Quality of Service Incentive Scheme
Audit of Interruptions Reporting 2006/07
Final Report

02 August 2007

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Audit of Interruptions Reporting 2006/07

Final Report

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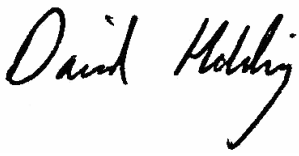
David Holding	QA Checker		02 August 2007

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Glossary

BPI	British Power International
CE	CE (UK) Ltd. Incorporating the NEDL and YEDL licensed areas
CI	Customer Interruptions – calculated as per the formula below
CML	Customer Minutes Lost – calculated as per the formula below
CN	Central Networks incorporating CN - East (formerly East Midlands Electricity) and CN - West (formerly Midlands Electricity and Aquila) licensed areas
Consortium	The consortium of BPI and MM
DNO	Distribution Network Operator
DPCR3	Distribution Price Control Review for Period 1 April 2000 to 31 March 2005
DPCR4	Distribution Price Control Review for Period 1 April 2005 to 31 March 2010
EDFE	EDF Energy Group incorporating EPN, LPN and SPN licensed areas
EHV	Extra High Voltage – all voltages above 22kV up to but excluding 132kV
ENMAC	The GE Harris proprietary Energy Network Management and Control System
HV	High Voltage – all voltages above 1kV up to and including 22kV
IIP	Information and Incentives Project
IIS	Information and Incentives Scheme
LV	Low Voltage – voltages of less than 1kV
MM	Mott MacDonald
MPAN	Meter Point Administration Number
MPAS	Meter Point Administration Service
MPRS	Meter Point Registration System
NaFIRS	National Fault and Interruptions Reporting Scheme
NEDL	Northern Electricity Distribution Limited
Ofgem	Office of Gas and Electricity Markets
OMS	The LeT Systems proprietary eRespond Outage Management System
PC-NaFIRS	Langhorne Computers' proprietary software used by DNOs for NaFIRS data capture and reporting to Ofgem
QA	Quality Assurance checking of auditing workbooks carried out as a follow-up to relevant audit visits
QoS	Quality of Service
rigs	QoS Regulatory Instructions and Guidance version 5, Ofgem, March 2005
SCADA	Supervisory Control and Data Acquisition

SI	Short interruption – an incident in which the loss of supply is less than 3 minutes in duration
SP	ScottishPower - SP Transmission and Distribution incorporating the SPD and SPM licensed areas
SPD	SP Distribution licensed area
SPM	SP Manweb licensed area
SEPD	Southern Electric Power Distribution
SHEPD	Scottish Hydro-Electric Power Distribution
SSE	Scottish and Southern Electricity incorporating the SEPD and SHEPD licensed areas
UU	United Utilities
WPD	Western Power Distribution incorporating the South Wales and South Western licensed areas
YEDL	Yorkshire Electricity Distribution Limited

Note:

Within this document:

The term “higher voltage” is used to indicate all voltages greater than 1kV.

The term “licensed area” is used, where necessary, to indicate the geographical area under consideration and to differentiate between areas in those situations where a parent company holds more than one distribution licence.

The calculations of Customers Interrupted (CI) and Customer Minutes Lost (CML) within this document are adapted from the formulae contained in the rigs to reflect the CI and CML generated by each stage of the incidents being audited.

CI is the number of customers interrupted in the relevant restoration stage per 100 connected customers. It is calculated as:

- CI = (The sum of the number of customers interrupted) * 100 / (The total number of connected customers)

CML is the duration of interruption to supply expressed as the number of customer minutes lost in the relevant restoration stage per connected customer. It is calculated as:

- CML = (The sum of the number of customers interrupted) * (the interruption duration in minutes) / (The total number of connected customers)

The total number of connected customers is as declared at 30 September 2006.

Summary

Overview

British Power International (BPI) and Mott MacDonald (MM) (the Consortium) has been awarded the contract to assist Ofgem with the Quality of Service (QoS) Incentive Scheme audits of DNOs' interruptions reporting for the reporting years 2005/06 and 2006/07.

This report describes the work carried out and results obtained for the audit of interruptions reporting for the reporting year 01 April 2006 to 31 March 2007. The minimum levels of accuracy that DNOs are required to meet under DPCR4 are set out in the Quality of Service Regulatory Instructions and Guidance version 5 (rigs). These minimum levels of accuracy are shown in the following Table.

	Overall		LV	
Required Level of Accuracy	Stage 2 – Subset Incident Sample	Stage 3 – Full Incident Sample	Stage 2 – Subset Incident Sample	Stage 3 – Full Incident Sample
Customer Interruptions (CI)	97%	95%	92%	90%
Customer Minutes Lost (CML)	97%	95%	92%	90%

Audit Process

Only Stages 1, 2 and 4 of the four-stage IIS audit process were used to determine the final DNO interruptions reporting accuracies because all DNOs passed the Stage 2 levels of accuracy, thus making Stage 3 unnecessary. Stage 1 involved calculating the MPAN accuracy for the relevant licensed area. In addition a questionnaire was used to evaluate progress on the relevant connectivity model although connectivity model accuracy was not used in the calculation of final reporting accuracy. Stage 2 covered the audit of reporting for the reduced sample of incidents selected by Ofgem and in Stage 4 the MPAN and incident reporting accuracies were combined to give the final reporting accuracies for CI and CML at both the Overall and LV levels. Stage 4 was carried out automatically within Ofgem's incident-auditing workbook.

Ofgem circulated the incident samples to DNOs prior to the audit visits and this contained only the pre-selected subset of incidents for use in Stage 2 of the audit process, whereas in the previous year DNOs received both the Stage 2 and Stage 3 incident samples. This followed a recommendation from the 2005/06 audits and feedback during the visits was that this had saved DNOs a substantial amount of preparation time. A further change introduced this year, again based on a recommendation from the previous year, was that 5 of the 11kV incidents selected for auditing were not included in the Stage 2 incident sample ahead of the audit visits. The DNOs were asked to extract the audit trails for these 5 incidents 'live' during the audit visits. Ofgem disaggregated the incidents selected for audit proportionately across the various voltage levels. Spare incidents were provided, but these were only audited if it was necessary to substitute them for incidents in the sample that could not be audited.

This year, in addition to the sample of reported incidents, a sample of those incidents determined by the DNOs to be non-reportable was also examined, as were the DNOs'

records regarding a sample of telephone numbers contained in Ofgem's quality of telephone response survey.

The number of people deployed as visiting auditors was further reduced from those of previous years, with only two people being involved. This year, the visiting audit team again comprised of one person from the Consortium (BPI) and one person from Ofgem. Other Ofgem staff attended some of the audit visits as observers.

The Consortium team member concentrated on the audit of the higher voltage incidents, the auditing of the sample of non-reported 'incidents' and the drafting of the DNO-specific reports. The Ofgem team member concentrated on the audit of the LV incidents, the audit of the sample of telephone numbers and also managed the inputting of audit data into the incident-auditing workbook.

Audit Results

All DNOs passed the audit of the Stage 2 sample by exceeding the minimum requirements for CI and CML accuracy at both the Overall and LV levels. Most DNOs have continued to either maintain or to improve the accuracy of their measurement systems. In addition there is evidence that they are implementing the recommendations made during the audit of the 2005/06 reporting year and continue to actively train their employees to the requirements of rigs version 5.

The QA checked QoS Incentive Scheme Stage 2 audit results are summarised below.

Licensed Area	Overall CI (Minimum Requirement 97%)	Overall CML (Minimum Requirement 97%)	LV CI (Minimum Requirement 92%)	LV CML (Minimum Requirement 92%)
CE – NEDL	99.33%	99.57%	99.43%	99.16%
CE – YEDL	99.93%	99.42%	97.46%	98.43%
CN – East	99.07%	99.00%	98.17%	99.58%
CN – West	98.94%	98.92%	99.21%	98.88%
EDFE – EPN	99.79%	99.45%	98.30%	96.46%
EDFE – LPN	99.98%	99.89%	94.99%	97.28%
EDFE – SPN	100.00%	99.99%	99.86%	99.83%
SPD	99.77%	99.41%	99.57%	99.89%
SPM	99.99%	99.99%	99.56%	99.95%
SSE – SEPD	99.94%	99.19%	99.21%	93.81%
SSE – SHEPD	99.97%	99.93%	99.92%	99.89%
UU	99.79%	99.77%	97.64%	98.84%
WPD – Sth Wales	99.99%	99.98%	99.44%	99.96%
WPD – Sth West	99.98%	99.96%	99.92%	99.54%

No changes to DNO's measurement systems were found that materially affected reporting accuracy. All calculations presented by the DNOs to support the accuracy of their measurement systems were reviewed and accepted by the visiting auditors.

Most DNOs have measurement systems that 'freeze' the record of the number of customers involved in an incident at the higher voltage levels and thus provide a robust audit trail. At the lower voltage level DNOs elected to explain variances in customer numbers if it was relatively easy to do so or where they considered the variance to be significant. A number of DNOs are in a position to record LV customer numbers on feeders at the time of incidents and it was suggested that in future years such locked records be accepted in a similar way to those at the higher voltages.

Generally DNOs have continued to improve their recording of pre-arranged interruptions since the audit of reporting year 2005/06; most are now recording the notified interruption times in their incident reports and all DNOs could provide information regarding the interruption times notified to customers.

Although DNOs have trained their field staff to provide more definitive information on interruption and restoration times, the information provided to support the audit trail for LV incidents was occasionally variable where it was derived from non-system sources. Whilst the visiting auditors accept that DNOs do not have full phase connectivity, and as such in certain circumstances have to rely on estimates from site, they noted the different lengths to which DNOs go to validate the information provided. The visiting auditors would expect to see evidence of how LV site estimates had been derived and where possible DNOs to carry out post incident checks to ensure that the site estimate is accurate when compared with system information. A number of DNOs were able to provide excellent notes to pinpoint the location of open-circuit faults and this greatly aided the audit process, such practice is welcomed and encouraged.

There appeared to be no reduction in reporting accuracy associated with the 5 11kV incidents that were not advised to the DNOs in advance of the audit visits. In general the time taken to produce the necessary audit information and audit the incidents was no greater than the time taken to audit the announced HV incidents. However, times varied between 30 minutes and 2 hours to complete the audit of these 5 incidents and the visiting auditors readily acknowledge that the number of stages in unannounced incidents has a bearing on this, as does the degree of automation inherent in the DNOs' measurement and reporting systems.

The visiting auditors were pleased to see that several DNOs had involved different people in this year's audit process, thereby spreading experience within the organisation. The visiting auditors were especially pleased to note that one DNO was already training people to succeed a key team member who was due to retire during 2008.

Quality of Telephone Response

In addition to the audit of incidents, the visiting auditors sampled the DNOs' measurement systems for the records of customers who had telephoned the DNOs and whose details had been provided to Ofgem's telephony consultants for sampling for the quality and speed of telephone response incentive scheme.

Learning Points

The visiting auditors have noted the following learning points:

- Setting and confirming the timetable well in advance again considerably aided the smooth running of the process;
- The modified automated incident-auditing workbook was well received as it provided the DNOs with an 'instant' interim indication of the accuracy results;
- Errors in reporting were generally found to lie in those parts of DNOs' measurement systems where manual input is required;
- The IIS process has become well established and DNOs have generally introduced internal audit regimes that are based upon it. The results of the IIS audits for reporting year 2006/07 suggest that these internal audits are having a positive effect on DNOs' accuracy of reporting, thus enabling DNOs' to pass Stage 2 levels of accuracy without the need to audit the Stage 3 incidents;
- The information contained within most DNOs' measurement systems enabled the unannounced 11kV incidents to be audited without the DNOs having spent time in either producing the documents or recreating the incident in advance of the audit visit;
- All DNOs' measurement systems contain many incidents that are deemed to be non-reportable. Generally, auditable evidence was available to determine why the DNO reached this conclusion;
- Whilst the number used was small, spare incidents should still be included in the sampling regime to provide for those instances where it is not possible to audit one of the sample incidents;
- To save on DNOs' preparation it is suggested that spares are unannounced ahead of the audit visit and the information for them is only gathered and audited if they are called upon to substitute a sampled incident;
- DNOs should continue to consider periodic rotation of staff responsible for QoS Incentive Scheme reporting so as to spread experience and provide for 'strength in depth' in the team;
- To this end it is recommended that where DNOs have more than one control centre, then audits are rotated between them, to ensure that as many staff as possible have exposure to and visibility of the audit process; and
- The visiting auditors found it useful to spend time with DNOs reviewing a number of IIS related questions and general Quality of Service issues once the main section of the audits were complete. Such dialogue is welcomed and encouraged; as such the audit timetable should be structured to facilitate this accordingly, where DNOs wish to take advantage of the visiting auditors' presence.

General Recommendations

Based on the above comments and observations, the following general recommendations are made:

- The reduced number of people working as visiting auditors should be continued as this enables them to make direct comparisons between DNOs on such matters as acceptable forms of evidence;
- Some DNOs are still using the time of reports of damaged LV cables or the time of an HV neutral earth alarm as the incident start time, when no report has been received that supplies have been lost. The Consortium confirms its previous recommendation that a DNO should not consider an incident to have started until it receives a report that supplies have been lost;
- Similarly, where a DNO believes it has restored supplies, evidence of best endeavours to confirm that supplies have in fact been successfully restored is required in order to support subsequent re-interruption stages or new incidents, otherwise the visiting auditors should consider that earlier restoration attempts have been partly/wholly unsuccessful;
- The visiting auditors were disappointed that, on a number of occasions of clock stopping, the information as to the nature of the customer's request for restoration work to be suspended and the agreed restart time did not form a robust audit trail. In future it is suggested that, if the rigs were to be amended, a standard restart time should be employed except where DNOs have fully auditable information to support the use of a different restart time;
- A sample of updates to connectivity models should be retained as part of the audit to encourage DNOs to maintain accuracy;
- Consider accepting as auditable evidence time-stamped "predicted/feeder numbers" of the number of customers on an LV feeder at the time of the incident;
- Continue with the sample of non-reported incidents but review the mix by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors;
- Consider increasing the number of non-reportable incidents, possibly to 200, given the speed with which this year's samples were audited;
- Consider sampling from the full population of reported incidents for the reporting year, irrespective of whether they are related to exceptional events;
- Consider incorporating all the necessary fields in the reporting template so the exceptional events database and the MTP information can be populated directly from the year end reporting template, thereby reducing both DNOs' and Ofgem's time in the preparation and evaluation of the various data submissions;
- Consider increasing the number of LV incidents in the sample so as to reduce the volatility of the accuracy of reporting being affected by the variance due to a small number of incidents;
- Consider including a table showing absolute accuracy at the overall and LV level as part of the audit report;

- As all DNOs passed the Stage 2 levels of accuracy Ofgem should continue to only issue the Stage 2 incidents ahead of the audit visits. Ofgem would then only issue the Stage 3 incidents to any DNO that failed the Stage 2 levels of accuracy, the Stage 3 incidents being audited during a follow-up audit visit;
- Consider showing the accuracy of 132kV and EHV incidents and HV incidents separately in addition to including them in the official overall results calculations;
- Similarly, show the number of outlying incidents and those with variances by these categories;
- Following the experience of this year's audit visits, Ofgem should increase the numbers of unannounced 11kV incidents in future audits to add to the additional level of audit rigour; and
- In addition to increasing the number of unannounced 11kV incidents Ofgem should give consideration to introducing a number of unannounced LV incidents.

1 Introduction

Background

1.1 The Office of Gas and Electricity Markets (Ofgem) is committed to an ongoing programme of work to strengthen incentives on Distribution Network Operators (DNOs) to deliver an appropriate quality of service to customers. This involves the definition and ongoing review of appropriate output measures. In addition, reporting and audit arrangements have been put in place to help maintain the consistency and accuracy of DNOs' reporting. Amongst the output measures on which DNOs are required to report are the number and duration of interruptions to supply per year.

1.2 Ofgem introduced standard definitions and guidance and minimum levels of accuracy that DNOs must meet for reporting quality of supply data. These are set out in Ofgem's Regulatory Instructions and Guidance (rigs)[1].

Audit of DNOs' Measurements Systems and Reporting

1.3 In 2001 Ofgem commissioned BPI and MM (the Consortium) to develop a framework for the annual auditing of incident reporting systems used by DNOs under the Information and Incentives Project (IIP). The initial contract ran for three years during which time DNOs undertook a significant amount of development work on their measurement systems. Development of the incident reporting process has taken place through a collaborative approach between Ofgem and the DNOs with the Consortium providing technical and analytical support on Ofgem's behalf as required. Under the initial contract an interim review was carried out in 2001 and IIP audits of measurement systems followed in 2002 and 2003. The contract to carry out the IIP audits for the reporting years 2003/04 and 2004/05 was also awarded to the Consortium. Full details of all audits carried out to date are available on the Ofgem website[2].

1.4 On 1 April 2005 Ofgem introduced a revised incentive scheme which provides financial incentives to DNOs with respect to the average quality of service they provide in 4 main areas:

- The number of interruptions to supply;
- The duration of interruptions to supply;
- The quality of telephone response; and (from 1 April 2007)
- The quality of telephone response in storm conditions.

1.5 DNOs may be rewarded or penalised by up to 3 per cent of revenue, depending on performance relative to their interruptions targets in each year of the scheme. The incentive scheme includes a mechanism for adjusting DNOs' reported performance for the number and duration of interruptions for inaccuracy to help ensure that DNOs are not unfairly rewarded or penalised due to measurement issues.

[1] Quality of Service Regulatory Instructions and Guidance version 5, Ofgem, March 2005.

[2] Separate final reports by Mott MacDonald/British Power International - Information and Incentives Project, Audit of Incident Reporting for the years 2001/02, 2002/03, 2003/04 2004/05 and 2005/06.

Aims of the Audit

1.6 The aims of the audit of DNOs' interruptions reporting for the reporting year 01 April 2006 to 31 March 2007 are to:

- Identify any significant changes in a DNO's measurement systems and their impact (if any) on the accuracy of reported information;
- Identify whether there are any significant weaknesses in the systems that DNOs have in place to report incidents, CI and CML and to provide recommendations for improvement(s) in these systems;
- Determine whether the DNOs are complying with the requirements of rigs version 5 for reporting;
- Provide an indication of the time taken to audit unannounced 11kV incidents;
- Explore the audit trail for a sample of incidents that DNOs had deemed to be non-reportable;
- Determine the overall accuracy of reported information; and
- Provide an opinion on the appropriate numerical adjustments to DNOs' reported information so that they are not unfairly rewarded or penalised in the incentive scheme due to any problem in their measurement systems.

The Audit Approach

1.7 Following discussions with Ofgem and the DNOs the changes in approach to the audits and calculation of accuracy introduced for the audit of reporting year 2005/06 have been maintained These include the introduction of:

- Stage 2 audit of the subset of selected incidents to a higher accuracy requirement with the Stage 3 audit of the full incident sample only being required if the Stage 2 accuracy is not met;
- A consolidated questionnaire, issues list, and sign-off document;
- A reduction in the number of people working as visiting auditors;
- One of the two-person visiting audit team being from Ofgem; and
- A streamlined audit reporting process with sign-off of key documents at a more formal meeting at the conclusion of each visit.

Report Structure

The main body of this report sets out the audit findings and accuracy of interruptions reporting for the reporting year 2006/07. The report is structured as follows:

- Section 2 of this report gives a description of the four stage audit process for 2006/07;
- Section 3 sets out the key results of the audit together with any differences in interpretation of the rigs found across DNOs;
- Section 4 gives details of key lessons learned as a result of this year's audit and identifies areas of best practice; and

- Appendix A gives a schedule of key information from the automated auditing workbooks, individual audit reports for each licensed area are set out in Appendices B to O, and Appendix P contains the feedback gained from the DNOs and additional points gained from the post-audit workshop held on 19 June 2007.

2 Audit Processes

Overview

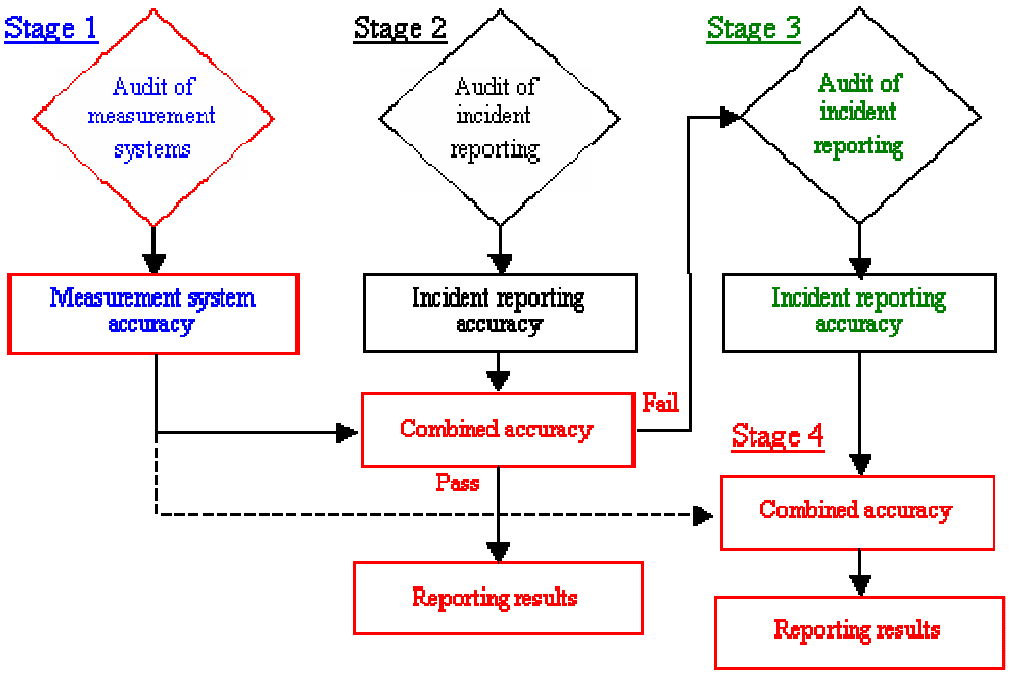
2.1 As in previous years the central component of the audit process was an audit visit to each licensed area. Two visiting auditors carried out the audit visits, one from the Consortium and one from Ofgem, working together with the DNO audit team. The aim was to foster a collaborative approach to achieve agreement during the visit wherever possible. Another member of Ofgem's team observed several of the audit visits.

2.2 For the audit of reporting year 2006/07 the visiting auditors again used Ofgem's modified fully automated incident-auditing workbook. This enabled the calculation and statistical work to be done in parallel with the collection of information on the audit visit. The visiting auditors were therefore again able to give a robust interim estimate of the final results of the audit immediately on completion of the audit visit. In addition, a streamlined DNO audit report template was again used to enable agreement of report content without the subsequent need for circulation and comment on draft reports. A more formal meeting at the conclusion of the audit visit enabled sign-off of the interim results and report subject to QA of results.

Audit Process

2.3 Figure 1 shows the four-stage audit process on which this report is based.

Figure 1 Audit Process Flow Chart



2.4 The approach to Stages 1, 2 and 3 was to circulate an audit questionnaire and the Stage 2 audit sample of incidents (except the 5 unannounced 11kV incidents) in advance of carrying out the audit visit to each DNO.

2.5 Updated accuracies of each DNO's measurement systems and the accuracies of each DNO's reporting using these systems were then calculated based upon the information gained during the audit visit. The accuracies of Stages 1 and 2 were then combined automatically in Ofgem's incident-auditing workbook to give the reduced sample Stage 4 Overall reporting accuracy for each licensed area. This process built directly upon the lessons learned from previous audits.

Audit Process Stage 1

2.6 This relates to the calculation of HV and LV MPAN accuracy. The calculation of MPAN accuracy is the same as for the audit of reporting year 2005/06 and reflects the number of primary traded MPANs active in a DNO's connectivity model relative to its total number of customers from MPRS. Taking MPAN count in MPRS as 100% accurate, the MPAN accuracy for HV and LV is then taken as the number of MPANs in the connectivity model capable of attracting CI and CML at the relevant voltage level expressed as a percentage of MPANs in MPRS. It is calculated as follows:

- HV/LV MPAN Accuracy = (Total number of primary traded MPANs assigned to true feeders at HV and above or LV as appropriate) / (Total number of primary traded MPANs).

2.7 MPAN accuracy can be greater than 100% if there is a delay in removing disconnected MPANs in the connectivity model relative to MPRS.

2.8 At LV, MPANs attached to true feeders (as opposed to dummy feeders or other temporary holding arrangements) in the DNO's connectivity model will be registered as losing supply when the feeder or substation to which they are attached becomes disconnected from the distribution system. These are therefore capable of attracting CI and CML even though they may not be correctly connected within the DNO's connectivity model. By comparison, LV MPANs not connected to true feeders (e.g. connected to dummy feeders or postcodes that never lose supply) are not capable of attracting CI and CML. At the higher voltage levels, MPANs attached to dummy LV feeders will lose supply when the substation becomes disconnected and, in this case, would attract CI and CML.

2.9 MPANs attached to true feeders may not be attached to the correct feeder or substation for a variety of reasons and this would give rise to incorrect reporting of CI and CML for a proportion of individual incidents. However, audit work in previous years supports the view that the number of MPANs connected to incorrect feeders or substations is low, evenly distributed and diminishing in all licensed areas.

2.10 An audit questionnaire was prepared to enable visiting auditors to check on the development of the connectivity model accuracy in each licensed area and to ensure that DNOs are retaining the focus on its continual improvement. The questionnaire circulated to DNOs prior to the audit visits examined the following:

- Any changes that DNOs have made to the way that they interpret the definition and guidance contained in the rigs version 5 since their introduction on 01 April, 2005;
- Any changes that DNOs have made to the way in which they identify primary traded MPANs;

- Outputs from quality control and monitoring of primary traded MPAN systems and connectivity models;
- Any future changes that DNOs have planned for their measurement systems; and
- Follow-up to any recommendations that had been made as a result of the audit for the 2005/06 reporting year.

2.11 In their answers to the questionnaire the DNOs were asked to identify the effects of their methodologies on connectivity model accuracy together with supporting calculations.

2.12 In order to determine the finalised Stage 1 MPAN accuracy for the overall sample used in the combined accuracy calculation, Ofgem's automated incident-auditing workbook calculated a weighted average of the higher voltage MPAN accuracy and LV MPAN accuracy based on the contribution to overall annual higher voltage and LV CI.

Audit Process Stages 2 and 3

2.13 Stage 2 of the 2006/07 audit consisted of the audit of incidents and the combination of results into the incident reporting accuracies by means of Ofgem's automated incident-auditing workbook.

2.14 Ofgem selected a sample of 150 incidents from each licensed area, split between HV and above and LV according to the respective contribution to CI and CML (with a minimum of 50 LV incidents). The samples were split into two parts, Stage 2 and Stage 3 such that:

- The Stage 2 Overall samples consisted of 50 HV and above incidents and 30 LV incidents (i.e. a total of 80 incidents). The 30 LV incidents also made up the Stage 2 LV samples; and
- The Stage 3 Overall samples consisted of all 150 HV and above and LV incidents. All the LV incidents (minimum 50) made up the Stage 3 LV samples.

2.15 Following the recommendation from last year's audits, Ofgem did not circulate the Stage 3 audit samples to the DNOs.

2.16 Spare incidents were included to substitute for incidents that might prove impossible to audit.

2.17 The 5 unannounced 11kV incidents were audited directly from the DNOs' measurement systems without the DNOs having had to pre-prepare documented audit trail information.

2.18 The audit team audited each of the incidents in the Stage 2 sample initially and then used the incident-auditing workbook to calculate the Stage 2 accuracy figures. All the calculated Stage 2 Overall and Stage 2 LV accuracies met the requisite threshold levels and the audit of incidents was concluded at this Stage.

2.19 The audit process took the following factors into account:

- The number of customers affected by each restoration stage of each incident as reported to Ofgem;

- How this number related to both the audit trail (information generated at the time of the incident recorded in field records, switching logs or other measurement systems) and the number of customers shown on the DNO's connectivity model;
- The reported duration of each stage of each incident and how this compared with the audit trail for the incident that occurred (e.g. the time of the first customer call registered in the call logs and restoration times recorded in field records, switching logs or other measurement systems);
- Whether each incident had been captured by the measurement systems by comparing customer and incident reports and whether logged network events related to relevant incident reports; and
- Comparing the location of each incident within the distribution networks with the representation in the measurement systems.

2.20 The audit team determined an "audited" value for the number and duration of interruptions for each restoration stage for each incident. This value was then compared against the original reported results to measure the level of accuracy/inaccuracy. The audit team recorded the source of any inaccuracies for later analysis.

2.21 Throughout the process the visiting auditors took care to ensure that any lack of information did not lead to bias in the audit results.

2.22 The Consortium auditor worked on the higher voltage incident sample and the Ofgem auditor on the LV sample. Whilst the visiting auditors worked in parallel this did not prevent discussions between them where questions of understanding or interpretation arose.

2.23 The audit of incidents examined the consistency and accuracy of the following processes:

- Data capture by telephone operators;
- Network control room data capture;
- Capture of field data within DNOs' measurement systems; and
- Data links to the fault reporting system (e.g. PC-NaFIRS).

2.24 Each sample incident was checked for consistency and accuracy of the following information from relevant DNO measurement systems:

- Identification of restoration stages within the incident;
- Time stamping of the start and finish of each restoration stage within the incident;
- Location of the incident; and
- Identification of the number of customers affected by each restoration stage within the incident.

2.25 Information was extracted through live online access to current DNO systems or through examination and verification of time stamped system printouts taken at the time of the incident together with time stamped reports from field staff.

2.26 In the event of particular incidents being too complex or impossible to audit, spare incidents were substituted in a pre-determined sequence provided by Ofgem.

2.27 DNOs also had the opportunity to record their views in the DNO figure columns and the comments columns of the incident-auditing workbook but this was only done in a very few instances.

Audit Process Stage 4

2.28 The Stage 4 Overall and LV reporting accuracies were calculated in the automated incident-auditing workbook. Relevant details of the calculation procedure and output from the workbook are set out in Appendix A.

2.29 Each audit visit concluded with a review session where the main points arising from the visit were discussed with the DNO team and any learning points relevant to the conduct of future audit visits were shared. Both the visiting auditors and the DNO audit team retained the following audit visit documentation:

- A date stamped signed hard copy of the consolidated questionnaire, issues list and sign-off document;
- A date stamped signed hard copy of the audit visit report and interim results;
- An electronic copy of the completed audit questionnaire; and
- An electronic copy of the completed incident-auditing workbook for QA.

3 Audit Results

Overview

3.1 The QoS Incentive Scheme audit visits to DNOs for reporting year 2006/07 took place during May and June 2007. A summary of the visit programme is set out in Table 1.

Table 1 Audit Visit Programme

Licensed Area	Dates	Location
CE – NEDL and YEDL	21 / 22 May	Penshaw
CN – East	07 June	Tipton
CN - West	06 June	Castle Donington
EDFE – EPN and LPN	30 / 31 May	Ipswich
EDFE – SPN	29 May	East Grinstead
SPD and SPM	23 / 24 May	Kirkintilloch
SSE – SEPD and SHEPD	14 / 15 May	Portsmouth
UU	04 June	Manchester
WPD – Sth Wales and Sth West	16 / 17 May	Cardiff

3.2 The visiting auditors were well supported by the DNO audit teams and the pre-visit preparation by each DNO team was of a high standard. It was the visiting auditors' responsibility to retain the master consolidated incident-auditing workbook at the end of each day's work.

MPAN Accuracy

Summary of Findings

3.3 Table 2 summarises the results of the auditing workbook calculation used to determine the Overall MPAN accuracy from the HV and LV MPAN accuracy results. This is the average of the HV MPAN accuracy and LV MPAN accuracy weighted by their annual respective CI contributions. Further details of this calculation are provided in Appendix A.

Table 2 HV, LV and Overall MPAN Accuracies

Licensed Area	HV MPAN Accuracy	LV MPAN Accuracy	HV Weighting	LV Weighting	Overall MPAN Accuracy
CE – NEDL	100.17%	100.14%	77.85%	22.15%	100.16%
CE – YEDL	99.87%	99.91%	79.99%	20.01%	99.88%
CN – East	99.06%	99.08%	88.90%	11.10%	99.06%
CN – West	98.92%	98.93%	87.54%	12.46%	98.92%
EDFE – EPN	100.00%	99.24%	89.61%	10.39%	99.92%
EDFE – LPN	100.00%	99.86%	74.39%	25.61%	99.96%
EDFE – SPN	100.00%	100.00%	91.83%	8.17%	100.00%
SPD	99.77%	99.77%	86.60%	13.40%	99.77%
SPM	100.00%	100.00%	85.95%	14.05%	100.00%
SSE – SEPD	99.98%	99.96%	82.01%	17.99%	99.97%
SSE – SHEPD	99.98%	99.92%	88.61%	11.39%	99.97%
UU	99.94%	99.94%	81.92%	18.08%	99.94%
WPD – Sth Wales	99.98%	99.96%	89.96%	10.04%	99.98%
WPD – Sth West	99.99%	99.92%	84.48%	15.52%	99.98%

DNO Changes since the audit of reporting year 2005/06

3.4 The key points on DNO's measurement systems and reporting procedure changes since the audit of reporting year 2005/06 are set out in Table 3. Full details for each licensed area are set out in Appendices B to O of this report.

Table 3 Changes to DNO Systems and Procedures

Change Area	Comment
Interpretation of rigs version 5	Rigs version 5 came into effect on 01 April 2005 and no DNO has changed its interpretation of them since that time.
MPAN accuracy	One DNO has modified its MPAN extraction processes. DNOs generally have not made changes to the processes they use for new connections and disconnections of MPANs although there have been further steps towards automation of processes thus avoiding transcription errors, and in ensuring better follow-up and timely completion of updates. Links between MPRS and connectivity models have not generally changed. Many DNOs reaffirm they have reached the stage at which the accuracy of MPAN count is very near to 100%, and in view of the daily processing of MPANs connected and disconnected they believe it is not practicable to achieve further improvements. DNOs generally have well-developed data quality processes and they have used these throughout the reporting year to maintain the high standards of accuracy achieved.
Connectivity model	The calculation required to complete the "Connectivity Model" accuracy is the same as that used during the audits of previous reporting years' QoS Incentive Scheme information and therefore provides for consistency across successive audit visits. One DNO introduced a new LV connectivity model on 01 April 2006. Most DNOs have not made significant changes to their connectivity models but in many cases have made incremental improvements to accuracy by moving MPANs to the correct feeder where new information is collected from customer no-supply calls, fault restoration work, planned interruptions and construction and maintenance work. The visiting auditors are pleased to note that DNOs have processes in place to update and refine connectivity models and that these processes generally appear to be working well.
Control System	One DNO replaced its incident management system on 22 August 2006.
Processes	One DNO put in place a robust Data Recording and Quality Assurance procedure during reporting year 2006/07.
Potential sources of error remaining	Most DNOs still consider that the remaining sources of error in measurement systems are minor and from known sources, such as the difficulty of attaching MPANs to the correct feeder in urban areas and near feeder boundaries, and a combination of inaccurate supplier information, unrecorded disconnected MPANs and address errors. DNOs adopt various day-to-day incremental improvement strategies to refine accuracy and some consider that they have reached the trade-off balance between accuracy and cost in measurement systems.

Change Area	Comment
Future changes planned	One DNO is planning to develop further refinements to its SCADA/Troublecall system during reporting year 2007/08. One DNO is planning to introduce automated fault report generation during reporting year 2007/08. One DNO is is working towards the delivery of a replacement GIS system that will have an LV feeder tracing system similar to that already available in its higher voltage measurement systems. One DNO is working towards the replacement of its current SCADA/ Troublecall systems to improved interfaces, one attribute of which will be to auto-populate its incident reports.

Accuracy of Incident Reporting

Summary of Findings

3.5 Table 4 summarises the findings across the licensed areas on Overall and LV reporting accuracies.

3.6 All 14 licensed areas passed the higher levels of accuracy required of the reduced sample of incidents and the results in Table 4 are therefore the combination of Stage 1 and Stage 2 of the audit process.

Table 4 Incident Reporting Accuracies

Licensed Area	Overall CI (Minimum Requirement 97%)	Overall CML (Minimum Requirement 97%)	LV CI (Minimum Requirement 92%)	LV CML (Minimum Requirement 92%)
CE – NEDL	99.33%	99.57%	99.43%	99.16%
CE – YEDL	99.93%	99.42%	97.46%	98.43%
CN – East	99.07%	99.00%	98.17%	99.58%
CN – West	98.94%	98.92%	99.21%	98.88%
EDFE – EPN	99.79%	99.45%	98.30%	96.46%
EDFE – LPN	99.98%	99.89%	94.99%	97.28%
EDFE – SPN	100.00%	99.99%	99.86%	99.83%
SPD	99.77%	99.41%	99.57%	99.89%
SPM	99.99%	99.99%	99.56%	99.95%
SSE – SEPD	99.94%	99.19%	99.21%	93.81%
SSE – SHEPD	99.97%	99.93%	99.92%	99.89%
UU	99.79%	99.77%	97.64%	98.84%
WPD – Sth Wales	99.99%	99.98%	99.44%	99.96%
WPD – Sth West	99.98%	99.96%	99.92%	99.54%

3.7 It is the Consortium's opinion that all reporting under the QoS Incentive Scheme for the reporting year 2006/07 meets the required level of accuracy at Stage 2 of the audit process.

Sources of Reporting Variances

3.8 Details of the audit of incident reporting for each licensed area are set out in the relevant Appendix to this report. Comments on the common issues are set out in Table 5.

Table 5 Sources of Reporting Variances

Source	Comment
Manual transcription errors	In general DNOs that had fewer measurement system stages requiring manual intervention to transfer information to fault reporting systems experienced fewer transcription errors. In licensed areas where progress on the reduction of transcription errors had been made, visiting auditors noted that this was achieved by continuing to put on-going effort into: • Staff understanding the importance of capturing information accurately to meet regulatory reporting obligations; • Staff training in the use and capability of measurement systems and the overall fault reporting process; and • Self-auditing of incident reporting to reduce problems and to identify and introduce changes to minimise common types of error.
Network reconfiguration	Network reconfiguration can introduce variances when comparing reported numbers of customers interrupted with current system values. These are normally due to a new section of network being added since the date of the incident or abnormal running conditions at the time of the incident. Certain DNOs had systems more capable of producing evidence of the running arrangement at the time of the incident than others. However, in most cases it was possible to get back to the network configuration at the time of the incident. Visiting auditors noted a continuing improvement in the audit trails associated with this aspect of the DNOs' operations.
Customer number changes since the incident	Changes in customer numbers since the incident can be caused by: • Network reconfiguration; • MPAN commissioning/decommissioning; and • Data cleansing. Differences were noted between the DNOs on the ability to track MPAN changes and the associated network connectivities. DNOs that can accurately track MPANs are better able to explain variances. DNOs generally have no need to determine the erstwhile connectivity of decommissioned MPANs and most have no measurement systems in place to do so. Consequently, there were fewer corresponding variances recorded in the incident-auditing workbooks of those DNOs that were able to provide robust auditable evidence of the number of customers affected at the time of an incident. Some DNOs are now time-stamping the number of customers on the LV feeder(s) involved at the time of the incident and propose that this is an alternative to proving customer number changes since the time of the incident.
Quality of incident reports	Whilst generally, the visiting auditors noted that there has been a continuing improvement in the quality of information captured in DNOs' measurement systems, the frequency of transcription errors during the transfer of source data into fault reports is still an area of weakness for some. As mentioned in previous years, the retention of more information to assist in establishing a clear audit trail (e.g. storing information about abnormal running conditions at the time of the incident) was particularly useful in several instances.

Source	Comment
Incident start time	Several instances were found where DNOs are using the time of reports of damaged LV cables or the time of an HV neutral earth alarm as the incident start time, when no report has been received that one or more customers have lost supply. The Consortium confirms its previous recommendation that a DNO should not consider an interruption to have started until it receives a report that supplies have been lost. Similarly, DNOs should not wait until the time of the second call before starting the interruption.

4 Key Lessons Learnt

Comments on DNO Practice

4.1 Table 6 shows a summary of overall comments from the visiting auditors on DNO audit practice. Detailed comments on each Licensed Area are set out in the relevant Appendix to this report.

Table 6 Summary of Comments on DNO Practice

Subject	Comments
Pre-visit preparation	The visiting auditors wish to acknowledge the high levels of pre-visit preparation work carried out by DNOs and for their collaborative approach to the audit process. It is essential for the DNO to ensure adequate audit trails are available with supporting documentation to hand from local office files and field logs where appropriate.
Visit logistics	All audit visits progressed very smoothly as DNOs generally provided a small number of experienced and well prepared experts with system operation skills to enable incidents to be re-created on the DNO's measurement system, explain the audit trail, and respond promptly to the visiting auditors' questions. The facilities provided by the DNOs for conduct of future audits should continue to meet the following requirements: • Quiet areas away from the general office environment for the higher voltage and LV audits with space to spread out drawings and other paperwork and close access to power points for laptop PCs; • Facilities to access DNO measurement systems; • Experienced operators fully briefed by managers with overall responsibility for QoS Incentive Scheme and empowered to make decisions on variations on behalf of DNOs; and • Appropriate facilities for a formal sign-off meeting.
Audit trail	Best practice audit trails regarding changes in customer numbers between the date of the incident and the date of the audit visit were again found to include: • Electronic records of those customers affected at the time of the incident as compared with current system values; • Time-stamped measurement system documentation and/or "frozen" information held on a computer database showing the number of customers affected at the time of the incident; and • Scripts showing MPAN creation and deletion dates post and pre incident.

Points for Ofgem

4.2 Table 7 summarises the points arising from the audit visits for consideration by Ofgem.

Table 7 Summary of Points for Ofgem's Consideration

Subject	Point
Sampling regime	The inclusion in the process of a number of unannounced 11kV incidents prior to the audit visit provided an added degree of audit rigour. The number of unannounced incidents could usefully be increased in future audit visits.
Stage 2 and Stage 3 samples	The revised process whereby Ofgem only issues the Stage 2 audit sample prior to the audit visit saved the DNOs a considerable amount of abortive pre-visit preparation work and should be repeated in future audits. Equally Ofgem may wish to consider not issuing the spares before the audit visit.
Non-reported incidents	The inclusion of a sample of non-reported incidents was found to be a valuable addition to the audit process and it is strongly recommended that this is not only continued in future audits, but that the sample size is increased and a number of HV incidents are included for all DNOs.
Regulatory Instructions and Guidance version 5	There are now a number of areas in the current rigs where additional side guidance has been circulated and also further possible changes have been mooted to a number of the other reporting elements currently encompassed by the rigs (e.g. MTP, connections reporting). As has been discussed during this year's audits it is recommended that Ofgem works towards a rigs version 6, which could be in force by 1 April 2008.
Visit sign-off	The adoption of the visit sign-off meeting with the streamlined pro-forma audit report and the inclusion of an Ofgem team member as part of the audit team were again found to be beneficial. This adds weight to the discussions and allows Ofgem to directly witness the discussion of the findings of the audit visits.

Appendix A. Incident-Auditing Workbook Calculations

Once all the Stage 2 higher voltage and LV incidents had been audited the audit team used the results to estimate the accuracy/inaccuracy of the DNO's reported information. This involved four main steps (all the relevant calculations being embedded within the incident-auditing workbook supplied by Ofgem):

- Excluding any outlying incidents where the difference between audited and reported results is greater than the mean +/- 4 standard deviations;
- Expressing the total accuracy of the sample as a percentage of the total audited numbers;
- Combining the accuracy of reporting from Stage 2 of the audits with the accuracy of MPANs from Stage 1; and
- Summarising final accuracy/inaccuracy figures.

Stage 4 was designed to be re-run where either the Stage 3 overall sample or the Stage 3 LV sample were audited.

The following Table summarises the number of incidents substituted for each DNO, the voltages involved, and the key reasons for substitution:

Licensed Area	Number of incidents substituted	Voltage levels and key reasons
CE – NEDL	1	1 LV – lack of times for unreported restoration stages
CE – YEDL	2	1 EHV – audit trail documentation in a customer complaint file and considerable network changes since the incident 1 LV – lack of a confirmed restoration time
CN – East	2	1 LV – insufficient audit trail to verify the correct sequence of events 1 LV – no audit trail for one of the interruption times
CN – West	1	1 LV - insufficient audit trail to verify the correct interruption start time
EDFE – EPN	3	1 LV – insufficient audit trail information to verify restoration times 2 LV pre-arranged – audit trail information in deep storage due to organisational re-location
EDFE – LPN	0	N/A
EDFE – SPN	0	N/A
SPD	0	N/A
SPM	1	1 LV - insufficient audit trail to verify the correct number of customers involved
SSE – SEPD	2	1 HV pre-arranged – should have been reported at LV 1 LV pre-arranged - insufficient audit trail information
SSE – SHEPD	0	N/A
UU	2	2 LV – insufficient audit trail information
WPD – Sth Wales	0	N/A
WPD – Sth West	1	1 LV pre-arranged – should have been reported at HV

The following Table summarises the number of outlying incidents for each DNO at the relevant voltage levels.

Licensed Area	Number of outlying incidents	Sample	
		Overall	LV
CE – NEDL	3	1 on CI 1 on CML	1 on CI
CE – YEDL	4	1 on CI 1 on both CI and CML	1 on CI 1 on CML
CN – East	2	1 on CI 1 on CML	0
CN – West	3	1 on CI 1 on CML	1 on both CI and CML
EDFE – EPN	4	1 on CI 1 on CML	1 on CI 1 on CML
EDFE – LPN	4	1 on CI 1 on CML 1 on both CI and CML	0
EDFE – SPN	2	1 on both CI and CML	1 on both CI and CML
SPD	3	1 on CI 1 on CML	1 on CI
SPM	3	1 on CI 1 on both CI and CML	1 on CI
SSE – SEPD	3	1 on CI 1 on CML	1 on CI
SSE – SHEPD	3	1 on CI 1 on CML	1 on both CI and CML
UU	3	1 on CML 1 on both CI and CML	1 on both CI and CML
WPD – Sth Wales	5	2 on CML and 1 CI	1 at CI 1 at CML
WPD – Sth West	4	1 at CI 1 at CML	1 at CI 1 at CML

The following Table sets out a summary breakdown from the incident-auditing workbooks of the numbers of incidents with variances. Please note that a variance in CI will generally result in an equivalent variance in CML, whereas the reverse is not the case. The CI and CML figures in the sample rows are therefore not additive.

Licensed Area	Number of incidents with variances			
	Overall Sample		LV Sample	
	CI	CML*	CI	CML*
CE – NEDL	22	31	10	11
CE – YEDL	19	21	12	12
CN – East	13	23	13	19
CN – West	3	6	2	4
EDFE – EPN	15	26	8	12
EDFE – LPN	14	26	12	16
EDFE – SPN	2	6	2	3
SPD	11	21	10	10
SPM	10	17	8	10
SSE – SEPD	11	17	9	12
SSE – SHEPD	5	6	3	3
UU	18	27	15	20
WPD – Sth Wales	2	2	2	1
WPD – Sth West	1	5	1	4

***Note – CML columns:**

1. Figures relate to the total number of incidents with CML variances as a result of either CI or time variances or both.

Appendix B. Audit Report for the CE - NEDL Licensed Area

Introduction

Visit Details	
Dates of audit visit:	20 and 21 May 2007
Location of audit visit:	CE Electric's Control Centre - Penshaw
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Tony Ingham, Simon Keighley, Brian Nichol, Geoff Petrie, Mark Pollard, Ian Punshon and Brian Walton

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	CE Electric is currently working with suppliers to minimise the number of erroneous and imaginary MPANs in its measurement systems
Connectivity model	CE Electric is rolling out a revised training programme for its data inputters
Processes	CE Electric has introduced a robust Data Recording and Quality Assurance procedure

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	One LV incident had insufficient information to determine a robust audit trail
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Manual transcription errors
	Issues identified	There are still a number of distribution transformers with zero customers shown in the company's measurement systems

Reporting Area	Audit Point	Main Findings
LV Incidents	Number of unauditable incidents and spares used	One incident was unauditable due to a lack of times for unreported stages and was therefore replaced with a spare
	Main sources of reporting error	Not reporting isolation stages for repairs, thereby missing CI and CML. Not applying the incident completion rule correctly, thereby not creating additional incident reports
	Issues identified	Ensure that isolation stages, with customer numbers and times off and on are recorded and reported. Ensure that staff correctly apply the rules regarding incident completion as set out in rigs version 5 paragraphs 2.47 to 2.49
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.50%	100.16%	99.33%	97%	Pass
Overall CML Accuracy	100.26%	100.16%	99.57%	97%	Pass
LV CI Accuracy	99.29%	100.14%	99.43%	92%	Pass
LV CML Accuracy	100.70%	100.14%	99.16%	92%	Pass

CE Electric - NEDL passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	3	3	0
LV	47	46/47*	1/0*

* One LV incident had insufficient audit trail to determine if it should have been reported or not

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors were pleased to note that NEDL is continuing with its internal audit process, sharing any learning points with its team and thereby minimising the number of errors in its incident reporting	CE Electric has recently taken an experienced Repairs Manager out of his operational role to spearhead a company-wide initiative aimed at improving the company's accuracy of reporting, including the reinforcing of its internal auditing processes	The visiting auditors noted that there were a number of instances of inaccurate reporting in this year's NEDL audit sample. They were pleased to learn that CE Electric has instigated the initiative to improve its accuracy of reporting
NEDL should commence an incident when it receives confirmation of no-supply by whatever means and not from the time of an earlier earth-fault alarm which may or may not be appropriate	NEDL has reinforced this aspect of its reporting with its data inputters	The visiting auditors were pleased to see that NEDL's efforts had been reflected in a significant reduction in the number of instances where this had occurred
NEDL may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	To ensure that the performance improvement initiative covers all voltages at all locations where CE Electric has people working on entering data into its measurement and reporting systems
	To consider enhancing and reinforcing the role of its internal audit processes to ensure that its incident reports are free from obvious errors and are as accurate as possible
	Consider reviewing all instances where zero customers are associated with a distribution transformer to ensure that the connectivity model is accurate
Ofgem	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors
	Consider including a table showing absolute accuracy at the overall and LV level as part of the audit report
	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to a small number of incidents

Appendix C. Audit Report for the CE - YEDL Licensed Area

Introduction

Visit Details	
Dates of audit visit:	20 and 21 May 2007
Location of audit visit:	CE Electric's Control Centre - Penshaw
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Alan Harris, Tony Ingham, Simon Keighley, Brian Nichol, Mark Pollard, Ian Punshon and Mike Smith

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	CE Electric is currently working with suppliers to minimise the number of erroneous and imaginary MPANs in its measurement systems
Connectivity model	CE Electric is rolling out a revised training programme for its data inputters
Measurement systems	CE Electric is intending to introduce its HV/EHV NMS system into its YEDL licensed area during reporting year 2007/08
Processes	CE Electric has introduced a robust Data Recording and Quality Assurance procedure

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	One LV incident had insufficient information to determine a robust audit trail
Higher Voltage Incidents	Number of unauditable incidents and spares used	One 33kV incident was unauditable due to the use of the audit trail documentation in a customer complaint and the distribution network having been significantly changed since the time of the incident. A spare incident was used in its place
	Main sources of reporting error	Manual transcription errors
	Issues identified	There are still a number of distribution transformers with zero customers shown in the company's measurement systems

Reporting Area	Audit Point	Main Findings
LV Incidents	Number of unauditable incidents and spares used	One incident was unauditable due to no confirmed restoration time (the incident was possibly part of a pre-arranged outage) and was therefore replaced with a spare
	Main sources of reporting error	Number of missing restoration stages, generally relating to the re-interruption of customers
	Issues identified	Ensure that staff correctly apply the rules regarding incident completion as set out in rigs version 5 paragraphs 2.47 to 2.49
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.05%	99.88%	99.93%	97%	Pass
Overall CML Accuracy	100.70%	99.88%	99.42%	97%	Pass
LV CI Accuracy	102.63%	99.91%	97.46%	92%	Pass
LV CML Accuracy	101.66%	99.91%	98.43%	92%	Pass

YEDL passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	1	1	0
LV	49	48/49*	1/0*

* One LV incident had insufficient audit trail to determine if it should have been reported or not

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that YEDL reviews the rigour of its internal audit process, sharing any learning points with its team, with a view to minimising the number of errors in its incident reporting	CE Electric has recently taken an experienced Repairs Manager out of his operational role to spearhead a company-wide initiative aimed at improving the company's accuracy of reporting, including the reinforcing of its internal auditing processes	The visiting auditors were pleased to note that there were fewer errors apparent in this year's HV audit sample compared to last year's

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors are disappointed to note the number of energised substations where YEDL's connectivity model shows zero customers. This has been mentioned during previous audit visits and YEDL is encouraged to review this situation as soon as possible	YEDL has been working to reduce the number of its distribution substations where its connectivity model shows as having zero customers connected	The visiting auditors noted several instances where YEDL's HV connectivity model showed zero customers on distribution substations, leading to potential sources of error in reporting
YEDL may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	To ensure that the performance improvement initiative covers all voltages at all locations where CE Electric has people working on entering data into its measurement and reporting systems
	To consider enhancing and reinforcing the role of its internal audit processes to ensure that its incident reports are free from obvious errors and are as accurate as possible
	Further consider reviewing all instances where zero customers are associated with a distribution transformer to ensure that the connectivity model is accurate
Ofgem	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors
	Consider including a table showing absolute accuracy at the overall and LV level as part of the audit report
	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to a small number of incidents

Appendix D. Audit Report for the CN - East Licensed Area

Introduction

Visit Details	
Dates of audit visit:	07 June 2007
Location of audit visit:	CN East's offices at Castle Donington
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Stephen Hayward, Nigel Hoult, Ian Jacob and Amanda Moore

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit
Control System	CN East replaced its OMS incident management system with the latest version of Troublecall on 22 August 2006

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Control System	CN East is planning to develop further refinements to its ENMAC/Troublecall system during reporting year 2007/08

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Two instances where the interruption start times were not aligned to the first no-supply call
	Issues identified	As above

Reporting Area	Audit Point	Main Findings
LV Incidents	Number of unauditable incidents and spares used	One incident was replaced with a spare as there was insufficient audit trail to verify the correct sequence of events One incident where no audit trail existed for one of the interruption times
	Main sources of reporting error	Rounding of one thirds two thirds and on a small number of incidents not using the correct start/end times, instead taking times from damage call or incident creation.
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.01%	99.06%	99.07%	97%	Pass
Overall CML Accuracy	99.94%	99.06%	99.00%	97%	Pass
LV CI Accuracy	99.08%	99.08%	98.17%	92%	Pass
LV CML Accuracy	100.50%	99.08%	99.58%	92%	Pass

CN East passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	1	1	0
LV	49	49	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors were pleased to note that CN East is continuing with its internal audit process, sharing any learning points with its team and thereby minimising the number of errors in its incident reporting	CN East has reinforced its internal auditing regime, including having recently rotated members of its team with NMC experience into the role of internal auditor for its reporting of LV interruptions	The visiting auditors are pleased to note CN East's approach, the benefits of which can be seen in the sample of audited incidents particularly at the higher voltages and also with respect to the nature of the variances observed at LV

Recommendations from last year's audit	DNO action taken	Audit opinion
CN East should commence an incident when it receives confirmation of no-supply by whatever means and not from the time of an earlier report of, for example, a cable damage, which may or may not be appropriate	CN East has reinforced the message to its data inputters and included an appropriate prompting process within its new ENMAC/Troublecall system	The visiting auditors are pleased that CN East has reinforced this message within its team. The benefits of the in-built prompt were clearly visible in the audit of the HV incidents
CN East may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	Build upon the excellent start made with the new incident management system, the benefits of which can be seen in the audit of the sample of higher voltage incidents
	Continue with the internal audit regime and the annotation of measurement system documentation with audit trail information, e.g. continue with the practice of inserting the first no supply call within the fault switching log
	Ensure that the progress seen in including more information in the incident notes is continued as this considerably assists the audit process
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors
	Consider accepting as auditable evidence time stamped "predicted/feeder numbers" of the number of customers on an LV feeder at the time of the incident
	Consider showing the audit results with and without eliminating any outliers either as part of the overall audit report or as part of the post audit review session

Appendix E. Audit Report for the CN - West Licensed Area

Introduction

Visit Details	
Dates of audit visit:	06 June 2007
Location of audit visit:	CN West's offices at Tipton
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Richard Ellam, Chris Holt, Nigel Hoult and Carl Lowe

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Incident start times not aligned to the first no-supply call
	Issues identified	As above
LV Incidents	Number of unauditable incidents and spares used	One incident was replaced with a spare as there was insufficient audit trail to verify the correct interruption start time
	Main sources of reporting error	Minor input errors
	Issues identified	None
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.02%	98.92%	98.94%	97%	Pass
Overall CML Accuracy	100.00%	98.92%	98.92%	97%	Pass
LV CI Accuracy	100.29%	98.93%	99.21%	92%	Pass
LV CML Accuracy	99.95%	98.93%	98.88%	92%	Pass

CN West passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	5	5	0
LV	45	45	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors were pleased to note that CN West is continuing with its internal audit process, sharing any learning points with its team and thereby minimising the number of errors in its incident reporting	CN West has reinforced its internal auditing regime, including having recently rotated a member of its team with NMC experience into the role of internal auditor for its reporting of LV interruptions	The visiting auditors are pleased to note CN West's approach, the benefits of which can be seen in the sample of audited incidents
CN West may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	Further reinforce the message that an incident does not start until the company becomes aware of a 'no-supply' situation, by whatever means
	Continue with the internal audit regime and the annotation of measurement system documentation with audit trail information, e.g. continue with the practice of inserting the first no supply call within the fault switching log
	Ensure that the progress seen in including more information in the incident notes is continued as this considerably assists the audit process
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors
	Consider accepting as auditable evidence time stamped "predicted/feeder numbers" of the number of customers on an LV feeder at the time of the incident
	Consider showing the audit results with and without eliminating any outliers either as part of the overall audit report or as part of the post audit review session

Appendix F. Audit Report for the EDFE - EPN Licensed Area

Introduction

Visit Details	
Dates of audit visit:	30 and 31 May 2007
Location of audit visit:	EDFE's Control Centre at Fore Hamlet, Ipswich
Visiting Auditors:	James Hope (Ofgem), Laura Nell (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Bill d'Albertanson, Chris Barker, Ken Tew, Martyn Woodhouse and Dave Young

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Control System	Introduce ENMAC automated fault report generation during 2007 to put EPN in line with EDF Energy's strategy to run a common control platform

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	One of the LV incidents sampled had insufficient audit trail information to determine whether or not it should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Several incidents contained input errors that could not be explained from an examination of the audit trail documentation
	Issues identified	As above

Reporting Area	Audit Point	Main Findings
LV Incidents	Number of unauditable incidents and spares used	A total of three incidents were replaced with spares: One as there was insufficient audit trail to verify the correct interruption times Two pre-arranged incidents did not have sufficient audit trail (as the records were in deep storage due to organisational re-location) and were replaced with spare pre-arranged incidents
	Main sources of reporting error	Errors in count of customers interrupted and incident start times either as a result of not using first no supply call or isolation time
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.29%	99.92%	99.79%	97%	Pass
Overall CML Accuracy	100.63%	99.92%	99.45%	97%	Pass
LV CI Accuracy	99.05%	99.24%	98.30%	92%	Pass
LV CML Accuracy	97.19%	99.24%	96.46%	92%	Pass

EPN passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	1	1	0
LV	49	48/49*	1/0*

* One LV incident had insufficient audit trail to determine if it should have been reported or not

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
To continue with the efforts made to carry out sample audits during the reporting year and gathering data to support complicated incidents	EPN has continued with its internal audit regime of sampling incidents at both the higher voltage and low voltage levels	The visiting auditors are pleased that EPN has continued with its internal auditing regime, the results of which can be seen in those incidents that were in Ofgem's sample

Recommendations from last year's audit	DNO action taken	Audit opinion
To implement the proposed ENMAC software enhancements as soon as testing allows, to remove the possibility of transcription error, the major source of reporting inaccuracy	EPN has introduced the process whereby higher voltage incident reports are automatically raised from the ENMAC SCADA system	The visiting auditors were pleased to see the benefits of this change in the sample of higher voltage incidents
EPN may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	The visiting auditors consider that EPN should re-emphasise the importance of accuracy amongst the people who are responsible for inputting data into its measurement and reporting systems
	To further emphasise the above, the visiting auditors suggest that EPN considers reinforcing its internal audit regime, sharing the learning points amongst its team
	The visiting auditors consider that EPN should ensure that a robust audit trail exists within its measurement and reporting documentation. For example, actual times where Field Control has been employed and variations from system generated customer numbers
	The visiting auditors noted that there were several instances where re-interruptions had been reported contrary to the rigs version 5 and confused with Short Interruptions. EPN may wish to consider re-issuing its guidance on reporting
	The visiting auditors recommend that EPN ensures that the number of customers interrupted, re-interruption stages and actual start times are part of its internal audit checks of LV incidents
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors
	Consider accepting as auditable evidence time stamped "predicted/feeder numbers" of the number of customers on an LV feeder at the time of the incident
	Consider showing the audit results without eliminating any outliers either as part of the overall audit report or as part of the post audit review session

Appendix G. Audit Report for the EDFE - LPN Licensed Area

Introduction

Visit Details	
Dates of audit visit:	30 and 31 May 2007
Location of audit visit:	EDFE's Control Centre at Fore Hamlet, Ipswich
Visiting Auditors:	James Hope (Ofgem), Laura Nell (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Bill d'Albertanson, Chris Barker, Ken Tew, Dave Walter and Dave Young

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Control System	Introduce ENMAC / Troublecall and automated fault reporting during 2008 to put LPN in line with EDFE's strategy to run a common control platform

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Several incidents contained input errors that could not be explained from an examination of the audit trail documentation
	Issues identified	As above
LV Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	Missing interruption stages and a number of one third two thirds rounding errors and errors with the start/end times.
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results have been copy/pasted from the agreed final version of the incident auditing workbook and are subject to final confirmation after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.02%	99.96%	99.98%	97%	Pass
Overall CML Accuracy	99.92%	99.96%	99.89%	97%	Pass
LV CI Accuracy	95.13%	99.86%	94.99%	92%	Pass
LV CML Accuracy	97.42%	99.86%	97.28%	92%	Pass

LPN passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	1	1	0
LV	49	49	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
To continue with the efforts made to carry out sample audits during the reporting year and gathering data to support complicated incidents	LPN has continued with its internal audit regime of sampling incidents at both the higher voltage and low voltage levels	The visiting auditors are pleased that LPN has continued with its internal auditing regime, the results of which can be seen in those audited incident that were in Ofgem's sample of incidents
LPN may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	The visiting auditors consider that LPN should re-emphasise the importance of accuracy amongst the people who are responsible for inputting data into its measurement and reporting systems
	To further emphasise the above, the visiting auditors suggest that LPN considers reinforcing its internal audit regime, sharing the learning points amongst its team
	The visiting auditors noted that there were several instances where re-interruptions had been reported contrary to the rigs version 5 and confused with Short Interruptions. LPN may wish to consider re-issuing its guidance on reporting
	The visiting auditors recommend that LPN ensures that the number of customers interrupted, re-interruption stages and actual start times are part of its internal audit checks of LV incidents
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors
	Consider accepting as auditable evidence time stamped "predicted/feeder numbers" of the number of customers on an LV feeder at the time of the incident
	Consider showing the audit results with and without eliminating any outliers either as part of the overall audit report or as part of the post audit review session

Appendix H. Audit Report for the EDFE - SPN Licensed Area

Introduction

Visit Details	
Dates of audit visit:	29 May 2007
Location of audit visit:	SPN's Control Centre at East Grinstead
Visiting Auditors:	James Hope (Ofgem), , Laura Nell (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Bill d'Albertanson, Stewart Forbes, Nigel Harding, Jackie Samways, Les Waters and Dave Young

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Control System	Introduce ENMAC / Troublecall and automated fault reporting during 2007 to put SPN in line with EDF Energy's strategy to run a common control platform

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Minor input errors only
	Issues identified	None
LV Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	None
	Issues identified	None
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.00%	100.00%	100.00%	97%	Pass
Overall CML Accuracy	100.01%	100.00%	99.99%	97%	Pass
LV CI Accuracy	100.14%	100.00%	99.86%	92%	Pass
LV CML Accuracy	100.17%	100.00%	99.83%	92%	Pass

SPN passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	1	1	0
LV	49	49	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that SPN continues with its internal audit process, sharing any learning points with its team, particularly those instances where it relies upon manual data entry or alteration	SPN has continued with its internal auditing of both higher voltage and low voltage incidents	The visiting auditors are pleased that SPN has continued with its internal auditing regime, the benefit of which can be see in the few reporting errors found in the audit sample
SPN may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	To continue with the internal audit regime, especially given the impending change to the ENMAC / Troublecall system and the relative unfamiliarity its people will have with it
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors
	Consider accepting as auditable evidence time stamped "predicted/feeder numbers" of the number of customers on an LV feeder at the time of the incident

Appendix I. Audit Report for the SPD Licensed Area

Introduction

Visit Details	
Dates of audit visit:	23 and 24 May 2007
Location of audit visit:	Scottish Power's Control Centre at Kirkintilloch
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Anne Baikie, Andrew Bell, Peter Docherty, Graham Laird, David McMenemy and Alyn Jones

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	SPD has modified its processes to incorporate extraction of the most up to date Line Loss Factor Codes to improve the accuracy of its MPAN count
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	SPD is working towards the delivery of a replacement GIS system that will have an LV feeder tracing system similar to that already available in SPD's higher voltage measurement systems
Incident reporting	SPD is working towards the replacement of its current ICOND and Troublecall systems that will have improved interfaces, one attribute of which will be to auto-populate its PROSPER incident reports

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Incident start times not aligned to the first no-supply call
	Issues identified	Minor transcription errors
LV Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	Rounding of one third two thirds
	Issues identified	None
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.00%	99.77%	99.77%	97%	Pass
Overall CML Accuracy	99.64%	99.77%	99.41%	97%	Pass
LV CI Accuracy	99.80%	99.77%	99.57%	92%	Pass
LV CML Accuracy	100.12%	99.77%	99.89%	92%	Pass

SPD passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	1	1	0
LV	49	49	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that SPD continues with its internal audit process, sharing any learning points with its team, particularly those instances where it finds discrepancies between its ENMAC / Troublecall logs and its associated PROSPER incident reports	SPD has continued to refine and reinforce its internal audit processes, including the issue of an update briefing document following last year's audit visit. SPD has recently introduced a booklet entitled "Quality of Supply – System Performance Reporting" that provides guidance to its staff on the requirements of reporting to the IIS. This replaces SPD's guidance folder / 'silver book', which was issued in 2001	The visiting auditors are pleased to note that SPD has reinforced its internal audit processes but also note that several instances of mis-reporting are still occurring The visiting auditors congratulate SPD on the clarity and style of its guidance booklet
SPD should consider that an incident commences when it receives confirmation of no-supply by whatever means and not from the time of an earlier earth-fault alarm which may or may not be appropriate	SPD has reinforced this message throughout its organisation and has clearly identified this reporting requirement in its guidance booklet	The visiting auditors noted several instances where, for example, the receipt of an earth fault alarm had been used as the time of interruption when the first 'no-supply' cal was received some time after this

Recommendations from last year's audit	DNO action taken	Audit opinion
SPD may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	Further reinforce the message that an incident does not start until the company becomes aware of a 'no-supply' situation, by whatever means
	Continue with the internal audit regime and the annotation of measurement system documentation with audit trail information, e.g. continue with the practice of inserting the first no supply call within the fault switching log
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors
	Consider accepting as auditable evidence time stamped "predicted/feeder numbers" of the number of customers on a feeder at the time of the incident

Appendix J. Audit Report for the SPM Licensed Area

Introduction

Visit Details	
Dates of audit visit:	23 and 24 May 2007
Location of audit visit:	Scottish Power's Control Centre at Kirkintilloch
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Peter Docherty, Amanda Fildes, Andrew John, Alyn Jones and Val Ward

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	SPM has modified its processes to incorporate extraction of the most up to date Line Loss Factor Codes to improve the accuracy of its MPAN count
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	SPM is working towards the delivery of a replacement GIS system that will have an LV feeder tracing system similar to that already available in SPM's higher voltage measurement systems
Incident reporting	SPM is working towards the replacement of its current ICOND and Troublecall systems that will have improved interfaces, one attribute of which will be to auto-populate its PROSPER incident reports

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Incident start times not aligned to the first no-supply call
	Issues identified	Minor transcription errors
LV Incidents	Number of unauditable incidents and spares used	One incident was replaced with a spare as there was insufficient audit trail to verify the correct number of customers involved in the interruption
	Main sources of reporting error	None
	Issues identified	Occasionally using times notified of problem rather than time when customers were actually off supply

Reporting Area	Audit Point	Main Findings
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	99.99%	100.00%	99.99%	97%	Pass
Overall CML Accuracy	100.02%	100.00%	99.99%	97%	Pass
LV CI Accuracy	99.56%	100.00%	99.56%	92%	Pass
LV CML Accuracy	100.05%	100.00%	99.95%	92%	Pass

SPM passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	1	1	0
LV	49	49	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that SPM continues with its internal audit process, sharing any learning points with its team, particularly those instances where it finds discrepancies between its ENMAC / Troublecall logs and its associated PROSPER incident reports	SPM has continued to refine and reinforce its internal audit processes, including the issue of an update briefing document following last year's audit visit. SPM has recently introduced a booklet entitled "Quality of Supply – System Performance Reporting" that provides guidance to its staff on the requirements of reporting to the IIS. This replaces SPM's guidance folder / 'silver book', which was issued in 2001	The visiting auditors are pleased to note that SPM has reinforced its internal audit processes but also note that several instances of mis-reporting are still occurring The visiting auditors congratulate SPM on the clarity and style of its guidance booklet

Recommendations from last year's audit	DNO action taken	Audit opinion
SPM should consider that an incident commences when it receives confirmation of no-supply by whatever means and not from the time of an earlier earth-fault alarm which may or may not be appropriate	SPM has reinforced this message throughout its organisation and has clearly identified this reporting requirement in its guidance booklet	The visiting auditors noted several instances where, for example, the receipt of an earth fault alarm had been used as the time of interruption when the first 'no-supply' call was received some time after this
SPM may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	Further reinforce the message that an incident does not start until the company becomes aware of a 'no-supply' situation, by whatever means
	Continue with the internal audit regime and the annotation of measurement system documentation with audit trail information, e.g. continue with the practice of inserting the first no supply call within the fault switching log
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors
	Consider accepting as auditable evidence time stamped "predicted/feeder numbers" of the number of customers on an LV feeder at the time of the incident

Appendix K. Audit Report for the SSE - SEPD Licensed Area

Introduction

Visit Details	
Dates of audit visit:	14 and 15 May 2007
Location of audit visit:	SSE's Control Centre, Portsmouth
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	John Blyth, Mike Green and Chee Lee

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Processes	SEPD introduced a revised internal auditing regime in March 2007

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	One of the restoration stages of the sampled HV incident that had been deleted as 'not required' should have been reported as an incident in Ofgem's template
	Issues identified	See above
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable but one HV pre-arranged spare was used in place of one that should have been reported at LV
	Main sources of reporting error	Instances of incorrect times being used – e.g. 'confirmed' instead of 'carried-out'
	Issues identified	No particular issues were identified
LV Incidents	Number of unauditable incidents and spares used	One LV pre-arranged incident had insufficient information and a spare was used instead
	Main sources of reporting error	In a number of incidents there were more calls than customers reported as interrupted
	Issues identified	See above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	One HV pre-arranged incident should have been reported at LV

Audit Results

These results have been copy/pasted from the agreed final version of the incident auditing workbook and have subsequently been confirmed after checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	99.97%	99.97%	99.94%	97%	Pass
Overall CML Accuracy	100.83%	99.97%	99.19%	97%	Pass
LV CI Accuracy	99.25%	99.96%	99.21%	92%	Pass
LV CML Accuracy	93.84%	99.96%	93.81%	92%	Pass

SEPD passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	1	0	1
LV	49	49	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
SSE continues with its internal audit process, sharing any learning points with its team	SSE has reviewed its internal audit processes and issued a revised auditing instruction in March 2007	SSE's new internal audit process was discussed. The visiting auditors consider SSE's new internal auditing regime to be a sound approach, the effects of which should be evident in the reporting of SSE's incidents from reporting year 2007/08 onwards
SSE may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	The visiting auditors suggest that SSE continues with its internal audit process, reinforced by the application of its revised internal auditing instruction
	The visiting auditors suggest that where more calls are received for an incident than the number of customers identified as being interrupted, then a further check is made to ensure that the correct number of customers interrupted is reported
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to a single incident
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors

Appendix L. Audit Report for the SSE - SHEPD Licensed Area

Introduction

Visit Details	
Dates of audit visit:	14 and 15 May 2007
Location of audit visit:	SSE's Control Centre, Portsmouth
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	David Colthart, Mike Green, Neil Sandison, and Adrian Sims

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Processes	SHEPD introduced a revised internal auditing regime in March 2007

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	There were no significant sources of reporting error
	Issues identified	None
LV Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	There were no significant sources of reporting error
	Issues identified	None
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results have been copy/pasted from the agreed final version of the incident auditing workbook and have subsequently been confirmed after checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.00%	99.97%	99.97%	97%	Pass
Overall CML Accuracy	99.95%	99.97%	99.93%	97%	Pass
LV CI Accuracy	100.00%	99.92%	99.92%	92%	Pass
LV CML Accuracy	99.96%	99.92%	99.89%	92%	Pass

SHEPD passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	1	1	0
LV	49	49	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
SSE continues with its internal audit process, sharing any learning points with its team	SSE has reviewed its internal audit processes and issued a revised auditing instruction in March 2007	SSE's new internal audit process was discussed. The visiting auditors consider SSE's new internal auditing regime to be a sound approach, the effects of which should be evident in the reporting of SSE's incidents from reporting year 2007/08 onwards
SSE may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	The visiting auditors suggest that SSE continues with its internal audit process, reinforced by the application of its revised internal auditing instruction
	The visiting auditors suggest that SSE incorporates into its procedures a check to ensure that "self-check cards" are removed from the count of customers involved in pre-arranged interruptions
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors

Additional comment from this year's audit
The visiting auditors were pleased to note that SHEPD had begun to train people who will be able to take over from its deputy Network Management Centre Manager when the present post-holder retires in 2008, thus ensuring continuity of management expertise in key processes

Appendix M. Audit Report for the UU Licensed Area

Introduction

Visit Details	
Dates of audit visit:	04 June 2007
Location of audit visit:	UU's Control Centre, Manchester
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Denham Croden, Kate Quigley and Steve Shaw

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	UU introduced its new LV connectivity model on 01 April 2006

Measurement Area	Planned future changes
MPAN systems	No future changes are planned – data cleansing is ongoing
Connectivity model	No future changes are planned

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Instances of wrong start time being used. Several missing restoration stages
	Issues identified	As above
LV Incidents	Number of unauditable incidents and spares used	Two incidents did not have a sufficient audit trail and spares were used instead.
	Main sources of reporting error	Rounding errors and not using the first no supply call as the start time
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	99.85%	99.94%	99.79%	97%	Pass
Overall CML Accuracy	99.83%	99.94%	99.77%	97%	Pass
LV CI Accuracy	97.70%	99.94%	97.64%	92%	Pass
LV CML Accuracy	98.90%	99.94%	98.84%	92%	Pass

UU passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	0	N/A	N/A
LV	50	50	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
Greater information in the LV fault log would be useful as an audit trail in respect of interruption and restoration times and customers restored	UU has reinforced this message with its data inputters	In most of the open circuit faults there was detailed information as to the location of the fault, this was very helpful. In other incidents there was a tendency to put the customer numbers and times directly into NaFIRS in real time and as such the information was not duplicated in the notes
It would be a useful audit trail if UU had recorded how it had derived the number of customers to be interrupted as part of a pre-arranged interruption	UU has reinforced this message wit hits data inputters	There was sufficient audit trail to verify the number of customers involved as part of a pre-arranged interruption
UU may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	The visiting auditors suggest that UU continues with its internal audit process, sharing learning points with all its data inputters as appropriate, including using the time of first no-supply call as the start of the interruption
	The visiting auditors were pleased to see the number of instances where UU's control engineers had entered information regarding the numbers of customers restored as part of their control room switching log. UU is encouraged to spread this practice to al its control team as it greatly assists the audit process by providing prime data for the audit trail
	Ensure that further system updates do not re-introduce errors which have been corrected, e.g. taking the time of the incident being upgraded to a mains fault as the start time rather than the time of the first no supply call
	Review the reporting of multiple phase LV interruptions on several stages where the start and end times are the same
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors
	Consider accepting as auditable evidence time stamped "predicted/feeder numbers" of the number of customers on an LV feeder at the time of the incident
	Consider showing the audit results with and without eliminating any outliers either as part of the overall audit report or as part of the post audit review session

Appendix N. Audit Report for the WPD - South Wales Licensed Area

Introduction

Visit Details	
Dates of audit visit:	16 and 17 May 2007
Location of audit visit:	WPD's Control Centre, Lamby Way, Cardiff
Visiting Auditors:	James Hope (Ofgem), Laura Nell (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Lloyd Bridges, Carolyn Hinchey, Alison Sleightholm and Mark Taylor

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	There were no significant sources of reporting error
	Issues identified	None
LV Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	Counting customers who had already been interrupted and restored for 3 or more hours as new interruptions when the incident was not complete
	Issues identified	See above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.01%	99.98%	99.99%	97%	Pass
Overall CML Accuracy	100.00%	99.98%	99.98%	97%	Pass
LV CI Accuracy	100.60%	99.96%	99.44%	92%	Pass
LV CML Accuracy	100.00%	99.96%	99.96%	92%	Pass

WPD South Wales passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	3	3	0
LV	47	47	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors were pleased to see the number of helpful notes that WPD's people are entering on Trouble Call Logs and on Switching Logs. These notes are of considerable benefit in providing a robust audit trail. The visiting auditors encourage WPD to further develop this activity as much as possible	WPD has continued with its policy of encouraging its team members to insert audit-trail comments and information in all its measurement system documentation	The visiting audits were delighted to see the multiplicity of helpful and informative notes that had been inserted in the free form fields of WPD's measurement system documentation
WPD may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed	

To:	Recommendation from this year's audit
DNO	The visiting auditors suggest that WPD continues with its internal audit process, reinforced by the application of its revised internal auditing instruction
	The visiting auditors suggest that WPD considers the automatic population of the customer numbers in its PC-NaFIRS reports, thus removing the potential for transcription errors in its present manual process
	The visiting auditors recommend that WPD reviews its internal guidance on how to report customers re-interrupted as part of incomplete incidents and ensure that it is in line with rigs version 5 paragraph 2.49
	During the audit of the LV sample, the visiting auditors noticed a number of incidents that had been classified as "mains" that were in fact "services". Whilst not affecting the CI or CML counts, WPD may wish to consider how this has arisen and introduce corrective measures as appropriate
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors

Appendix O. Audit Report for the WPD - South West Licensed Area

Introduction

Visit Details	
Dates of audit visit:	16 and 17 May 2007
Location of audit visit:	WPD's Control Centre, Lamby Way, Cardiff
Visiting Auditors:	James Hope (Ofgem), Laura Nell (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Lloyd Bridges, Dave Crocker, Carolyn Hinchey and Alison Sleightholm

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	There were no significant sources of reporting error
	Issues identified	None
LV Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	Using incident start time rather than time of first no supply call
	Issues identified	Counting customers who had already been interrupted and restored for 3 or more hours as new interruptions when the incident was not complete
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	One pre-arranged incident was misclassified as LV when it was HV, this was replaced with a spare

Audit Results

These results have been copy/pasted from the agreed final version of the incident auditing workbook and have subsequently been confirmed after checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.00%	99.98%	99.98%	97%	Pass
Overall CML Accuracy	99.98%	99.98%	99.96%	97%	Pass
LV CI Accuracy	100.00%	99.92%	99.92%	92%	Pass
LV CML Accuracy	99.62%	99.92%	99.54%	92%	Pass

WPD South West passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
HV	3	3	0
LV	47	47	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors were pleased to see the number of helpful notes that WPD's people are entering on Trouble Call Logs and on Switching Logs. These notes are of considerable benefit in providing a robust audit trail. The visiting auditors encourage WPD to further develop this activity as much as possible.	WPD has continued with its policy of encouraging its team members to insert audit-trail comments and information in all its measurement system documentation	The visiting audits were delighted to see the multiplicity of helpful and informative notes that had been inserted in the free form fields of WPD's measurement system documentation.
WPD may wish to consider reducing the amount of pre-audit visit preparation it does by fully replicating the Stage 2 audit process before it prepares its audit trail documentation for the Stage 3 sample of incidents.	This has been superseded by the agreement between Ofgem and all DNOs whereby the Stage 3 sample of incidents is not issued until after the Stage 2 audit has been completed.	

To:	Recommendation from this year's audit
DNO	The visiting auditors suggest that WPD continues with its internal audit process, reinforced by the application of its revised internal auditing instruction.
	The visiting auditors suggest that WPD considers the automatic population of the customer numbers in its PC-NaFIRS reports, thus removing the potential for transcription errors in its present manual process
	The visiting auditors recommend that WPD reviews its internal guidance on how to report customers re-interrupted as part of incomplete incidents and ensure that it is in line with rigs version 5 paragraph 2.49
	During the audit of the LV sample, the visiting auditors noticed a number of incidents that had been classified as "mains" that were in fact "services". Whilst not affecting the CI or CML counts, WPD may wish to consider how this has arisen and introduce corrective measures as appropriate
Ofgem	Consider increasing the size of future LV samples so as to reduce the volatility of the accuracy of reporting being affected by the variance due to small number of incidents
	Ensure that a sample of non-reportable incidents are included as part of future audits
	Review the mix of non-reportable incidents by reason for not reporting and focus future samples on those reasons deemed most likely to give rise to potential errors

Appendix P. Key Issues Raised at the Post-Audit DNO Workshop

The post-audit workshop held on 19 June 2007 at Ofgem's Offices, Millbank was chaired by Ofgem and attended by representatives from all DNOs with the exception of CE Electric, whose representative could not get to the meeting due to problems with the national rail network, and from the audit team of the BPI/MM Consortium.

There was significant discussion on the audit process and plans for proposed adjustments to the process. The main points arising from the discussions are noted below:-

1) It was recommended by Ofgem that DNOs review their 'non-reportable' incidents and ensure processes are in place to ensure that they are appropriately captured and recorded. It was likely that the audit of 'non-reportable' incidents would be looked at in increasing detail in future audits. It was suggested that the number audited could be increased to 200 per licensed area. The DNOs expressed concern that it was not clear what the definition of 'non-reportable' incidents was. No firm agreement was reached but the DNOs and Ofgem undertook to work together to agree definitions in advance of the audit of the reporting year 2007/08.
2) Ofgem noted that the visiting auditors had been generally very pleased with the facilities made available to them and the level of staff provided for the audit. There were, however, some exceptions and Ofgem confirmed that they would contact the DNOs concerned directly, to discuss any points of concern.
3) Ofgem noted that DNOs should be prepared for some 'ad-hoc' information requests at future audits particularly in relation to the audit concerning the quality of telephone response. When such requests had been raised during this year's audit, in some instances Ofgem was disappointed with the response of certain DNOs. Ofgem confirmed they would contact the relevant DNOs directly to discuss any concerns.
4) The visiting auditors reported that there was a constant trend of improvement in the DNOs' systems. Whilst the processes may differ, at the higher voltage levels, all DNOs can capture the numbers of customers affected at the time of the incident and the visiting auditors are satisfied that there is consistency across all DNOs. The associated time-stamped information has generally removed the need for DNOs to prove any changes between the time of the incident and the time of the audit. Some DNO's measurement systems also provide this at the LV level and they are querying if the same approach can be applied here too. Whilst it was acknowledged that this was significantly more difficult to achieve, the visiting auditors suggested that this be examined for consistency across all DNOs during the audit of the reporting year 2007/08.
5) Ofgem raised the prospect for DPCR5 of splitting samples into specific categories; i.e. 132kV / EHV, HV and LV with an appropriate mix of underground / overhead. This would offset the impact of a good performance on a small number of 132 kV / EHV incidents masking a poorer performance at the other voltages. The DNOs raised no objections to this suggestion.
6) It was agreed that it was beneficial for Ofgem not to send the Stage 3 information to the DNOs unless the Stage 2 audit failed. This saved significant preparation time for the DNOs.

7) It was agreed to reduce the number of spares to 1 per category, as the number of spares actually used was very small and this would save further preparation time for the DNOs.

8) There was discussion about increasing the Stage 2 sample size at LV to reduce the potential volatility in the audit results caused by one particular incident. It was agreed that the process would remain the same, whereby should a DNO fail the stage 2 audit at LV, the process would move onto the Stage 3 sample as per the audit framework.

9) To further increase the rigour of the audit, it was agreed to increase the number of unannounced 11 kV incidents from 5 to 10 for the audit of reporting year 2007/08.

10) It was agreed that the sample of LV incidents for reporting year 2007/08 would include 5 LV unannounced incidents with a maximum of 2 stages each, the total number of LV incidents remaining at 30.

11) It was agreed that future audit samples should include incidents from both exceptional and non-exceptional events. This will generally enable Ofgem to produce the audit samples more quickly as there will be no need to outsort incidents affected by an exceptional event.

12) Ofgem and the Consortium thanked the DNOs for being very co-operative in agreeing to these changes

13) The Consortium suggested that the recently introduced facility of 'Clock-stopping' should be 'scrapped' as it was subject to misinterpretation and caused inconsistency of treatment. No agreement was reached on this and Ofgem undertook to review this aspect of IIS reporting.

14) The Consortium suggested that Ofgem should consider revising the rigs. It was agreed that Ofgem would circulate a 'track-change' version of the rigs for DNO review and discussion. It was suggested to revise the rigs through a collaborative approach with the intention of agreeing version 6 to take effect from 1st April 2008.

15) The timetable for next year's audit process was discussed. It was generally agreed that this could commence in mid April 2008 and run through to late May / early June 2008. Several DNOs volunteered for particular dates, with one agreeing to the mid-April audit. Ofgem agreed to circulate a provisional timetable for DNO agreement.

16) Following the completion of this year's IIS audit visits, Ofgem had circulated a feedback questionnaire to the DNOs. Ofgem thanked the DNOs for their feedback on the audit and the performance of the Consortium. The DNOs' feedback on the Consortium's services and on the composition of the visiting audit team were very positive. Ofgem confirmed that they were considering the appointment of consultants for the next 2 years' audits before the end of this calendar year to enable adequate planning to take place.