

Tim Aldridge
Distribution Policy
Ofgem
9 Millbank
London
SW1P 3GE

25 September 2013

Dear Tim,

Request for data for the close out of the fourth distribution price control review losses incentive mechanism

I am writing in response to the request for the re-submission of data and restatement applications contained within your “Decision on the process to follow for closing out the fourth distribution price control (DPCR4)” published on 12 July 2013. This response should be regarded as a consolidated response on behalf of UK Power Networks’ three distribution licence holding companies: Eastern Power Networks plc, London Power Networks plc, and South Eastern Power Networks plc. For convenience, the three licensees are collectively referred to as “UK Power Networks” throughout.

For Eastern Power Networks plc, following on from our original restatement applications of 13 April 2012 and 20 August 2012 (revised 28 September 2012), we are formally applying for the restatement of 2009/10 distribution losses performance for the purposes of closing out DPCR4 and for the annual incentive.

For London Power Networks plc and South Eastern Power Networks plc whilst we previously noted abnormal impacts on the 2009/10 losses performance caused by suppliers’ data management adjustments we elected not to make applications for restatement in 2012. Following Ofgem’s revision to the methodology with its improved clarity regarding the abnormality test, in accordance with paragraph 5.3 of your 12 July document, we are now also applying for restatement of 2009/10 data for close out and for the annual incentive for both London Power Networks plc and South Eastern Power Networks plc.

This letter is accompanied by:

- Three excel spread sheets¹ (one for each DNO) containing both the basic close out and the additional restatement information as requested by Ofgem.

¹ “EPN Data collection and analysis for DPCR4 losses (2013.09.25).xlsx”, “LPN Data collection and analysis for DPCR4 losses (2013.09.25).xlsx” and “SPN Data collection and analysis for DPCR4 losses (2013.09.25).xlsx”.

- Appendix 1 which outlines with supporting detail, our justification for making this application for restatement of close out in the context of the tests and principles set out in your document.
- Appendix 2 which outlines with supporting detail, our justification for making this application for restatement of the annual incentive amount in the context of the tests and principles set out in your document.
- Appendix 3 which details our re-analysis of the Data Management Units reported in the DPCR4 period into the relevant consumption year as requested by Ofgem.
- Appendix 4 sets out the rational and quantification of both units found post the DPCR4 period but relating to DPCR4 consumption periods and forecasts of units found relating to DPCR4 consumption periods during the remainder of DPCR5.
- Finally we are enclosing copies of the three SF normalisation & mapping calculations and the three reconciliation normalisation calculations. These were requested by Ofgem as a follow up to our submission last year. We are enclosing them now to assist Ofgem with their analysis².

In its 12 July 2013 document Ofgem requested that UK Power Networks reconcile the Units Distributed Not Accounted for in Settlement (also referred to as Data Management Units) back into prior years. This is in direct contradiction to our Reporting Methodology and, in our opinion, inconsistent with Ofgem's DPCR5 Final Proposals of 7 December 2009. Nevertheless in accordance with Ofgem's request we have reconciled the Data Management Units back into the relevant consumption year. Our preparation of this dataset is not intended to imply an acceptance of this re-interpretation of the Close Out Methodology by UK Power Networks.

In our identification of units found post the DPCR4 period but relating to DPCR4 consumption years we have sought to make calculations based upon actual activities undertaken during 2010/11 through to today, although we still have to model future activities and forecast future periods. We have challenged ourselves over the credibility and robustness of our assumptions and forecasts and discarded those not passing the challenge from our modelling (over 35%) to derive a core set of numbers which we believe are both credible and prudent.

In our previous re-statement applications we considered that Approach C was an effective and correct methodology for re-stating 2009/10. Notwithstanding the above point we continue to consider that Approach C is a fundamentally sound methodology.

The re-stated losses for 2009/10 are 5.04%, 5.10% and 5.78% for EPN, LPN and SPN respectively. On the basis of Ofgem's "minded to" position this would result in all three DNOs being capped. We will await Ofgem's next consultation before commenting on the application of the cap.

As you are aware we have been providing information to ESP Consulting so that they can conduct assurance of the data submitted by DNOs. We look forward to continuing this process with ESP. Please ask them to contact my colleague Jonathan Purdy in the first instance should they have any further questions.

² EPN Abnormality (2013.09.25).xlsx", "LPN Abnormality (2013.09.25).xlsx" and "SPN Abnormality (2013.09.25).xlsx" together with "EPN SF Normalisation & Mapping (2013.09.25).xlsx", "LPN SF Normalisation & Mapping (2013.09.25).xlsx", and SPN SF Normalisation & Mapping (2013.09.25).xlsx.

If you have any questions regarding this submission then please do not hesitate to contact me in the first instance. In addition we would be more than happy to come and see you again to discuss any points requiring clarity and to answer any questions that you may have.

Yours sincerely

A handwritten signature in black ink, appearing to read 'K Hutton', written in a cursive style.

Keith Hutton
Head of Regulation, UK Power Networks

Appendix 1 – Commentary to Accompany UK Power Networks Data Submissions and Restatement Requests for DPCR4 Close Out

1. In Ofgem’s document of 12 July DNOs are asked to provide fresh datasets for the close out of the DPCR4 losses mechanism and where restatement is sought to make new applications. This appendix outlines the steps taken by UK Power Networks in fulfilling this request.

Resubmission Of Fully Reconciled Data For Close Out Calculations

2. During the audit of our earlier submission a small number of errors were identified in the data sets for LPN and SPN, none have been identified in EPN. The errors were made during the re-consolidation of our data into the fully reconciled format required for the close out process, specifically:
 - An error was made in the 2007/08 SPN data set where one of our Excel workbooks was not refreshed and so the data did not consolidate correctly. This had the effect of overstating our losses for that year. All other models were correctly refreshed and linkages updated successfully.
 - Whilst consolidating the raw half hourly data for SPN and LPN a number of pieces of manually accumulated data (relating to items such as the Acton Lane Balancing Mechanism Unit) were added into our consolidated data twice. This impacted on all five years of DPCR4.
3. All of the errors outlined above have been removed from the resubmitted Fully Reconciled data set as requested in paragraph 2.10³.
4. Though the audit process identified the majority of the variance between data sets we are still left with a degree of unexplained variance. ESP Consulting⁴ suggested that these variances may be partially caused by discrepancies relating to IDNOs. ESP Consulting further formulated that this could lead to errors of up to ± 10 GWh. Ofgem incorporated this logic into its decision (paragraph 2.12) setting out the 10 GWh tolerance and suggesting that DNOs make adjustments to their data to reduce unexplained variances to the ± 10 GWh tolerance.
5. After taking account of the IDNO losses adjustments the following unexplained errors remain in UK Power Networks’ raw data:

Unexplained Variances (GWh)					
DNO	2005/06	2006/07	2007/08	2008/09	2009/10
EPN	11	-3	-5	6	10
LPN	-8	72	22	70	10
SPN	-14	0	0	0	-9

³ All references to paragraphs in this Appendix are to the 12 July document.

⁴ Working on behalf of Ofgem.

6. For a minority of years (one in EPN, three in LPN and one in SPN) we are left with unexplained variance outside the ± 10 GWh tolerance. We have undertaken considerable work to identify any underlying statistical patterns in the variances that may direct us towards identification of a solution and to identify any individual MPANs that may be causing the discrepancies. Neither of these approaches has yielded an effective result. A key issue with diagnosis of the discrepancies is the unavailability of more disaggregated data from the Settlements process to compare with our own MPAN data.
7. Over the five years of DPCR4 EPN and LPN have net lower units distributed and SPN has net higher units distributed according to our data as compared to the Settlement data. Given that we have always considered that DNOs should use their own data collected according to their individual Reporting Methodologies for close out to ensure consistency over time we have not made any changes or adjustments to the unexplained variances. Taking this approach means that our close out submission has higher overall losses than it would have if we were to close out using Settlement data. A final but important factor in considering this to be the appropriate solution is that it is in the customers favour.
8. Our Reporting Methodology included the reporting of Units Distributed Not Accounted for in Settlement (Data Management Units) identified through our office and field data management programmes – such units were reported in the year of find/resolution. These units were included within our original data submission. Whilst we believe that the DPCR5 Final Proposals allow for the units to be included on that basis, being consistent with our Reporting Methodology, we have nevertheless complied with Ofgem’s request to include the data “across the years to which the original error relates”. To this end we have profiled the DPCR4 reported Data Management Units across the period between the identified start of the error and the time when it should be corrected in Settlement. The effect of this can be seen in Appendix 3.
9. By re-allocating these units to the years to which the error relates we have removed more than 85% of the units previously reported in 2009/10. This is because the processes and systems employed in identifying these finds must logically be backward looking and therefore errors relating to 2009/10 are only likely to be identified in subsequent years, Ofgem’s 12 July document acknowledges this fact. We have accordingly identified Reporting Methodology Data Management Units from our work in the post DPCR4 period with a forecast element to cover the remainder of 2013/14 and 2014/15 periods. We have then profiled them back across the consumption years to which the errors relate and included them in the data submission. Full details of this process are given in Appendix 4.
10. In summary the following adjustments have been made to our fully reconciled data in the re-submission.

Adjustment	EPN	LPN	SPN
Removal of errors	N/A	Yes	Yes
Resolution/removal of unexplained variances	No	No	No
Re-phasing of reported DPCR4 Data Management Units	Yes	Yes	Yes
Addition of phased post-DPCR4 Data Management Units	Yes	Yes	Yes

Resubmission of Reported Data

11. Approach C requires that testing for abnormality be conducted using adjusted reported data as per paragraphs 2.15 and 3.30 of the 12 July document. In our 2012 re-statement application under Approach C we did not make any changes to the data from that reported in the regulatory returns. Our primary reason for doing this was the literal interpretation of Approach C as set out in Ofgem's 30 July 2012 letter⁵ which stated "start with DPCR4 reported data for five years". A number of other DNOs interpreted this differently and departed from their annually reported data in order to correctly apply the SP methodology. With the benefit of hindsight we can see that departing from reported data for the close out is appropriate and necessary for UK Power Networks to correctly apply the SP methodology in the way Ofgem intended and in so doing achieve consistency with other DNOs.
12. For a DNO that reports on a Settlement Data basis calculating the SF adjustment is a straight forward process (the SP methodology was designed for a DNO that reports on a Settlement Data basis), as the reported non-half hourly SF data is Settlement data, it is already 'fully reconciled' because its sits in the correct month and so it can be used straight off to calculate a valid non-half hourly SF adjustment.
13. The Losses Reporting Methodology used by UK Power Networks (as submitted to Ofgem on 10 March 2009) does not conveniently align with the Settlement data basis underpinning the SP Methodology. Indeed a set of monthly results produced under our methodology is comprised entirely of estimated consumption for the current month, accounting adjustments for previous months (replacing estimates with actuals) and movements in provisions. During the DPCR4 period the monthly accounts were prepared typically mid-way through the reporting month on the following basis:
 - The estimate of consumption for the month was produced at a date determined by our month end accounting timetable.
 - In order to be available for inclusion in the months accounts the estimate was calculated typically three weeks before the month end.
 - i.e. the March estimate was produced around the 10th of March.
 - At the time of reporting no actual non-half hourly data was available for the month being reported on and at most only eight days of half hourly data (un-validated because it had not yet been billed) could be included.
 - The estimate was calculated from statistical analysis of previous years and current year trends.
 - An assumption of how Settlement would estimate non-half hourly consumption was made based on the actual data for the previous two to three years.
 - Weather impacts were assessed from whatever public forecast sources were available i.e. long term weather forecasts or "looking out the window".To the Estimate was then added or subtracted:
 - A prior period adjustment for the previous month (M-1) reflecting the difference between the unbilled estimate for M-1 and the billed SF for the first 10-12 days of M-1.

⁵ Request for data for the close out of the fourth distribution price control review losses incentive mechanism

- A prior period adjustment for M-1 reflecting the difference between the unbilled estimate for M-1 made last month and a revised unbilled estimate for the 18-21 days still to be billed.
 - A prior period adjustment for the month before last (M-2) reflecting the difference between the revised unbilled estimate for M-2 made last month and the billed SF for the remaining 18-21 days of M-2.
 - The release of any provisions held against a reconciliation that was billed this month.
 - The taking of any provisions against a Settlement run that was billed this month for which a future reconciliation run is expected to be adverse (typically but not exclusively this was between the RF and DF runs).
 - Half hourly reported 'SF' data will be similarly affected with the current month being an unbilled estimate modified by prior period adjustments arising from billing, provisions against half hourly billing and also by the presence of data management units held on an 'as found' basis.
14. The SF adjustment is intended to establish whether part of the abnormal Settlement reconciliations observed are caused by abnormality in the initial SF data (paragraph 3.41). To observe this relationship accurately it can only be done by reference to data derived from Settlement data. Additionally, this adjustment will ultimately be applied to the fully reconciled SF dataset for close out and so again should be calculated using only Settlement data.
15. To apply the reported monthly results using our methodology to the unadjusted SF using the SP methodology would effectively produce very misleading results as the SF adjustment would be computed entirely from estimated values. Indeed any adjustment value computed would be entirely due to the fluctuations in estimates and would have no relevance to Settlement data
16. We have sought ways of overcoming this issue to achieve alignment with the intent of the required methodology. Following extensive discussions with Ofgem we have concluded that removing estimate values and replacing with the actual Settlement data coupled with the removal of the accounting adjustments and provisions achieves the best alignment with the intent of the SP methodology and is compliant with paragraphs 2.14 and 2.15 of Ofgem's 12 July document.
17. However, the reported data still includes one non-Settlement component – the Data Management Units. We consider that to include these non-Settlement units in a calculation of Settlement abnormality can only lead to contamination of the pure Settlement data and thereby create distorted results. We therefore believe that the Data Management Units should be removed from the reported data before calculating the SF adjustment. We have therefore further adjusted the reported data in our submission to exclude the Data Management Units from the half hourly data.

Calculation of the SF Adjustment

18. Within the SP Methodology the normalisation process has two components. Firstly an adjustment to normalise the R1 to DF Reconciliation Runs. Secondly there is a "SF adjustment" to normalise the SF to which the normalised Reconciliation Runs will be applied. There is sound logic for this SF adjustment because it is possible for the abnormal

reconciliation runs to be correcting for an abnormal SF. The two step process takes account of this to give a correctly normalised outcome.

19. When calculating the SF adjustment we have noted that some changes are required from the original data request in 2012. Firstly, we have amended our calculations to use only April 2006 to March 2008 as the Normal Period for the calculation. Secondly, Paragraph 3.48 requests the use of a weighted average of monthly data in calculating the adjustment, this is the method that we used in 2012 and we have continued to do so in this submission.
20. The SF adjustment is calculated as described in Section 5 of Engage's "Abnormal Settlement Adjustment Quantification" dated 30 April 2011 and re-issued by Ofgem alongside their 12 July document. The process described above means that our adjusted reporting data has already been stripped of any non-Settlement data which is likely to distort the calculation of the SF adjustment.

Testing For Abnormality

21. In its decisions Ofgem has set out "the principle that restatement of 2009/10 data would only be appropriate where a DNO could demonstrate that it had been affected by abnormal levels of data cleansing in that year". In its July 2013 document Ofgem further proscribed a single step test for abnormality and how that test was to be undertaken.
22. The core principle of the test is to identify whether suppliers cleansing of non-half hourly data has materially affected the R1 to DF reconciliation runs such that they fall outside of a fixed confidence interval.
23. In paragraph 3.39 of their 12 July document Ofgem confirmed that they considered that this SF adjustment should be applied prior to testing for abnormality in 2009/10. We concur with this logic as it is possible that abnormal reconciliation runs may also be correcting for an abnormal SF. Having normalised the SF it is then possible to determine with certainty, using Ofgem's statistical tests, that reconciliation runs are abnormal and that restatement is required.
24. For a DNO that reports on a Settlement Data basis applying the SF adjustment and testing for abnormality is a straight forward process, the reconciliations are recorded on the basis of when the electricity was delivered so no additional calculation steps are necessary. Ofgem notes this in paragraph 3.41 of its 12 July document.
25. The reporting methodology used by UK Power Networks necessitates that we need to follow the additional 'SF Normalisation mapping' step described in paragraphs 3.41 to 3.44 of the 12 July Document. The SF adjustment has been calculated monthly and has been mapped to the relevant dates using the model provided with the data request.
26. The models have been populated with the reported R1 to DF Settlement reconciliations after adjusting the 2008/09 & 2009/10 data for the SF adjustment calculated under the SP Methodology. The abnormality tests have been conducted using the new single statistical test provided with the data request without modification.
27. The proof required to establish abnormality has been significantly revised and improved from that which we were required to use for the original data request in July 2012. The results from the application of the revised test are shown in the table below.

Abnormality Test Results for 2009/10 and Subsequent Regulatory Years				
DNO	2009/10	2010/11	2011/12	2012/13
EPN	Abnormal	Abnormal	Abnormal	Abnormal
LPN	Abnormal	Abnormal	Abnormal	Abnormal
SPN	Abnormal	Abnormal	Abnormal	Abnormal

28. Under the old test the results for LPN and SPN were ambiguous and as a consequence we elected not to make applications for restatement in 2012. The revised test produces definitive results and we are therefore submitting proof of abnormality for all three of our DNOs.

The Normalisation and Close Out Calculation

29. There are a number of steps in this process, the first being to populate the normalisation model with the reported non-half hourly SF data. No SF adjustment has been added to this data. Next we add the non-half hourly R1 to DF data reconciliations to the model using the reconciliation data reported in the month.
30. We next calculate the normal level of R1 to DF reconciliation adjustments. In response to paragraph 3.49 we have made an adjustment to our model to calculate all abnormal reconciliations in 2009/10 using monthly weighted average percentage natural variations for the reconciliation at each individual run type expressed as a percentage of the SF run.
31. We have also amended our calculations to use April 2006 to March 2008 as the Normal Period for this normalisation of reconciliation run data.
32. The next step is to calculate normalised reconciliation runs for 2009/10 and for each subsequent year demonstrated to be abnormal. This is done by multiplying the normal percentage reconciliation for each run type for each month (as calculated in 30 above) by the reported SF for the month.
33. Next we need to fully reconcile the normalised R1 to DF values by moving the calculated normal reconciliations from reported date to Settlement date. This data shift has been applied on a part month basis an example of which is shown in the table below. Whilst this has a very limited effect on the final result we consider this to be a better method than moving the runs in whole months because most reconciliation runs do not fit within a single reporting period.

Reconciliation Runs Relating to April 2009	Reconciliation Runs Reported In
R1	65% in June and 35% in July 2009
R2	85% in September and 15% in October 2009
R3	10% in December 2009 and 90% in January 2010
RF	65% in June and 35% in July 2010
DF	100% in September 2011

34. Our model is still populated with Reported SF so we next need to move to fully reconciled SF data with no provisions, estimates and accounting adjustments. We remove the Reported SF and replace it with the fully reconciled SF data.
35. Next we need to add the SF adjustment to the normalised fully reconciled non-half hourly data. In paragraph 3.45 of their 12 July document Ofgem confirms that the same SF adjustment is to be used for the dual purposes of determining the size of reconciliations for 2009/10 (and post 2009/10 years as appropriate) for use in the statistical test, and calculating the scale of the abnormal SF to be used in restating 2009/10 data, should abnormality be identified. We add the SF adjustment calculated under steps 18 to 20 **Error! Reference source not found.** (above) to the outcome of step 34.
36. Finally, to calculate adjusted losses we bring in the fully reconciled units entering (purchases) and the fully reconciled half-hourly units exiting data (including the fully reconciled data management units).

Appendix 2 – Commentary to Accompany UK Power Networks Data Submissions and Restatement Requests for 2009/10 Annual Incentive

1. This appendix outlines the steps taken by UK Power Networks in updating the losses data for the 2009/10 annual incentive.

Reported Data Used for 2009/10 Annual Incentive Calculations

2. As per paragraph 4.8⁶ all identified errors have been removed from the reported data for all years of DPCR4. This has been done in the manner described in Appendix 1 above.
3. We have made one revision to the 2009/10 data used for the calculation of the annual incentive and this therefore no longer matches the data reported in our Regulatory Return for that year.
4. It has been suggested that by releasing all of our GWh provisions in line with the requirements in the DPCR5 Final Proposals we had deviated from our Reporting Methodology and that as a consequence our 2009/10 GWh data was over reported. This was not, in our opinion, a deviation as the GWh provisions released represented Settlement units that had flowed through Settlement in the final year of DPCR4 and hence should be included in the DPCR4 calculations. Nevertheless for the purposes of this submission we have reassessed the level of GWh provisions that would have been taken against the financial provisions that we were holding (and therefore subjected to Regulatory Accounts auditing) in each DNO at 31 March 2010.

March 2010 Provisions Against Future Adverse Reconciliation Runs			
DNO	March 2010 Revenue provisions held (£m)	Average non-half hourly p/kWh	Consequential GWh provisions implied
EPN	3.7	1.31	284
LPN	0.9	1.44	62
SPN	0.3	1.21	26

5. Our reported data has been adjusted by these provision values (reducing the 2009/10 Reported Units Distributed) before performing the calculations set out in paragraphs 4.11 and 4.12.

Abnormality Testing

6. A copy of the abnormality test was taken for the annual incentive. The data was tested, as per the requirements for DNOs using reported data, with no SF adjustment.
7. All three UK Power Networks DNOs were shown to be abnormal for 2009/10.

⁶ All references to paragraphs in this Appendix are to the 12 July document

2009/10 Restatement

8. For each DNO we took five years' worth of DPCR4 Settlement data on a reported basis. This data was then used to normalise 2009/10 based on the application of the SP methodology as described in Chapter 3 of the 12 July document.
9. The variance in reported units distributed, due to the additional provisions taken and the normalisation of 2009/10, was apportioned to the relevant different voltage levels based on the proportions at those voltage levels reported in the normal period of 2006/07 and 2007/08.

Capping the 2009/10 Annual Incentive Restatement

10. UK Power Networks agrees that it would be perverse that any calculation of the cap could penalise a DNO in comparison to its un-restated position and takes paragraph 4.17 to indicate that the un-restated position would be kept if a cap were to lead to a financial penalty after a restatement had been requested.
11. Paragraph 4.15 suggests that the cap for the 2009/10 annual incentive would be the same as for the close out position. The capping arrangements will be subject to a future consultation by Ofgem and UK Power Networks reserves its opinion on these until that time.

Appendix 3 – Data Management Units Reported During DPCR4

1. During DPCR3 and DPCR4 UK Power Networks conducted a wide range of field and office investigation and resolution actions to comply with its Electricity Act and Distribution Licence obligations to manage electrical losses and to contribute to the DPCR3 and DPCR4 Losses Incentives.
2. In accordance with our Reporting Methodology at that time Data Management Units were recognised in the year identified and included within our accounts, regulatory returns and losses calculations as shown in the table below.

Units Distributed Not-Accounted For in Settlement (GWh)						
DNO	2005/06	2006/07	2007/08	2008/09	2009/10	Total
EPN	29	46	21	35	85	217
LPN	29	129	41	4	118	321
SPN	21	27	11	67	109	235
Total	79	202	73	106	313	773

3. In its 12 July document⁷ Ofgem called this a contentious area and requested that UK Power Networks reconcile the non-Settlement data management units back into the year of consumption. This is in direct contradiction to our Reporting Methodology and, in our opinion, inconsistent with Ofgem's DPCR5 Final Proposals of 7 December 2009. Nevertheless in accordance with Ofgem's request we have reconciled the 773 GWh of Data Management Units reported in the five years of DPCR4 back into the relevant consumption year. Our preparation of this dataset is not intended to imply an acceptance of this re-interpretation of the Close Out Methodology by UK Power Networks.
4. We have reconciled the DPCR4 Data Management Units back into the consumption year based on the historic information held within our systems and records. This has generally been to flat profile the data between start and end dates. This results in only 14% of units remaining in 2009/10 – far lower than the default option of 20% per annum suggested by Ofgem. The results are shown in the table below:

		Fully Reconciled Consumption Year						Total
		Pre-DPCR4	2005/06	2006/07	2007/08	2008/09	2009/10	
		EPN Data Management Units (GWh)						
Report Year	2005/06	28	0	0	0	0	0	29
	2006/07	45	1	0	0	0	0	46
	2007/08	8	4	4	5	0	0	21
	2008/09	6	5	7	14	4	0	35
	2009/10	14	11	11	15	23	12	85
	Total	102	20	22	34	27	12	217

⁷ Page 15, first UK Power Networks decision paragraph.

		Fully Reconciled Consumption Year						
		Pre-DPCR4	2005/06	2006/07	2007/08	2008/09	2009/10	Total
Report Year		LPN Data Management Units (GWh)						
	2005/06	29	0	0	0	0	0	29
	2006/07	127	2	0	0	0	0	130
	2007/08	19	15	6	0	0	0	41
	2008/09	0	0	1	2	1	0	4
	2009/10	16	8	10	27	40	19	118
	Total	191	25	17	29	41	19	321
		SPN Data Management Units (GWh)						
	2005/06	20	0	0	0	0	0	21
	2006/07	23	3	0	0	0	0	27
	2007/08	6	3	2	0	0	0	11
	2008/09	26	7	7	12	14	0	67
	2009/10	16	11	13	25	31	13	109
Total	93	25	22	37	44	13	235	

- As can be seen from the above table a consequence of this reconciliation is that 387 GWh is reconciled out of DPCR4 predominantly into DPCR3.
- The table below shows the overall impact of departing from our Reporting Methodology to reconciling back into consumption year.

Units Distributed Not-Accounted for in Settlement							
GWh	Pre-2005/06	2005/06	2006/07	2007/08	2008/09	2009/10	Total
As Reported	N/A	79	202	81	106	313	773
Re-phased over consumption years	387	70	61	100	112	44	773
Percentage of reported	N/A	89%	30%	123%	106%	14%	100%

Appendix 4 - Post 1 April 2010 Data Management Units

Introduction

1. Since 1 April 2010 UK Power Networks has continued its field and office investigation and resolution actions to comply with its obligation to manage losses. A variety of causes contribute to units delivered onto our distribution network not ultimately appearing in Settlement and adding to non-technical losses if left unfound or unresolved. Our activities to address these non-technical losses are collected under the umbrella of Data Management Units.
2. In its 12 July 2013 document⁸ Ofgem acknowledged that units relating to 2009/10 (and logically in earlier DPCR4 years) may be found through Data Management work in years post DPCR4. Whether instances of outright theft, supplier errors or those of their agents, many problems will persist for lengthy periods before discovery and rectification.
3. The original reporting methodology changes for DPCR5 caused UK Power Networks to adapt and revise its actions and associated reporting of units recovered from Data Management activities. There was less focus on the analysis and recording of historic un-settled consumption whilst retaining focus on persuading the relevant supplier to energise the MPAN in Settlement at the earliest opportunity. Getting the MPAN logically energised within industry registration systems is the only way of ensuring that consumption flows into Settlement.
4. There was also a noticeable slowdown in the detection of issues at half hourly metered MPANs as we transitioned into DPCR5. We primarily attribute this to our success during the DPCR4 period in identifying and resolving errors in half hourly metered consumption.
5. In accordance with Ofgem's 12 July document we have re-analysed elements of our Data Management work over the period since the end of DPCR4 and have reconciled units recovered back into the relevant consumption year.
6. Our calculations are based upon actual activities undertaken from 2010/11 through to the present day with everything traceable back to individual MPANs. Of course, we still have to model future activities and forecast future periods.
7. Throughout our calculations we have challenged ourselves over the credibility and robustness of our assumptions and forecasts and discarded those not passing the challenge to derive a core set of numbers which we believe are both credible and prudent.
8. To do this we have broken the analysis down into five separate groups each of which will be described separately:
 - Identified non-Settlement units from completed theft investigations
 - Projected non-Settlement units from future theft investigations
 - Identified non-Settlement units from site visits with "Energised" results
 - Projected non-Settlement units from future "Energised" site visits
 - Identified non-Settlement units from completed office investigation cases

⁸ Page 15, second UK Power Networks decision paragraph

Identified Non-Settlement Units from Completed Theft Investigations

9. UK Power Networks' countering theft actions and processes did not change materially between DPCR4 and DPCR5. UK Power Networks' employs a third party Revenue Protection (RP) Agent who operates in accordance with the Revenue Protection Code of Practice. Between the end of DPCR4 and 19 August 2013 our Agent completed over 17,500 successful investigations. On each occasion that our RP Agent identifies a case of theft a "D0239" report is sent to the relevant supplier or directly to UK Power Networks for theft in conveyance cases. This report contains details of the investigation to permit the pursuance of further actions explaining what has taken place, whether they've had to undertake any urgent safety action and any available details of the occupier. Also included amongst the information in this report is the start and end date of the theft and the assessed units illegally abstracted (i.e. did not register on the meter) calculated on a case specific basis.
10. Each month our RP Agent produces a summary report of all of the cases which we in turn use to bill the supplier for each successful investigation undertaken.
11. Historical records of Revenue Protection cases were reviewed for the reporting periods April 2010 to 19 August 2013 (inclusive). Revenue Protection unrecorded units are assessed on site and a period established when it is believed the loss occurred. Analysis of 'Assessment From' and 'Assessment To' dates ascertained the number of days the loss occurred in each DPCR4 consumption year. The total number of lost units was then divided by the number of days producing a daily average and the daily average was then applied to the number of 'lost days' in each consumption year.
12. Units recorded by the RP Agent as illegally abstracted will not already be in Settlement because the interference with the metering equipment prevents it from registering the correct quantity of electricity supplied. There are also features of the current framework that act as a disincentive to suppliers to enter lost units into Settlements once theft is detected. These have been identified in Ofgem's consultation 'Tackling Electricity Theft', published in July 2013.
13. Where there is a supplier responsible the ideal solution is for units identified as having been illegally abstracted to be entered into Settlement in a timely manner. However, there are a number of barriers to this happening. These were investigated by the Balancing and Settlement Code (BSC) Performance Assurance Board and the results were published in "Findings from the Technical Assurance Checks on the Processing of Revenue Protection Reads" (PAB 111/05)⁹.
14. A summary was provided to the BSC Issue 39 Working Group in Autumn 2010 and quoted in the final report, which is in the public domain:

"Between November 2009 and February 2010, ELEXON visited seven NHHDCs and five NHH Suppliers to perform Technical Assurance checks on the processing of revenue protection reads. ...The key findings of the TA Checks were that –

- *the current BSC obligations are not defined in detail and are not being applied consistently;*
- *there is a lack of engagement between Suppliers, NHHDCs and Revenue Protection Services regarding the processing of revenue protection units;*

⁹ This was a confidential PAB paper and is not in the public domain.

- **little evidence** was found that units identified by Revenue Protection Services are being processed by NHHDCs.”

15. In its September 2012 consultation on setting the next electricity distribution price controls from April 2015 (RIIO-ED1)¹⁰, Ofgem identified that suppliers have “strong commercial **disincentives**” in respect of the detection and prevention of electricity theft. Where electricity goes unsettled, the costs of the stolen electricity (e.g. generation and distribution costs) are spread across all suppliers and are likely to be passed on to consumers. For as long as the illegal consumption remains unsettled, the supplier would face no direct charges or costs in connection with the volumes of electricity abstracted at registered premises. Subsequent to this Ofgem have brought forward proposals for a range of policy measures¹¹ to improve supplier’s tackling of electricity theft.
16. In 2012, at our request, our third party RP agent followed up with suppliers asking them to inform us how many units they were entering into Settlement. We are not aware that a single supplier responded with any value entered into Settlement.
17. Nevertheless, despite the above it is possible for some of the units identified as illegal abstraction to have been retrospectively entered into Settlement. We have therefore used a sliding scale of likelihood of units being entered which reflects that up to 20% of non-half hourly units have been entered into Settlement in the relevant consumption year, which is shown in the table below. The small number of half hourly theft cases have been individually validated against our billing data.

Time Period (relating the date the theft was assessed and reported to the supplier with the relevant consumption year)	Assumed Likelihood/Proportion of units entered into Settlement in relevant consumption year	Logic
Theft identified in the current consumption year and up to three months after the end of the consumption year	20%	At least one run (i.e. up to and including RF) is available for all days in the consumption year
Theft identified Four to Six months after the end of the relevant consumption year	15%	The R3 run is available for the last quarter and the RF run is available for the last three quarters of the consumption year
Theft identified Seven to Nine months after the end of the relevant consumption year	10%	Only the RF run is available and then only for the last half of the consumption year
Theft identified Ten to Fourteen months after the end of the relevant consumption year	5%	Only the RF run is available and then only for the last quarter of the consumption year

¹⁰ Strategy consultation for the RIIO-ED1 electricity distribution price control Outputs, incentives and innovation, Supplementary annex to RIIO-ED1 overview paper, Reference: 122/12, 28 September 2012.

¹¹ Tackling electricity theft - Consultation, Reference: 100/13, 3 July 2013.

Time Period (relating the date the theft was assessed and reported to the supplier with the relevant consumption year)	Assumed Likelihood/Proportion of units entered into Settlement in relevant consumption year	Logic
Theft identified more than 14 months after the end of the relevant consumption year	0%	No routine Settlement runs are available for any days in the consumption year (excepting DF for authorised disputes – of which we know of none)

18. Using this approach of assuming that some of the theft reported to suppliers has been entered into Settlement in the correct consumption year has reduced our DPCR4 theft unit assessment by 27 GWh.
19. Units illegally abstracted in theft in conveyance cases cannot be entered into Settlement (there being no responsible supplier to 'own' them) and are therefore recorded in full.
20. All theft reported to UK Power Networks between April 2010 and 19 August 2013 has been analysed in this way and the reconciliations back into the relevant consumption years of the DPCR4 period are shown in the table below.

Units Distributed Not Accounted for in Settlement (GWh)						
DNO	2005/06	2006/07	2007/08	2008/09	2009/10	Total
EPN	4.8	7.2	9.7	14.4	28.2	64.4
LPN	5.7	8.1	11.1	14.6	21.6	61.0
SPN	4.0	5.2	8.1	9.9	18.9	46.1
Total	14.5	20.5	28.9	38.9	68.7	171.5

Projected Non-Settlement Units from Future Theft Investigations

21. UK Power Networks continues to provide RP services to suppliers and continues to detect and investigate theft in conveyance cases. As we stated in our RIIO-ED1 Business Plan¹², we intend to continue to offer a comprehensive and high-quality regional RP service to suppliers on an on-going basis.
22. Theft cases can go back over 10 years as evidenced through the above consumption year analysis of 2009/10 to 2012/13 cases. We therefore consider that there is a period of a further seven years during which DPCR4 era theft will be identified. We have used the four year average performance 2009/10 to 2012/13 to project (by time shifting the data) the impact of future detected theft cases up to 2019/20 on units distributed in the DPCR4 period.
23. There are however a number of other factors that we need to take into consideration. In their tacking theft consultation Ofgem propose that the industry revitalise its approach to countering

¹² UK Power Networks Business Plan (2015 to 2023) Annex 7: Losses Strategy.

theft and implement new strategies. To this end Ofgem propose a number of changes to the theft environment including:

- New supplier obligations
- The development of a supplier incentive regime
- The Theft Risk Assessment Service (TRAS) to be put in place during Q1 2015

24. We have, accordingly, constrained our projection to the end of the DPCR5 period in recognition that the countering theft environment will be different in ED1. This has reduced our DPCR4 theft unit assessment by a further 36 GWh (shaded amber) with leaving a running rate projection of 33 GWh being retained (shaded green) for the remaining 19½ months of DPCR5, as can be seen in the table below.

GWh		Consumption Year																			
		00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20
Year of Discovery	13/14	0	0	1	1	1	2	2	3	4	6	8	13	29	23						
	14/15	0	0	1	1	1	2	2	3	4	5	7	11	17	39	30					
	15/16	0	0	0	1	1	1	2	2	3	4	5	7	11	17	39	30				
	16/17	0	0	0	0	1	1	1	2	2	3	4	5	7	11	17	39	30			
	17/18	0	0	0	0	0	1	1	1	2	2	3	4	5	7	11	17	39	30		
	18/19	0	0	0	0	0	0	1	1	1	2	2	3	4	5	7	11	17	39	30	
	19/20	0	0	0	0	0	0	0	1	1	1	2	2	3	4	5	7	11	17	39	30
		DPCR4 Period																			

25. During the Data Audit process we were challenged by Ofgem who considered that there was likely to be a “declining nature of the cases found” and therefore that “these units should be forecast in a more conservative manner”. There is no evidence to suggest that there will be a decline in the numbers of theft cases detected nor that the nature of those cases may change during the remainder of DPCR5. We would consider that the time shifting process is an effective method of projecting future theft cases and their impact - theft cases detected in September 2012 relating to 2007/08 are good basis for projecting theft cases found in September 2013 relating to 2008/09 and theft cases found in September 2014 relating to 2009/10, etc.. Nevertheless, we have taken on board Ofgem’s opinions and have further reduced the projected theft for the remainder of 2013/14 by 25% and the projected theft for 2014/15 by 50%. This further reduces the DPCR4 theft assessment by 11 GWh bringing the total reduction to 47 GWh.

26. The projected theft identified from investigations expected to be undertaken by UK Power Networks from 20 August 2013 up to the end of DPCR5 but relating to the DPCR4 period is shown in the table below.

Units Distributed Not Accounted for in Settlement (GWh)						
DNO	2005/06	2006/07	2007/08	2008/09	2009/10	Total
EPN	0.6	0.8	1.1	1.6	2.2	6.4
LPN	0.7	0.9	1.3	1.7	2.3	7.0
SPN	0.4	0.5	0.7	1.0	1.4	4.0
Total	1.8	2.3	3.1	4.3	6.0	17.4

Identified Non-Settlement Units from Site Visits with “Energised” Results

27. Since 1 April 2010 UK Power Networks has conducted over 140,000 site visits to MPANs that have been reported to us by the registered supplier as being de-energised (i.e. the fuse should have been withdrawn by their agent so that no electricity can flow). In addition, we have undertaken more than 180,000 safety inspection site visits, predominantly focussed on premises reported as de-energised. On over 30,000 of these site visits our agent has been able to obtain access to the premise, locate and read the meter, confirm that fuses are not withdrawn and that the premise is in fact energised and drawing electricity. These MPANs are referred to the relevant supplier with a request to send a D0205 (an update to registration details) to logically “energise” the MPAN in Settlement as this is a true reflection of its physical status.

28. Despite the evidence presented supplier responses to these requests to correct the energisation status in Settlement have often been poor. Even where the requested D0205 flows are eventually sent they are typically far outside the five working days required by the Balancing & Settlement Code¹³ and the Master Registration Agreement¹⁴. The table of ‘aged’ supplier performance from mid-2012 shown below illustrates this effectively.

Outstanding Energisation Requests	Period that Energisation Request has been Outstanding				
	0-30 days	31-90 days	91-180 days	181-365 days	Over 365 days
6,921	1,084	2,106	1,639	1,244	218

¹³ Balancing & Settlement Code Procedure 501, Section 3.3.1: “Notify changes of MSID specific changes by Supplier via D0205 Update Registration Details. As soon as possible and in any event within 5 Working Days of (i) the effective date of the change; or (ii) receiving notification that a change is required if this occurs after the effective date of the change.”

¹⁴ Clause 24.8: “...the Supplier shall notify the relevant MPAS Provider of any changes to data items for which it is stated to be responsible ... in respect of Metering Points for which it is Registered on the MPAS Registration System as soon as possible and in any event within 5 Working Days of (i) the effective date of the change; or (ii) receiving notification that a change is required if this occurs after the effective date of the change.”

29. The length of time that an energisation request remains outstanding can often result in UK Power Networks needing to re-schedule the premise for a further site visit to re-prove to the supplier that the premise is and remains energised. Indeed, the 365 days plus figure above would look appreciably worse but for our re-setting MPANs for fresh visits.
30. We have re-analysed all of the site visits undertaken since 1 April 2010 and identified all of these where the results of the site inspection was “Energised” (i.e. the fuses are in and electricity is being consumed). Using the actual de-energisation and energisation dates in Settlement we have identified how many days in each consumption year that MPAN had been erroneously de-energised.
31. For the non-half hourly MPANs we have calculated the expected unsettled consumption by reference to the average consumption by Profile Class of customers in each of our DNOs. We recognised that in some cases the premise may have been genuinely unoccupied for a period (and despite the information provided by the supplier remaining physically energised) prior to our first site visit finding it energised and in-use. We have assessed the period of non occupancy to be between 20% and 50%. To be prudent we have reduced the assessed unsettled consumption by 50%.
32. For the half hourly MPANs a Profile Class average is not really appropriate in terms of the range of consumptions and the absolute levels encountered. We therefore calculated the expected unsettled consumption at a case-by-case level. For MPANs showing outstanding zero-advance periods associated with our site visit we looked at individual consumptions before and after and arrived at a typical monthly consumption estimate. As with the non-half hourly MPANs to be prudent we have reduced the assessed unsettled consumption by 50%.
33. Taking the prudent 50% reduction in calculated unsettled consumption reduces our DPCR4 unit assessment by 84 GWh as compared to a 20% reduction.
34. The estimated unsettled consumption caused by incorrect energisation statuses from our site visit work since 1 April 2010 reconciled back into the relevant years of DPCR4 is shown in the table below.

Units Distributed Not Accounted for in Settlement (GWh)						
DNO	2005/06	2006/07	2007/08	2008/09	2009/10	Total
EPN	1.4	2.0	3.7	8.7	16.9	32.8
LPN	6.9	8.3	10.8	15.6	31.8	73.4
SPN	1.3	2.6	4.9	8.9	15.3	33.0
Total	9.6	13.0	19.4	33.1	64.1	139.1

Projected Non-Settlement Units Identified from Future Site Visits

35. From our current work plan we have identified a substantial further volume of MPANs (20,578) where the supplier has sent a de-energisation status change with an effective date prior to 1 April 2010 that are not included within the above analysis. We would expect to visit all of these MPANs as a part of our on-going safety and losses programmes by March 2015.

36. The Settlement window for DPCR4 consumption (for non-disputed items) closed in June 2011 so with all these cases there is no scope for the units to be settled. All DPCR4 units are crystallised and cannot be changed retrospectively.
37. In a similar manner to the confirmed, identified cases we have used the actual de-energisation date in Settlement to identify how many days and in which consumption years each MPAN may have been erroneously de-energised. We have then used the success rate of the actual work undertaken in the last three years to project how many of these on average would generate an “Energised” result following a future site visit. These proportions are 8.5% in EPN, 10.7% in LPN and 11.6% in SPN.
38. There is obviously no scope for retrospective energisations back into the DPCR4 period so missed units can be assessed as outlined in the previous section. Noting the more complex nature of half-hourly traded MPANs we excluded all 113 of these from this analysis.
39. The estimated unsettled consumption in the DPCR4 period caused by an incorrect energisation status being set by a supplier, reconciled back into the relevant years of DPCR4, for the visits we will undertake through to March 2015 using the more conservative 50% non-occupancy level is 25 GWh.
40. During the Data Audit process we were challenged by Ofgem who were “concerned that to include forecasts of energised customers with a de-energised status has the potential to remove the incentive to find these units at all” and that we should “exclude these forecast units”. UK Power Networks’ take its safety obligations very seriously and will be inspecting these premises during the present price control period (excepting of course if the supplier should send a D0205 to re-energise or a D0132 requesting it be disconnected).
41. Taking the prudent 50% reduction in calculated unsettled consumption had already reduced our DPCR4 unit assessment by 16 GWh as compared to a 20% reduction. Nevertheless, to comply with Ofgem’s requirements and to ensure the robustness of the data audit we have reduced the estimated unsettled consumption caused by an incorrect energisation status being set by a supplier for the premises presently within our site visit programme to zero. This further reduces the DPCR4 assessment by 25 GWh bringing the total reduction to 41 GWh.

Identified Non-Settlement Units from Completed Office Cases

42. Since 1 April 2010 a number of investigations have been initiated from the office rather than from a site visit¹⁵. We have re-analysed a subset of the post 1 April 2010 office cases (given the time available) to determine whether they related back into the DPCR4 regulatory period.
43. We extracted all of the supporting documentation and evidence from our files (such as emails and investigation reports) for the relevant MPANs. Each case has been re-investigated on an individual basis using our half hourly billing and other in-house systems to identify the non-Settlement units on a DPCR4 basis (i.e. where missing consumption was not entered into Settlement whether for some or all of the assessment period).

¹⁵ A number of these subsequently generated targeted field investigations which have been excluded from the site visit analysis considered previously.

44. The expected unsettled consumption was calculated by:

- Evaluating the start and end of the assessment period.
- Determining the daily average based on evidence provided, for example where the meter was programmed to have 200/5A CTs but the actual CTs were 1000/5 then only 20% of the true consumption will have been recorded. If there was no data available then meter read history was used to estimate the gaps or profile class averages as a last-choice option.
- Outstanding assessment figures for the relevant consumption years were based on the daily average multiplied by the number of unsettled days.

45. All results were recorded on a spread sheet showing total units and the associated assessment period for each individual MPAN.

46. The Data Management Units identified by the re-analysis of the office initiated investigations reconciled back into the relevant tears of the DPCR4 period is shown in the table below.

Units Distributed Not Accounted for in Settlement (GWh)						
DNO	2005/06	2006/07	2007/08	2008/09	2009/10	Total
EPN	4.2	4.2	4.9	7.9	8.3	29.5
LPN	0.0	0.0	1.1	1.7	0.7	3.5
SPN	0.0	0.0	1.2	2.4	2.2	6.0
Total	4.2	4.3	7.2	12.0	11.3	39.0

47. As a part of our on-going losses work we would expect to complete more such investigations in the remainder of DPCR5 and indeed on an on-going basis into ED1. Whilst it is likely that more DPCR4 consumption will be discovered (by extrapolation c20 GWh) we have reasonably removed all such numbers because these cases are so individual in nature and therefore do not pass our credibility test for inclusion.

Post DPCR4 Data Management – Units Excluded

48. By challenging ourselves robustly and striving to take a prudent and credible approach we have excluded 218 GWh (37%) of total units identified from our declared post DPCR4 Data Management Units as summarised in the table below.

Post DPCR4 Units Excluded by DNO and Consumption Year (GWh)						
DNO	2005/06	2006/07	2007/08	2008/09	2009/10	Total
EPN	3.7	5.1	11.9	19.1	27.8	67.6
LPN	8.6	13.1	18.5	27.3	40.9	108.5
SPN	1.8	3.3	7.4	12.3	17.2	42.0
Total	14.1	21.5	37.9	58.7	85.9	218.1

49. The Post DPCR4 Data Management Units excluded by type are shown below.

Post DPCR4 Units Excluded by Type (GWh)	
Type	Total
Theft Investigations	26.9
Theft Projection	46.8
Site Visit Programme	83.5
Site Visit Programme Projection	40.7
Office Initiated Investigations	20.2
Total	218.1

Reconciled DPCR4 Data Management Units

50. Combining all of the above work produces a fully reconciled Data Management summary as envisaged by Ofgem on page 15 of their 12 July document and is summarised in the table below.

Total DPCR4 Units Distributed Not Accounted for in Settlement (GWh)						
DNO	2005/06	2006/07	2007/08	2008/09	2009/10	Total
EPN	30.9	36.3	53.2	59.4	67.7	247.5
LPN	38.6	34.5	52.8	74.4	75.2	275.6
SPN	31.1	30.0	52.1	66.5	51.1	230.8
Total	100.7	100.9	158.0	200.3	194.0	753.8