenwich Mean Time (GMT) in October, up to and including the day preceding the clock change from GMT to BST in March; b Autumn: defined as the period from the Monday following the August Bank Holiday, up to and including the day preceding the clock change from BST to GMT in October; c High Summer: defined as the period of six weeks and two days from the sixth Saturday before August Bank Holiday up to and including the Sunday following August Bank Holiday; d Summer: defined as the ten-week period, preceding High Summer, starting on the sixteenth Saturday before the August bank Holiday; e Spring: defined as the period from the day of clock change from GMT to BST in March, up to and including the Friday preceding the start of the summer period. <p>The days are separately grouped according to the following day types:</p> <ul style="list-style-type: none"> a Weekdays (WD); b Saturdays (SAT); c Sundays (SUN).

Appendix 3 – ELEXON analysis

Explanation of Annual Demand Ratio

Annual Demand Ratio (ADR) is a measure of the variation between the total annual profiled Non Half Hourly (NHH) consumption and the total annual “metered” NHH consumption (as deduced from GSP Group Takes and HH consumption). The total annual “metered” NHH consumption is effectively the sum over a year of the profiled NHH demand per Settlement Period after the application of Line Loss Factor and GSP Group Correction Factor.

It provides a high-level understanding of the overall performance of the SVA market and identifies any significant under-/over-accounting of energy. Whilst the theoretical 'ideal' value of ADR is unity, variations of +/- 1.5% are to be expected due to inaccuracies in line loss estimates and a small usage of estimates at Final Reconciliation.

Values of less than one may result from the over-accounting of import energy in SVA, the under-accounting of export energy in SVA or under-accounting of Grid Supply Point metering.

Values of greater than one may result from the under-accounting of import energy in SVA, the over-accounting of export energy in SVA or over-accounting of GSP metering.

This over or under-accounting of energy is addressed by adjusting Suppliers' non half-hourly energy allocation in SVA by the GSP correction factor, such that the aggregate energy allocated to Suppliers is equal to the energy measured by GSP metering for each half-hour.

Because profile coefficients approximate to one over the period of a year, ADRs should eliminate most of the profiling error, which causes “noise” when looking at trends in GSP Group Correction Factors. This means that they give a good indication of volume errors in Settlement (as opposed to GSP Group Correction Factors which indicate both “volume” and “shape” error).

Demand Ratio values can be applied at different Run Types and at lower levels of breakdown (e.g. Season, Day Type, Day/Night, month).

Detail of ELEXON analysis

Consumption data and equivalent monthly demand ratios are shown below for the last five financial years, 07-08 to 03-04. For each period four tables broken down by GSP Group are presented:

- 1 Profiled Non Half Hourly consumption (including losses) - The first table is calculated as GSP Group take less Half Hourly consumption. For a given Settlement Date, the maximum run type (SF to RF) was chosen and summed over a month i.e. there is no RF data in the tables for 07-08.
- 2 Profiled Non Half Hourly consumption after Correction - The second table gives the consumption value from the first table after applying GSP Group correction.
- 3 Demand Ratio - The third table is calculated as corrected NHH consumption over uncorrected profiled NHH consumption i.e. table two over table one. The totals in the right hand column show us monthly equivalent annual demand ratios.
- 4 Percentage Error - The final table is calculated as the difference in uncorrected and corrected NHH consumption over the uncorrected NHH consumption such that a value greater than zero may have resulted from over-accounting of import energy, under-accounting of export energy or under-accounting of GSP metering.

It is worthwhile to note from the data tables that the market percentage error has reduced from 2.1% in 03/04 to 0.7% in 07/08.

The Market Percentage Error graph plots the monthly percentage error totals for the five financial years. A rise in error is seen in most cases from October to November which coincides with the Autumn-Winter seasonal boundary in profiling. April has the largest variation in error acknowledging the known forecasting difficulties in the Spring time.

The following two graphs show the Percentage Error by GSP Group for two different financial years, 07-08 and 05-06. They show that on the whole GSP Groups move together.

2007 – 2008

Profiled NHH (including losses)

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	N South Scotland	P North Scotland	Total
2006 Apr	1,966,604	1,363,683	1,188,825	773,814	1,279,232	782,343	1,210,557	1,624,938	1,180,843	490,686	844,759	1,117,209	1,091,090	529,984	15,444,566
2006 May	1,729,795	1,196,393	1,108,340	701,441	1,146,254	710,492	1,082,693	1,452,217	1,063,514	452,922	744,703	1,003,440	958,615	447,644	13,798,462
2006 Jun	1,620,223	1,130,035	1,058,506	660,615	1,065,970	662,385	1,016,901	1,349,547	997,938	427,835	683,099	948,889	876,016	392,725	12,890,685
2006 Jul	1,627,109	1,140,046	1,070,555	664,533	1,071,192	665,630	1,022,443	1,364,512	1,010,019	432,509	686,277	953,970	866,893	384,113	12,959,800
2006 Aug	1,641,983	1,136,078	1,076,383	665,471	1,077,004	661,953	1,025,450	1,383,705	1,021,763	434,256	694,878	954,652	876,195	387,897	13,037,666
2006 Sep	1,639,541	1,142,806	1,065,105	673,695	1,084,589	674,792	1,041,016	1,376,355	1,013,050	437,904	694,072	962,323	909,674	406,942	13,121,864
2006 Oct	1,975,200	1,365,886	1,222,324	789,633	1,292,680	786,235	1,223,467	1,644,637	1,207,849	513,603	832,258	1,124,679	1,085,611	513,573	15,577,636
2006 Nov	2,299,353	1,564,144	1,365,639	881,055	1,473,789	900,333	1,390,620	1,871,742	1,372,261	570,797	959,148	1,275,273	1,266,946	617,008	17,808,109
2006 Dec	2,544,409	1,719,242	1,474,651	960,453	1,613,901	983,154	1,505,047	2,060,617	1,528,014	619,635	1,050,524	1,409,554	1,361,534	685,050	19,515,784
2007 Jan	2,484,579	1,682,693	1,460,769	949,479	1,584,100	958,795	1,486,187	2,020,919	1,499,026	607,847	1,031,582	1,359,843	1,349,530	665,159	19,140,507
2007 Feb	2,224,852	1,502,040	1,315,706	843,628	1,417,007	862,557	1,322,381	1,807,830	1,334,298	541,970	920,798	1,218,885	1,198,422	586,728	17,097,101
2007 Mar	2,248,726	1,552,827	1,357,046	877,015	1,440,691	888,090	1,368,340	1,834,092	1,369,805	563,868	947,419	1,254,508	1,247,846	597,716	17,547,989
Total	24,002,374	16,495,873	14,763,850	9,440,832	15,546,407	9,536,760	14,695,102	19,791,110	14,598,380	6,093,831	10,089,516	13,583,225	13,088,370	6,214,540	187,940,170

Corrected NHH

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	N South Scotland	P North Scotland	Total
2006 Apr	1,918,281	1,372,927	1,183,264	798,467	1,288,419	772,559	1,220,103	1,620,722	1,192,197	506,908	848,651	1,105,742	1,142,976	552,888	15,524,104
2006 May	1,743,505	1,245,491	1,117,873	733,270	1,172,438	713,668	1,114,028	1,474,331	1,090,632	477,001	765,217	1,021,789	1,018,852	462,474	14,150,570
2006 Jun	1,564,292	1,103,947	1,032,440	649,605	1,038,952	630,897	989,308	1,298,254	977,316	418,695	660,192	911,912	865,168	376,002	12,516,980
2006 Jul	1,623,374	1,137,228	1,075,544	661,298	1,068,164	636,763	995,136	1,345,824	1,012,275	433,280	682,626	926,825	842,264	354,484	12,795,087
2006 Aug	1,611,015	1,149,862	1,031,265	680,432	1,071,576	658,621	1,020,326	1,335,532	1,005,315	438,981	691,366	944,841	896,568	386,921	12,922,622
2006 Sep	1,632,025	1,163,767	1,057,908	681,956	1,088,973	665,000	1,033,576	1,356,358	1,023,092	443,943	688,336	963,265	921,799	392,978	13,112,876
2006 Oct	1,859,656	1,347,770	1,174,196	790,170	1,272,449	768,654	1,195,261	1,562,817	1,160,570	505,886	801,678	1,098,340	1,088,884	483,416	15,109,747
2006 Nov	2,171,821	1,547,081	1,320,187	885,188	1,449,590	866,169	1,358,951	1,833,088	1,323,620	562,916	939,619	1,226,045	1,274,746	586,888	17,345,898
2006 Dec	2,433,870	1,708,877	1,414,470	986,356	1,599,835	964,816	1,489,628	2,041,761	1,488,531	627,313	1,049,044	1,345,150	1,413,424	668,497	19,231,571
2007 Jan	2,436,098	1,712,470	1,455,604	972,480	1,601,856	949,552	1,501,365	2,054,302	1,493,986	619,566	1,051,604	1,350,954	1,409,606	671,987	19,281,430
2007 Feb	2,164,618	1,521,696	1,298,917	865,111	1,427,501	839,893	1,326,498	1,815,878	1,318,117	550,113	936,975	1,189,032	1,235,908	589,536	17,079,794
2007 Mar	2,178,500	1,551,887	1,336,401	888,738	1,462,111	871,827	1,367,752	1,842,182	1,345,720	564,605	953,899	1,235,652	1,286,430	601,570	17,487,273
Total	23,337,056	16,563,003	14,497,968	9,593,071	15,541,854	9,338,418	14,611,933	19,581,049	14,431,372	6,149,208	10,069,206	13,319,546	13,396,627	6,127,642	186,557,952

Demand Ratio (corrected NHH / uncorrected NHH)

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	N South Scotland	P North Scotland	Total
2006 Apr	0.975	1.007	0.995	1.032	1.007	0.987	1.008	0.997	1.010	1.033	1.005	0.990	1.048	1.043	1.005
2006 May	1.008	1.041	1.009	1.045	1.023	1.004	1.029	1.015	1.025	1.053	1.028	1.018	1.063	1.033	1.026
2006 Jun	0.965	0.977	0.975	0.983	0.975	0.952	0.973	0.962	0.979	0.979	0.966	0.961	0.988	0.957	0.971
2006 Jul	0.998	0.998	1.005	0.995	0.997	0.957	0.973	0.986	1.002	1.002	0.995	0.972	0.972	0.923	0.987
2006 Aug	0.981	1.012	0.958	1.022	0.995	0.995	0.995	0.965	0.984	1.011	0.995	0.990	1.023	0.997	0.991
2006 Sep	0.995	1.018	0.993	1.012	1.004	0.985	0.993	0.985	1.010	1.014	0.992	1.001	1.013	0.966	0.999
2006 Oct	0.942	0.987	0.961	1.001	0.984	0.978	0.977	0.950	0.961	0.985	0.963	0.977	1.003	0.941	0.970
2006 Nov	0.945	0.989	0.967	1.005	0.984	0.962	0.977	0.979	0.965	0.986	0.980	0.961	1.006	0.951	0.974
2006 Dec	0.957	0.994	0.959	1.027	0.991	0.981	0.990	0.991	0.974	1.012	0.999	0.954	1.038	0.976	0.985
2007 Jan	0.980	1.018	0.996	1.024	1.011	0.990	1.010	1.017	0.997	1.019	0.993	1.045	1.034	1.010	1.007
2007 Feb	0.973	1.013	0.987	1.025	1.007	0.974	1.003	1.004	0.988	1.015	1.018	0.976	1.031	1.005	0.999
2007 Mar	0.969	0.999	0.985	1.013	1.015	0.982	1.000	1.004	0.982	1.001	1.007	0.985	1.031	1.006	0.997
Total	0.972	1.004	0.982	1.016	1.000	0.979	0.994	0.989	0.989	1.009	0.998	0.981	1.024	0.986	0.993

percentage error

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	N South Scotland	P North Scotland	Total
2006 Apr	2.5%	-0.7%	0.5%	-3.2%	-0.7%	1.3%	-0.8%	0.3%	-1.0%	-3.3%	-0.5%	1.0%	-4.8%	-4.3%	-0.5%
2006 May	-0.8%	-4.1%	-0.9%	-4.5%	-2.3%	-0.4%	-2.9%	-1.5%	-2.5%	-5.3%	-2.8%	-1.8%	-6.3%	-3.3%	-2.6%
2006 Jun	3.5%	2.3%	2.5%	1.7%	2.5%	4.8%	2.7%	3.8%	2.1%	3.4%	3.9%	1.2%	4.3%	2.9%	2.9%
2006 Jul	0.2%	0.2%	-0.5%	0.5%	0.3%	4.3%	2.7%	1.4%	-0.2%	-0.2%	0.5%	2.8%	2.8%	7.7%	1.3%
2006 Aug	1.9%	-1.2%	4.2%	-2.2%	0.5%	0.5%	3.5%	3.5%	1.6%	-1.1%	0.5%	1.0%	-2.3%	0.3%	0.9%
2006 Sep	0.5%	-1.8%	0.7%	-1.2%	-0.4%	1.5%	0.7%	1.5%	-1.0%	-1.4%	0.8%	-0.1%	-1.3%	3.4%	0.1%
2006 Oct	5.8%	1.3%	3.9%	-0.1%	1.6%	2.2%	2.3%	5.0%	3.9%	1.5%	3.7%	2.3%	-0.3%	5.9%	3.0%
2006 Nov	5.5%	1.1%	3.3%	-0.5%	1.6%	3.8%	2.3%	2.1%	3.5%	1.4%	2.0%	3.9%	-0.6%	4.9%	2.6%
2006 Dec	4.3%	0.6%	4.1%	-2.7%	0.9%	1.9%	1.0%	0.9%	2.6%	-1.2%	0.1%	4.6%	-3.8%	2.4%	1.5%
2007 Jan	2.0%	-1.8%	0.4%	-2.4%	-1.1%	1.0%	-1.0%	-1.7%	0.3%	-1.9%	-1.9%	0.7%	-4.5%	-1.0%	-0.7%
2007 Feb	-2.7%	-1.3%	1.3%	-2.5%	-0.7%	2.6%	-0.3%	-0.4%	1.2%	-1.5%	-1.8%	2.4%	-0.5%	0.1%	0.1%
2007 Mar	3.1%	0.1%	1.5%	-1.3%	-1.5%	1.8%	0.0%	-0.4%	1.8%	-0.1%	-0.7%	1.5%	-3.1%	-0.6%	0.3%
Total	2.8%	-0.4%	1.8%	-1.6%	0.0%	2.1%	0.6%	1.1%	1.1%	-0.9%	0.2%	1.9%	-2.4%	1.4%	0.7%

2005 – 2006

Profiled NHH (including losses)

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	N South Scotland	P North Scotland	Total
2005 Apr	1,955,035	1,362,092	1,181,130	777,257	1,275,597	780,262	1,208,329	1,513,491	1,180,875	486,739	852,710	1,117,315	1,097,883	524,502	15,413,218
2005 May	1,834,331	1,268,366	1,133,767	734,393	1,197,725	741,842	1,138,284	1,516,893	1,107,062	464,949	786,330	1,054,489	1,010,662	468,125	14,457,217
2005 Jun	1,609,439	1,132,120	1,038,893	663,463	1,071,209	666,770	1,027,467	1,340,693	984,630	422,715	685,794	957,204	885,109	379,786	12,879,845
2005 Jul	1,658,126	1,155,884	1,062,079	677,073	1,092,170	677,671	1,045,795	1,377,152	1,012,515	431,057	701,494	971,542	887,913	390,663	13,141,135
2005 Aug	1,649,418	1,151,584	1,061,660	677,596	1,091,235	675,378	1,043,875	1,386,157	1,017,402	434,095	698,919	974,686	883,784	379,786	13,125,573
2005 Sep	1,665,119	1,174,755	1,063,416	692,148	1,109,747	686,214	1,070,375	1,391,529	1,021,196	439,013	705,012	985,405	927,071	410,316	13,341,315
2005 Oct	1,976,123	1,382,919	1,220,398	809,965	1,309,856	803,315	1,244,154	1,661,044	1,202,220	513,149	846,243	1,148,646	1,116,904	522,394	15,757,330
2005 Nov	2,437,631	1,678,561	1,438,216	945,069	1,591,309	956,417	1,492,735	2,002,378	1,463,931	597,536	1,044,382	1,368,015	1,342,398	659,888	19,018,468
2005 Dec	2,697,749	1,834,833	1,560,237	1,016,260	1,724,558	1,024,865	1,594,207	2,207,856	1,631,030	638,277	1,134,572	1,474,078	1,438,983	699,258	20,676,763
2006 Jan	2,673,575	1,823,573	1,555,375	1,023,415	1,720,183	1,024,502	1,588,141	2,184,558	1,615,393	641,644	1,128,083	1,474,712	1,433,858	696,466	20,583,479
2006 Feb	2,427,564	1,648,808	1,418,009	913,041	1,550,401	909,532	1,429,118	1,976,810	1,456,092	577,597	1,039,531	1,306,797	1,262,838	628,680	18,544,817
2006 Mar	2,553,859	1,757,722	1,491,780	983,671	1,607,459	966,806	1,519,744	2,050,562	1,520,668	607,149	1,072,525	1,377,375	1,368,450	699,578	19,577,348
Total	25,137,969	17,371,218	15,224,960	9,913,350	16,341,449	9,913,574	15,402,224	20,709,122	15,213,013	6,253,920	10,695,596	14,210,083	13,655,853	6,474,175	196,516,506

Corrected NHH

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	N South Scotland	P North Scotland	Total
2005 Apr	1,914,690	1,369,728	1,188,726	791,290	1,311,852	783,681	1,213,422	1,618,480	1,188,364	503,657	861,533	1,117,097	1,139,960	525,599	15,528,077
2005 May	1,770,242	1,243,056	1,128,862	720,721	1,182,555	715,757	1,109,617	1,480,531	1,105,569	467,739	781,691	1,019,673	1,029,748	472,154	14,227,917
2005 Jun	1,598,364	1,126,918	1,046,638	649,989	1,069,966	645,303	1,000,926	1,336,458	1,001,418	429,481	683,909	930,940	891,955	388,198	12,800,463
2005 Jul	1,629,019	1,142,522	1,055,459	660,218	1,083,757	652,484	1,003,992	1,350,228	1,019,625	434,181	692,412	942,491	855,994	364,869	12,887,251
2005 Aug	1,619,329	1,152,956	1,035,762	664,558	1,073,343	657,290	1,006,072	1,347,301	1,015,723	432,872	696,637	949,294	913,278	393,446	12,957,961
2005 Sep	1,665,053	1,184,495	1,069,422	689,385	1,115,035	681,472	1,052,796	1,378,992	1,045,343	444,955	705,497	977,484	957,196	417,072	13,384,197
2005 Oct	1,878,728	1,359,282	1,184,279	793,974	1,295,939	788,425	1,217,151	1,585,970	1,186,987	510,941	821,544	1,115,277	1,141,189	505,235	15,384,921
2005 Nov	2,260,743	1,615,843	1,378,971	922,118	1,538,026	898,615	1,412,211	1,938,723	1,421,038	582,459	985,778	1,258,653	1,324,456	613,927	18,151,563
2005 Dec	2,576,466	1,805,416	1,494,106	1,022,803	1,707,735	1,003,534	1,560,610	2,199,472	1,602,121	646,041	1,128,962	1,418,020	1,471,461	702,697	20,339,443
2006 Jan	2,612,536	1,816,350	1,544,200	1,025,128	1,720,583	995,363	1,562,856	2,211,421	1,620,646	648,221	1,135,727	1,422,322	1,463,833	692,210	20,471,397
2006 Feb	2,325,701	1,616,072	1,401,826	908,964	1,540,403	880,942	1,385,088	1,936,053	1,445,757	581,372	1,035,565	1,261,381	1,297,387	620,680	18,297,190
2006 Mar	2,451,547	1,722,627	1,486,214	977,217	1,640,708	957,570	1,501,471	2,080,241	1,514,210	622,994	1,083,973	1,363,306	1,402,311	682,145	19,486,534
Total	24,302,419	17,155,264	15,014,467	9,826,366	16,279,902	9,660,436	15,026,212	20,523,871	15,166,799	6,304,913	10,613,229	13,775,937	13,888,767	6,378,232	193,916,814

Demand Ratio (corrected NHH / uncorrected NHH)

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	N South Scotland	P North Scotland	Total
2005 Apr	0.979	1.006	1.006	1.018	1.028	1.004	1.004	1.003	1.006	1.035	1.010	1.000	1.038	1.002	1.007
2005 May	0.965	0.980	0.996	0.981	0.987	0.965	0.976	0.994	0.999	0.966	0.967	0.967	1.019	1.009	0.984
2005 Jun	0.993	0.995	1.007	0.980	0.999	0.968	0.974	0.997	1.017	1.016	0.997	0.973	1.008	0.984	0.994
2005 Jul	0.982	0.988	0.994	0.975	0.992	0.963	0.960	0.980	1.007	1.007	0.987	0.970	0.964	0.934	0.981
2005 Aug	0.982	1.001	0.976	0.981	0.984	0.973	0.964	0.972	0.998	0.997	0.997	0.974	1.033	1.036	0.987
2005 Sep	1.000	1.008	1.006	0.996	1.005	0.993	0.984	0.991	1.024	1.014	1.001	0.992	1.032	1.016	1.003
2005 Oct	0.951	0.983	0.970	0.980	0.989	0.981	0.978	0.955	0.987	0.996	0.971	0.971	1.022	0.967	0.976
2005 Nov	0.927	0.963	0.959	0.976	0.967	0.940	0.946	0.968	0.971	0.975	0.944	0.920	0.987	0.930	0.954
2005 Dec	0.955	0.984	0.958	1.006	0.990	0.979	0.979	0.996	0.982	1.012	0.995	0.962	1.023	1.005	0.984
2006 Jan	0.977	0.996	0.993	1.002	1.000	0.972	0.984	1.012	1.003	1.010	1.007	0.964	1.021	0.994	0.995
2006 Feb	0.958	0.980	0.989	0.996	0.994	0.969	0.969	1.010	0.993	1.007	0.996	0.965	1.027	0.987	0.987
2006 Mar	0.960	0.980	0.996	0.993	1.021	0.990	0.988	1.014	0.996	1.026	1.011	0.990	1.025	0.975	0.995
Total	0.967	0.988	0.986	0.991	0.996	0.974	0.976	0.991	0.997	1.008	0.992	0.969	1.017	0.985	0.987

percentage error

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	N South Scotland	P North Scotland	Total
2005 Apr	2.1%	-0.6%	-0.6%	-1.8%	-2.8%	-0.4%	-0.4%	-0.3%	-0.6%	-3.5%	-1.0%	0.0%	-3.8%	-0.2%	-0.7%
2005 May	3.5%	2.0%	0.4%	1.9%	1.3%	3.5%	2.5%	2.4%	0.1%	-0.6%	0.6%	3.3%	-1.9%	-0.9%	1.6%
2005 Jun	0.7%	0.5%	-0.7%	2.0%	0.1%	3.2%	2.6%	0.3%	-1.7%	-1.6%	0.3%	2.7%	-0.8%	1.6%	0.6%
2005 Jul	1.8%	1.2%	0.6%	2.5%	0.8%	3.7%	4.0%	2.0%	-0.7%	-0.7%	1.3%	3.0%	3.6%	6.6%	1.9%
2005 Aug	1.8%	-0.1%	2.4%	1.9%	1.6%	2.7%	3.6%	2.8%	0.2%	0.3%	2.6%	-3.3%	-3.6%	1.3%	0.3%
2005 Sep	0.0%	-0.8%	-0.6%	0.4%	-0.5%	0.7%	1.6%	0.9%	-2.4%	-1.4%	-0.1%	0.8%	-3.2%	-1.6%	-0.3%
2005 Oct	4.9%	1.7%	3.0%	2.0%	1.1%	1.9%	2.2%	4.5%	1.3%	0.4%	2.9%	2.9%	3.3%	2.4%	2.4%
2005 Nov	7.3%	3.7%	4.1%	2.4%	3.3%	6.0%	5.4%	3.2%	2.9%	2.5%	5.6%	8.0%	1.3%	7.0%	4.6%
2005 Dec	4.5%	1.6%	4.2%	-0.6%	1.0%	2.1%	2.1%	0.4%	1.8%	-1.2%	0.5%	3.8%	-2.3%	-0.5%	1.6%
2006 Jan	2.3%	0.4%	0.7%	-0.2%	0.0%	2.8%	1.6%	-1.2%	-0.3%	-1.0%	-0.7%	3.6%	-2.1%	0.6%	0.5%
2006 Feb	4.2%	2.0%	1.1%	0.4%	0.6%	3.1%	3.1%	-1.0%	0.7%	-0.7%	0.4%	3.5%	-2.7%	1.3%	1.3%
2006 Mar	4.0%	2.0%	0.4%	0.7%	-2.1%	1.0%	1.2%	-1.4%	0.4%	-2.6%	-1.1%	1.0%	-2.5%	2.5%	0.5%
Total	3.3%	1.2%	1.4%	0.9%	0.4%	2.6%	2.4%	0.9%	0.3%	-0.8%	0.8%	3.1%	-1.7%	1.5%	1.3%

2004 – 2005

Profiled NHH (including losses)

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	Total
2004 Apr	1,941,233	1,335,778	1,182,944	781,586	1,266,541	759,908	1,181,293	1,605,700	1,165,127	479,593	840,676	1,086,956	13,627,336
2004 May	1,813,255	1,235,591	1,132,248	727,385	1,179,913	706,809	1,094,933	1,506,759	1,094,572	447,213	761,130	1,016,531	12,716,339
2004 Jun	1,590,000	1,119,478	1,022,519	665,179	1,058,995	648,479	1,004,468	1,316,835	978,012	407,856	672,150	928,781	11,412,753
2004 Jul	1,651,828	1,158,312	1,067,377	684,548	1,096,557	668,025	1,037,656	1,375,792	1,015,439	427,541	703,946	967,532	11,854,554
2004 Aug	1,630,480	1,141,969	1,060,937	678,553	1,091,348	660,609	1,030,758	1,377,132	1,002,286	427,229	697,740	962,667	11,761,708
2004 Sep	1,663,396	1,174,755	1,059,164	696,976	1,128,559	683,158	1,066,475	1,376,187	1,008,308	434,256	707,033	985,316	11,983,583
2004 Oct	2,102,131	1,454,031	1,251,014	821,687	1,365,005	825,498	1,283,473	1,690,994	1,248,844	507,408	862,072	1,187,689	14,599,845
2004 Nov	2,410,223	1,654,387	1,399,659	940,027	1,565,528	922,213	1,466,270	1,954,170	1,431,729	576,437	1,007,537	1,343,517	16,671,700
2004 Dec	2,651,314	1,805,810	1,511,835	1,010,554	1,697,536	998,170	1,576,464	2,150,010	1,577,871	620,244	1,093,618	1,451,865	18,145,292
2005 Jan	2,600,246	1,783,496	1,478,513	1,002,436	1,673,228	994,154	1,552,811	2,104,119	1,537,110	614,728	1,109,629	1,439,900	17,890,370
2005 Feb	2,449,729	1,659,758	1,399,472	917,978	1,549,789	908,439	1,427,928	1,968,818	1,445,502	565,617	1,018,075	1,318,872	16,629,977
2005 Mar	2,413,334	1,638,933	1,393,129	903,948	1,528,800	903,476	1,405,756	1,927,828	1,426,572	569,436	1,015,809	1,303,249	16,430,270
Total	24,917,170	17,162,299	14,958,812	9,830,855	16,201,799	9,678,937	15,128,284	20,354,345	14,931,372	6,077,559	10,489,416	13,992,876	173,723,725

Corrected NHH

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	Total
2004 Apr	1,882,840	1,317,262	1,163,213	770,391	1,268,567	754,300	1,177,676	1,576,057	1,168,033	490,685	847,840	1,082,878	13,499,740
2004 May	1,732,907	1,199,552	1,103,869	695,558	1,151,160	684,949	1,054,882	1,429,129	1,080,318	448,028	737,567	983,254	12,301,173
2004 Jun	1,557,696	1,074,690	1,025,516	641,573	1,039,415	627,834	985,129	1,284,855	974,942	412,834	655,697	908,911	11,189,093
2004 Jul	1,608,045	1,126,665	1,060,338	662,870	1,077,638	649,812	1,013,298	1,336,487	1,010,652	430,149	692,940	941,152	11,610,045
2004 Aug	1,609,984	1,141,881	1,038,473	670,989	1,076,711	657,590	1,017,060	1,343,169	1,008,255	431,712	695,046	952,182	11,643,050
2004 Sep	1,665,185	1,187,418	1,033,916	693,338	1,127,013	675,599	1,064,216	1,383,311	1,046,717	445,821	708,716	989,533	12,020,781
2004 Oct	1,992,659	1,427,736	1,230,731	821,979	1,358,399	808,338	1,263,882	1,676,995	1,235,881	522,651	878,825	1,166,128	14,384,203
2004 Nov	2,225,185	1,574,975	1,341,292	891,587	1,483,121	880,349	1,371,827	1,858,020	1,374,326	555,142	950,266	1,265,028	15,771,118
2004 Dec	2,517,754	1,752,219	1,458,591	999,164	1,653,622	981,370	1,526,829	2,115,920	1,557,617	622,578	1,086,043	1,396,091	17,667,798
2005 Jan	2,510,857	1,756,073	1,476,937	985,656	1,657,112	975,153	1,529,700	2,104,475	1,545,130	618,267	1,085,239	1,402,061	17,646,659
2005 Feb	2,298,897	1,593,522	1,375,029	890,579	1,509,196	873,836	1,372,971	1,928,015	1,416,735	556,343	998,161	1,256,446	16,069,731
2005 Mar	2,312,737	1,608,504	1,384,485	897,491	1,526,485	897,204	1,377,254	1,931,764	1,422,074	576,657	1,019,733	1,285,487	16,239,876
Total	23,914,746	16,760,497	14,692,388	9,621,174	15,928,439	9,466,333	14,754,723	19,968,198	14,840,681	6,110,866	10,356,073	13,629,149	170,043,267

Demand Ratio (corrected NHH / uncorrected NHH)

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	Total
2004 Apr	0.970	0.986	0.983	0.986	1.002	0.993	0.997	0.982	1.023	1.009	0.996	0.996	0.991
2004 May	0.956	0.971	0.975	0.956	0.976	0.969	0.963	0.948	0.987	1.002	0.969	0.967	0.967
2004 Jun	0.980	0.960	1.003	0.965	0.982	0.968	0.981	0.976	0.997	1.012	0.976	0.979	0.980
2004 Jul	0.973	0.973	0.993	0.968	0.983	0.973	0.977	0.971	0.995	1.006	0.984	0.973	0.979
2004 Aug	0.987	1.000	0.979	0.989	0.987	0.995	0.987	0.975	1.006	1.010	0.996	0.989	0.990
2004 Sep	1.001	1.011	0.976	0.995	0.999	0.989	0.998	1.005	1.038	1.027	1.002	1.004	1.003
2004 Oct	0.948	0.982	0.984	1.000	0.995	0.979	0.985	0.992	0.990	1.030	1.019	0.982	0.985
2004 Nov	0.923	0.952	0.958	0.948	0.947	0.955	0.936	0.951	0.960	0.963	0.943	0.942	0.946
2004 Dec	0.950	0.970	0.965	0.989	0.974	0.983	0.969	0.984	0.987	1.004	0.993	0.962	0.974
2005 Jan	0.966	0.985	0.999	0.983	0.990	0.981	0.985	1.000	0.985	1.006	0.978	0.974	0.986
2005 Feb	0.938	0.960	0.983	0.970	0.974	0.962	0.962	0.979	0.980	0.984	0.980	0.953	0.966
2005 Mar	0.958	0.981	0.994	0.993	0.998	0.993	0.980	1.002	0.997	1.013	1.004	0.986	0.988
Total	0.960	0.977	0.982	0.979	0.983	0.978	0.975	0.981	0.994	1.005	0.987	0.974	0.979

percentage error

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	Total
2004 Apr	3.0%	1.4%	1.7%	1.4%	-0.2%	0.7%	0.3%	1.8%	-0.2%	-2.3%	-0.9%	0.4%	0.9%
2004 May	4.4%	2.9%	2.5%	4.4%	2.4%	3.1%	3.7%	5.2%	1.3%	-0.2%	3.1%	3.3%	3.3%
2004 Jun	2.0%	4.0%	-0.3%	3.5%	1.8%	3.2%	1.9%	2.4%	0.3%	-1.2%	2.4%	2.1%	2.0%
2004 Jul	2.7%	2.7%	0.7%	3.2%	1.7%	2.7%	2.3%	2.9%	0.5%	-0.6%	1.6%	2.7%	2.1%
2004 Aug	1.3%	0.0%	2.1%	1.1%	1.3%	0.5%	1.3%	2.5%	-0.6%	-1.0%	0.4%	1.1%	1.0%
2004 Sep	-0.1%	-1.1%	2.4%	0.5%	0.1%	1.1%	0.2%	-0.5%	-3.8%	-2.7%	-0.2%	-0.4%	-0.3%
2004 Oct	5.2%	1.8%	1.6%	0.0%	0.5%	2.1%	1.5%	0.8%	1.0%	-3.0%	-1.9%	1.8%	1.5%
2004 Nov	7.7%	4.8%	4.2%	5.2%	5.3%	4.5%	6.4%	4.9%	4.0%	3.7%	5.7%	5.8%	5.4%
2004 Dec	5.0%	3.0%	3.5%	1.1%	2.6%	1.7%	3.1%	1.6%	1.3%	-0.4%	0.7%	3.8%	2.6%
2005 Jan	3.4%	1.5%	0.1%	1.7%	1.0%	1.9%	1.5%	0.0%	-0.5%	-0.6%	2.2%	2.6%	1.4%
2005 Feb	6.2%	4.0%	1.7%	3.0%	2.6%	3.8%	3.8%	2.1%	2.0%	1.6%	2.0%	4.7%	3.4%
2005 Mar	4.2%	1.9%	0.6%	0.7%	0.2%	0.7%	2.0%	-0.2%	0.3%	-1.3%	-0.4%	1.4%	1.2%
Total	4.0%	2.3%	1.8%	2.1%	1.7%	2.2%	2.5%	1.9%	0.6%	-0.5%	1.3%	2.6%	2.1%

2003 – 2004

Profiled NHH (including losses)

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	Total
2003 Apr	1,976,859	1,340,854	1,182,977	798,604	1,274,446	760,131	1,177,879	1,639,154	1,186,743	478,612	853,281	1,071,224	13,740,765
2003 May	1,772,461	1,183,863	1,103,189	712,065	1,133,288	670,834	1,050,934	1,461,781	1,084,547	433,143	744,087	957,495	12,307,686
2003 Jun	1,525,077	1,073,994	988,650	684,388	1,028,801	652,442	988,769	1,281,699	940,755	408,498	652,374	901,393	11,126,841
2003 Jul	1,594,075	1,114,577	1,033,657	697,497	1,063,996	661,071	1,011,174	1,334,882	983,408	420,415	676,889	928,918	11,520,560
2003 Aug	1,594,088	1,113,254	1,021,019	693,676	1,062,188	652,267	1,004,484	1,334,270	980,024	417,943	676,589	929,639	11,479,441
2003 Sep	1,664,453	1,148,278	1,048,391	714,377	1,094,483	669,515	1,034,101	1,377,930	1,014,404	423,013	692,354	954,829	11,936,129
2003 Oct	2,029,929	1,388,557	1,239,063	856,813	1,329,548	793,663	1,241,678	1,679,120	1,222,098	506,184	856,823	1,143,521	14,286,996
2003 Nov	2,284,484	1,599,740	1,344,772	968,534	1,508,057	889,800	1,400,187	1,874,194	1,365,748	557,730	968,771	1,301,836	16,063,853
2003 Dec	2,579,889	1,794,775	1,487,477	1,059,563	1,687,437	974,341	1,535,523	2,105,481	1,551,601	618,456	1,072,364	1,438,740	17,905,646
2004 Jan	2,642,480	1,796,485	1,515,675	1,077,159	1,702,042	994,771	1,567,465	2,146,401	1,559,804	620,876	1,121,993	1,440,069	18,185,219
2004 Feb	2,410,819	1,629,232	1,403,220	971,019	1,545,972	916,667	1,417,389	1,972,302	1,426,043	569,529	1,035,214	1,310,659	16,608,064
2004 Mar	2,423,028	1,661,102	1,435,871	982,783	1,565,977	926,578	1,444,575	1,980,545	1,453,169	583,980	1,031,603	1,317,890	16,807,101
Total	24,497,641	16,844,711	14,803,960	10,216,479	15,996,233	9,562,079	14,874,157	20,187,759	14,768,345	6,038,378	10,382,344	13,696,214	171,868,301

Corrected NHH

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	Total
2003 Apr	1,837,084	1,278,645	1,125,196	732,631	1,223,344	710,587	1,103,322	1,526,728	1,146,815	458,883	800,416	1,038,351	12,982,002
2003 May	1,700,639	1,206,596	1,094,206	712,872	1,171,495	685,115	1,087,945	1,449,397	1,076,256	460,123	770,303	990,602	12,405,548
2003 Jun	1,508,483	1,065,798	999,276	621,711	1,011,790	604,089	945,521	1,264,767	956,174	405,003	650,211	875,750	10,908,574
2003 Jul	1,566,950	1,098,908	1,031,700	646,184	1,047,487	626,316	982,662	1,304,749	991,888	419,179	674,715	917,034	11,307,772
2003 Aug	1,550,195	1,098,582	1,010,658	641,079	1,033,669	622,218	972,536	1,296,750	986,707	414,812	671,532	917,428	11,216,165
2003 Sep	1,580,222	1,131,251	1,031,116	673,700	1,081,937	656,712	1,026,015	1,327,302	1,009,892	432,326	681,537	953,631	11,585,639
2003 Oct	2,001,121	1,401,066	1,251,969	819,223	1,357,820	795,968	1,253,799	1,682,737	1,243,761	509,921	872,810	1,159,574	14,349,768
2003 Nov	2,174,988	1,538,905	1,311,357	880,235	1,466,526	855,042	1,341,004	1,816,154	1,346,508	546,904	949,061	1,244,754	15,471,438
2003 Dec	2,502,843	1,755,755	1,451,093	1,011,874	1,670,651	975,645	1,526,439	2,099,286	1,550,312	621,541	1,092,511	1,410,123	17,668,073
2004 Jan	2,552,002	1,770,202	1,502,249	1,007,362	1,682,928	977,440	1,537,771	2,116,499	1,570,944	617,702	1,097,599	1,410,073	17,842,770
2004 Feb	2,306,173	1,590,493	1,379,395	903,981	1,517,347	878,081	1,383,514	1,926,530	1,430,227	563,286	1,014,306	1,261,025	16,154,358
2004 Mar	2,328,306	1,610,562	1,408,970	918,304	1,550,126	888,066	1,413,756	1,965,478	1,445,018	579,273	1,035,395	1,293,055	16,436,310
Total	23,609,007	16,546,764	14,597,185	9,569,155	15,815,119	9,275,277	14,574,283	19,776,378	14,754,502	6,028,952	10,310,396	13,471,401	168,328,417

Demand Ratio (corrected NHH / uncorrected NHH)

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	Total
2003 Apr	0.929	0.954	0.951	0.917	0.960	0.935	0.937	0.931	0.966	0.959	0.938	0.969	0.945
2003 May	0.959	1.019	0.992	1.001	1.034	1.021	1.035	0.992	0.992	1.062	1.035	1.035	1.008
2003 Jun	0.989	0.992	1.011	0.908	0.983	0.926	0.956	0.987	1.016	0.991	0.997	0.972	0.980
2003 Jul	0.983	0.986	0.998	0.926	0.984	0.947	0.972	0.977	1.009	0.997	0.997	0.987	0.982
2003 Aug	0.972	0.987	0.990	0.924	0.973	0.954	0.968	0.972	1.007	0.993	0.993	0.987	0.977
2003 Sep	0.949	0.985	0.984	0.943	0.989	0.981	0.992	0.963	0.996	1.022	0.984	0.999	0.979
2003 Oct	0.986	1.009	1.010	0.956	1.021	1.003	1.010	1.002	1.018	1.007	1.019	1.014	1.004
2003 Nov	0.952	0.962	0.975	0.909	0.972	0.961	0.958	0.969	0.986	0.981	0.980	0.956	0.963
2003 Dec	0.970	0.978	0.976	0.955	0.990	1.001	0.994	0.997	0.999	1.005	1.019	0.980	0.987
2004 Jan	0.966	0.985	0.991	0.935	0.989	0.983	0.981	0.986	1.007	0.995	0.978	0.979	0.981
2004 Feb	0.957	0.976	0.983	0.931	0.981	0.958	0.976	0.977	1.003	0.989	0.980	0.962	0.973
2004 Mar	0.961	0.970	0.981	0.934	0.990	0.958	0.979	0.992	0.994	0.992	1.004	0.981	0.978
Total	0.964	0.982	0.986	0.937	0.989	0.970	0.980	0.980	0.999	0.998	0.993	0.984	0.979

percentage error

	A Eastern	B East Midlands	C London	D Merseyside & North Wales	E Midlands	F Northern	G North Western	H Southern	J South Eastern	K South Wales	L South Western	M Yorkshire	Total
2003 Apr	7.1%	4.6%	4.9%	8.3%	4.0%	6.5%	6.3%	6.9%	3.4%	4.1%	6.2%	3.1%	5.5%
2003 May	4.1%	-1.9%	0.8%	-0.1%	-3.4%	-2.1%	-3.5%	0.8%	0.8%	-6.2%	-3.5%	-3.5%	-0.8%
2003 Jun	1.1%	0.8%	-1.1%	9.2%	1.7%	7.4%	4.4%	1.3%	-1.6%	0.9%	0.3%	2.8%	2.0%
2003 Jul	1.7%	1.4%	0.2%	7.4%	1.6%	5.3%	2.8%	2.3%	-0.9%	0.3%	0.3%	1.3%	1.8%
2003 Aug	2.8%	1.3%	1.0%	7.6%	2.7%	4.6%	3.2%	2.8%	-0.7%	0.7%	0.7%	1.3%	2.3%
2003 Sep	5.1%	1.5%	1.6%	5.7%	1.1%	1.9%	0.8%	3.7%	0.4%	-2.2%	1.6%	0.1%	2.1%
2003 Oct	1.4%	-0.9%	-1.0%	4.4%	-2.1%	-0.3%	-1.0%	-0.2%	-1.8%	-0.7%	-1.4%	-1.4%	-0.4%
2003 Nov	4.8%	3.8%	2.5%	9.1%	2.8%	3.9%	4.2%	3.1%	1.4%	1.9%	2.0%	4.4%	3.7%
2003 Dec	3.0%	2.2%	2.4%	4.5%	1.0%	-0.1%	0.6%	0.3%	0.1%	-0.5%	-1.9%	2.0%	1.3%
2004 Jan	3.4%	1.5%	0.9%	6.5%	1.1%	1.7%	1.9%	1.4%	-0.7%	0.5%	2.2%	2.1%	1.9%
2004 Feb	4.3%	2.4%	1.7%	6.9%	1.9%	4.2%	2.4%	2.3%	-1.1%	2.0%	3.8%	2.7%	2.7%
2004 Mar	3.9%	3.0%	1.9%	6.6%	1.0%	4.2%	2.1%	0.8%	0.6%	0.8%	-0.4%	1.9%	2.2%
Total	3.6%	1.8%	1.4%	6.3%	1.1%	3.0%	2.0%	2.0%	0.1%	0.2%	0.7%	1.6%	2.1%

Figure A1 - Monthly percentage error totals for last five financial years.

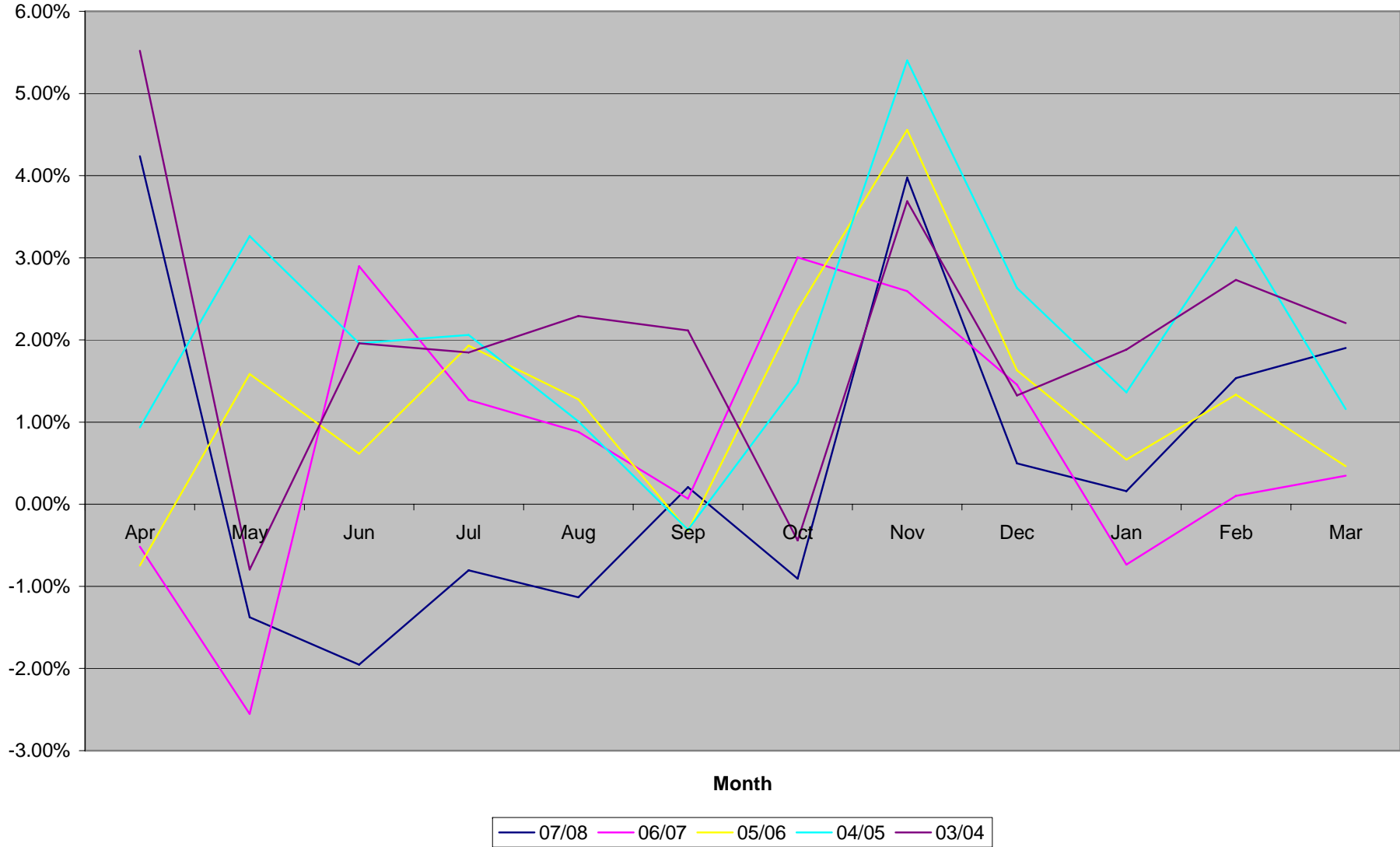


Figure A2 – Percentage Error by GSP Group for 2007 – 2008 (repeat of Figure 3)

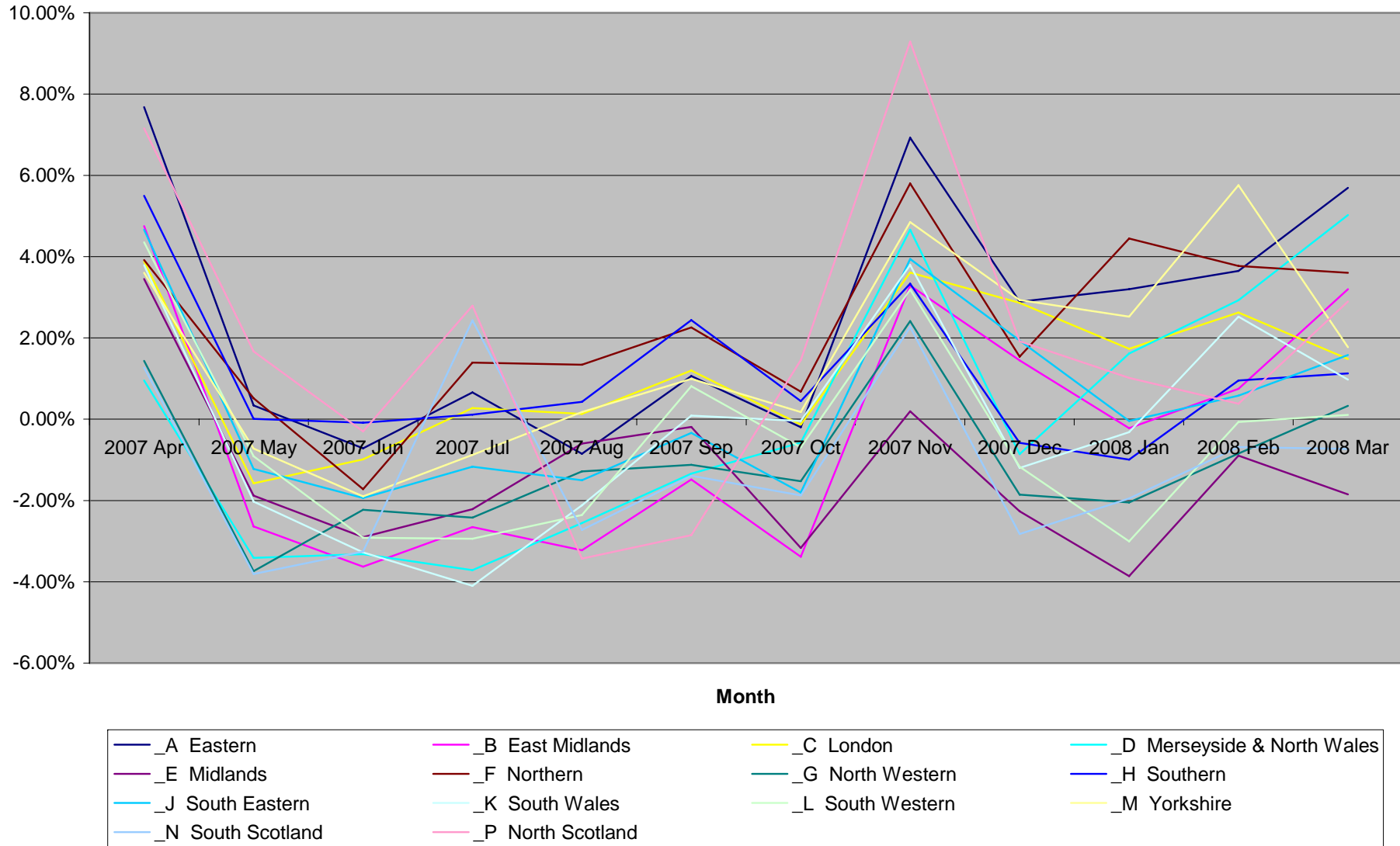


Figure A3 - Percentage Error by GSP Group for 2005 – 2006

