Quality of Service Incentive Scheme – Exceptional Events

Appointed Examiner's Report		
Reporting year 2010/11		
DNO	CE Electric – YEDL Licensed Area	
Cause	Long running event – Snow and Ice	
Date of event	29 November to 17 December 2010	

Submitted to:

Ofgem

Submitted by:

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Authorisation

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List of Contents

Sections and Appendices

Glo	ossary		4
Su	mmary		5
1.	Audit part	: 1	6
	Summa	ary of main facts	6
	Except	tionality requirements	6
	Does tl	he event qualify for exclusion?	7
	Except	tionality test results	7
	YEDL's	s views of its performance	8
	YEDL's	s answers to questions on its performance	9
2.	Audit part	t 2	12
	YEDL's	s performance in dealing with the event	12
	YEDL's	s performance in mitigating the effects of the event	12
	Recom	nmended performance adjustment(s)	13
	Detaile	ed justification	13
Ар	pendix A	Record of Audit part 1	15
Та	bles		
Та	ble 1-1: Nu	mber of incidents occurring during the event	7
Та	ble 1-2: Su	mmary of exceptionality test results	8
Та	ble 2-1: Au	dit part 2 recommended adjustment(s)	13

Glossary

AE Appointed Examiner

BPI British Power International

CE CE Electric UK

CI Customer Interruptions per 100 connected customers
CML Customer Minutes Lost per connected customer

DNO Distribution Network Operator
DPCR Distribution Price Control Review

EHV Extra High Voltage – all voltages above 20kV up to but excluding 132kV

ENWL Electricity North West Limited

HV High Voltage – all voltages above 1kV up to and including 20kV

LV Low Voltages – all voltages up to and including 1kV

NEDL Northern Electricity Distribution Limited

NEWSAC Northern, Eastern, Western and Southern Area Consortium (The inter-

DNO system for providing help across the industry)

QoS Quality of Service

RIGs Regulatory Instructions and Guidance SCADA System Control and Data Acquisition

SoF Statement of Facts
ToR Terms of Reference

YEDL Yorkshire Electricity Distribution Limited

Notes:

Within this document:

- 1. The term "higher voltage" is used to indicate all voltages greater than 1kV.
- 2. The calculations of CI and CML within this document are adapted from the annual calculations contained in the RIGs to reflect the CI and CML generated by the actual incidents being audited. They are as follows:

CI: the number of interruptions to supply – the number of customers interrupted per 100 connected customers generated by the incidents being audited. It is calculated as:

CI = The sum of the number of customers interrupted for incidents being audited * 100

The total number of connected customers

CML: the duration of interruptions to supply – the number of customers interrupted per connected customer generated by the incidents being audited. It is calculated as:

CML = The sum of the customer minutes lost for all restoration stages for incidents being audited

The total number of connected customers

In both the formulae above, the total number of connected customers is as declared as at 30 September during the relevant reporting year. Any claims that occur and are audited prior to 30 September in the reporting year during which they occur will be audited using the total number of customers declared at 30 September in the previous reporting year.

Summary

Ofgem has appointed British Power International Limited (the Appointed Examiner) to audit the submission made by CE Electric UK (CE) under the "one-off" exceptional event mechanism that the persistent snow and ice which affected its Yorkshire Electricity Distribution (YEDL) licensed area between 29 November and 17 December 2010 materially and adversely affected its reported performance for the reporting year 2010/11.

The Appointed Examiner (AE) has visited CE to audit the claim against part 1 of the "one-off" exceptional event process and finds that it passes the exceptionality threshold in terms of both CI and CML.

The AE concludes that the event falls within the category of an "other event" as defined in paragraph 8.57 of Special Licence Condition CRC 8, including satisfying the exceptionality requirements set out in Appendix 3 thereof.

The AE therefore proceeded to part 2 of the "one-off" exceptional event process, assessing YEDL's performance in mitigating the impact of the event upon its customers.

The AE concludes that YEDL faced severe difficulties in mobilisation caused by the snow and ice during the earlier period of this event and was therefore prevented from restoring its customers' supplies as speedily as it normally would.

The AE also concludes that YEDL faced severe difficulties during the later period of this event due to the considerable number of incidents it had to deal with on its distribution network caused by the subsequent rapid thaw.

The AE concludes that YEDL had met the requirements of Appendix 4 to paragraph 8.58 of Special Licence Condition CRC 8 and that the incident is therefore deemed to be eligible for adjustment in the DNO's reported performance.

The AE therefore recommends that an adjustment to YEDL's 2010/11 reported distribution system performance is made, in line with the part 1 audited CI and CML figures as shown in the following table:

	Audited number	Residual number above the threshold	Recommended adjustment	
CI	1.42	0.32	0.32	
CML	2.84	1.94	1.94	

1. Audit part 1

Summary of main facts

- 1.1 The AE's headline information log for this event is set out in Table A-1 at Appendix A. In addition, the following paragraphs summarise the main facts of the event.
- 1.2 YEDL has furnished evidence to support its claim that the prolonged period of snow and ice resulted in mobilisation difficulties that delayed its personnel from attending to incidents affecting its distribution network.
- 1.3 YEDL has also furnished evidence to support its claim that the subsequent thaw gave rise to an exceptional number of incidents on its distribution network, severely stretching its available resources and increasing the time it would normally take to restore supplies.
- 1.4 The event is deemed to have lasted for 19 days, beginning on 29 November and ending on 17 December 2010.

Exceptionality requirements

- 1.5 The majority of weather-related incidents are now dealt directly between the DNOs and Ofgem through an improved and automated process, generally without the need for Ofgem to appoint an AE to examine the claim.
- 1.6 Whilst the claim by YEDL for this long-running event does not fall into the above category and there is currently no precedent for auditing an exceptional event of this nature, the AE was present at the meetings held in 2003 between Ofgem and the DNOs during Distribution Price Control Review (DPCR) 3 and considers that this claim by CE falls within the spirit of the agreement reached at those meetings.
- 1.7 The DPCR 3 agreement provides for situations where the occurrence of a longrunning event, such as an outbreak of foot-and-mouth disease or a period of difficult mobility, results in protracted restoration of incidents on a DNO's network.
- 1.8 Prior to commencing the audit of this claim therefore, the AE and YEDL agreed that the most appropriate approach would be to mirror the methodology used during DPCR 3, albeit with the tests for exceptionality and the thresholds for CI and CML being pre-determined as part of licence conditions pertaining to DPCR 5.
- 1.9 Under the DPCR 3 methodology, the first step was to determine the duration of an event by examining a DNO's incident database, agreeing the start and end dates and hence the number of days over which the event lasted.
- 1.10 The numbers of CI and CML for all incidents occurring during the above period were compared to the average daily figures experienced by the DNO for the equivalent number of days in the preceding regulatory reporting year.

1.11 Where this comparison showed an increased number for the event in question, the excess CI and / or CML, referred to as the 'residual amount', was considered for exclusion from the DNO's reported performance.

Does the event qualify for exclusion?

- 1.12 The AE considers that the event falls within the category of an "other event" as described in paragraph 8.57 of Special Licence Condition CRC 8, and meets the exceptionality requirements set out in Appendix 3 thereof.
- 1.13 The AE therefore considers that, subject to meeting the requirements of Appendix 4 to CRC 8, the event qualifies for possible exclusion under the "one-off" exceptional events process.

Exceptionality test results

- 1.14 Due to the nature of this event, the direct cause of incidents occurring during it is not relevant to the test for exceptionality; it is the amount of residual CI and CML occurring during the event that is compared to the current thresholds for the DNO in question, as contained within the DNO's licence.
- 1.15 The number of incidents occurring during the event is shown in Table 1-1.

Table 1-1: Number of incidents occurring during the event

Number of incidents occurring during the event	Claimed number	Audited number
132kV	0	0
EHV	0	0
HV	125	125
LV and Services	1125	1125
Total	1250	1250

1.16 The results calculated by the AE to test this claim against Ofgem's exceptionality criteria are shown in Appendix A. A summary of the results is shown in Table 1-2.

Table 1-2: Summary of exceptionality test results

Test	Threshold	Claimed number	Audited number	Pass / Fail	Residual amount above threshold
CI exceptionality	1.1	1.42	1.42	Pass	0.32
CML exceptionality	0.9	2.84	2.84	Pass	1.94

Notes:

- 1. Ofgem's CI and CML exceptionality criteria are set out in the AE's ToR¹.
- 2. The audited CI and CML used in the exceptionality test have been determined from the number of incidents occurring during the event minus the average amounts occurring during the reporting year 2009/10.
- 3. Where the event passes either or both the exceptionality thresholds, the amount(s) above threshold is/are carried forward into the Audit part 2 assessment of DNO performance.
- 4. In accordance with guidance from Ofgem, the AE's calculations use the threshold values contained in the current Distribution Price Control and the number of customers connected to the DNO's network relevant to the date on which the incident occurred.

YEDL's views of its performance

- 1.17 CE has a robust emergency process, incorporating the national guidance for civil emergencies, which provides for the type of emergency being considered here.
- 1.18 CE considers that it invoked its emergency procedures in a timely manner, declaring various stages of alert in response to both the severe weather warnings and the conditions being experienced by its front line personnel.
- 1.19 Thus, when it became apparent that the severe weather was due to last for some time and mobility would be extremely difficult and potentially hazardous with conventional vehicles, CE drafted in specialist vehicles to provide some means with which its field teams could get about.
- 1.20 The extremely low temperatures and the powdery nature of the snow meant that few incidents occurred due to line icing.
- 1.21 Once the thaw set in, YEDL was faced with a huge increase in the number of incidents occurring on its underground cable networks.
- 1.22 There were also many instances where the weight of snow falling from house roofs damaged the incoming overhead service line and / or the bracket attaching the service line to a house.

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¹ Audits of Electricity Distribution Network Operators' One-off Exceptional Events Claims for 2010/11

- 1.23 NEDL, YEDL's sister DNO, was similarly adversely affected and calls were made to CE's contractors and to the other UK DNOs via the Northern, Eastern, Western and Southern Area Consortium (NEWSAC) agreement for additional jointing teams.
- 1.24 Via this means, CE secured three additional jointing teams from its contractors and four from ENWL; the other UK DNOs being unable to release their personnel as they too were adversely affected by the severe weather.
- 1.25 YEDL considers that its emergency plans worked well and that its personnel responded to the event in a most professional manner.

YEDL's answers to questions on its performance

- 1.26 Within the last four years, the AE has reviewed YEDL's design standards, construction methods and maintenance procedures during previous visits to audit exceptional event claims and found them fit for purpose.
- 1.27 The AE confirms that YEDL's emergency procedures provide for the type of event being examined here.
- 1.28 To aid understanding of the background to YEDL's SoF, the AE prepared a list of initial questions regarding this incident. These questions were used as the basis for the examination of YEDL's claim.
- 1.29 The initial questions were discussed during the AE's visit to CE's Penshaw Control Centre on 20 June 2011.
- 1.30 YEDL's incident database, the company's analyses of the event, the various severe weather warnings it received, media information relevant to the event and other information was made available.
- 1.31 YEDL has provided answers to the AE's initial list of questions. For ease of reference, the AE's questions are printed in bold font with YEDL's answers being printed in normal font.
- Q1. What changes, if any, has YEDL made to its emergency plans and procedures since BPI last visited to audit an Exceptional Event claim on 29 March 2007?
- A1. A large number of changes as the plans are under constant review. Please note that some information is commercially confidential but the AE will be given sight of the documentation during the audit visit.
- Q2 Under its various stages of 'alert' what specific actions did CE take as a consequence of the considerable number of severe weather warnings it mentions in its SoF?
- A2. A confidential copy of CE's post event report and analysis will be made available to the AE during the audit visit.

- Q3. What evidence can CE provide to demonstrate the protracted difficulties in mobility during the periods in which CE considers this to be a long-running event?
- A3. The principal effect is on restoration time as will be demonstrated to the AE during the audit visit.
- Q4. What mapping information can CE provide to show how widespread the affects were within each of its licensed areas? (It would be useful if this could be provided electronically for incorporation within the audit report for each of CE's licensed areas).
- A4. It is not practicable to provide this information other than verbally as all YEDL's geographic area was affected.
- Q5. What method has CE used to determine the 'normal daily number of LV faults' for its YEDL licensed area as shown in its SoF?
- A5. The total number of LV faults (15,062) in reporting year 2009/10 divided by 365 = 41.3.
- Q6. What method has CE used to aggregate the daily total number of active LV faults within each of its licensed areas?
- A6. If customers were off supply at any time during the 24 hour period then they were added to the total for the day. A copy of YEDL's spreadsheet showing the calculations will be made available to the AE during the audit visit.
- Q7. How has CE derived the average restoration time for its LV faults for regulatory reporting year 2009/10?
- A7. Reported CML divided by reported CI (post audit and post exemption claims).
- Q8. By inference from CE's SoF, more external assistance was requested than could be obtained. If this is the case, what was the shortfall between requested and obtained in which particular skills?
- A8. Please see the confidential post-event report we tried to get everyone we could there was no limit to the resource we would accept.
- Q9. What learning points has YEDL incorporated into its procedures as a result of this incident?
- A9. CE's full post-event review and associated learning points are shown in the confidential report that will be made available during the audit visit.
- Q10. What further learning points should be considered as a result of the application of the revised Exceptional Event Claims process?
- A10. We consider there is a need to sort out how we deal with long running events of this type where "normal" faults are affected rather than specific faults being caused by the event.

The 2001 foot-and-mouth outbreak is a further example where restoration time was disrupted rather than the event causing specific faults. For this event we have proposed a "remove all and replace by average" method as per DPCR 3 as we had three effects – extended restoration time, specific faults being caused by the event and an elevated number of "general" LV underground faults. Where only one of these factors is involved, it may be more appropriate to replace only that factor by the previous year's average figure.

[AE's note: as already mentioned, the AE considers that this event falls within the purview of the agreement reached between the DNOs and Ofgem in August 2003. Therefore the associated process from DPCR 3 will be used in conjunction with the updated requirements for exceptionality and materiality from DPCR 5].

- 1.32 YEDL also provided further information during the audit visit. This includes:
 - sight of the commercially confidential review that CE has undertaken regarding its policies and procedures;
 - a confidential copy of CE's post-event review which includes the way in which the company invoked its emergency procedures;
 - a copy of CE's incident database;
 - a copy of CE's analysis of the event; and
 - copies of the various severe weather warnings the company received.

[AE's note: The widespread and prolonged nature of this event made it unnecessary to consider any specific locality within YEDL's area as being worse affected than any other. It also made pointless the need to review control room logs and individual incident reports].

2. Audit part 2

YEDL's performance in dealing with the event

- 2.1 In viewing YEDL's performance in dealing with the event, the AE has considered what more YEDL could have reasonably done to ensure that its resources were as prepared as possible ahead of the onset of the severe weather.
- 2.2 YEDL invoked its emergency procedures, alerting its personnel to the severe weather that had been forecast and, like the rest of the country, had to await the actual weather before knowing what, if any effect it would have on its distribution system.
- 2.3 To aid mobility, YEDL obtained additional specialist vehicles as soon as it became apparent that they were needed.
- 2.4 Similarly, when the effects of the thaw became apparent, YEDL sought to obtain as much help as possible from its contractors and from the other UK DNOs.
- 2.5 CE's confidential, comprehensive, post-event review and associated report detail the impact that the event had on the company and its personnel, a copy of which will be available to the AE during the audit visit.
- 2.6 The AE concludes that YEDL had done all it could reasonably have been expected to do in preparing for the onset of the severe weather and responded as best it could to the effects of it.

YEDL's performance in mitigating the effects of the event

- 2.7 Whilst the examination of YEDL's incident database shows that there were 125 incidents that affected its high voltage network, by far the greatest number of incidents was at the low voltage (LV) and service levels, with 1125 being recorded.
- 2.8 YEDL's distribution system is designed, constructed and maintained to the national security of supply standard P2/6 and complies with good UK practice.
- 2.9 Many of the incidents affected underground cables which, together with the associated joints, were subjected to the effects of ground movements resulting from unfrozen, to deeply frozen and back to unfrozen.
- 2.10 With the unfreezing came the melting of several centimetres of snow and the penetration of the melt water into the ground, resulting in the number of incidents affecting YEDL's underground cables.
- 2.11 A number of incidents were also recorded where the weight of melting snow from house roofs caused damage to service lines and / or service brackets.

- 2.12 Realising its own resources would not be able to cope, YEDL sought help from outside sources and obtained as much as was available.
- 2.13 YEDL also deployed non jointing personnel on advanced spotting duties and temporary restoration work where practicable.
- 2.14 The AE concludes that YEDL did all it could to restore supplies as expeditiously as possible, thereby minimising the duration of the interruptions.
- 2.15 The AE is pleased to note that CE's review of the event incorporates learning points with which to continuously improve its policies and procedures.

Recommended performance adjustment(s)

2.16 The AE's recommendations to Ofgem are shown in Table 2-1.

Residual amount above threshold

CI

0.32

CML

1.94

Audit part 2 recommendation

0.32

1.94

Table 2-1: Audit part 2 recommended adjustment(s)

Detailed justification

- 2.17 In reaching a judgement on a recommendation, the AE has considered whether or not YEDL could have reasonably taken any different course of action that would have resulted in its customers' supplies being affected less than they were.
- 2.18 The AE has also considered whether or not YEDL could have restored supplies any more quickly than it did, thus reducing the overall period of the event.
- 2.19 In these deliberations, the AE has taken account of the contemporaneous national media coverage of this period of weather which pointed to both its abnormality and its severity. In addition, members of the AE's immediate family were affected by the difficulties in mobility within CE's geographical area.
- 2.20 The AE considers it is to the credit of YEDL's preparedness that its personnel were able to attend to incidents during the period of extremely low temperatures, ice-bound roads and deep snow drifts.
- 2.21 Similarly, it is to the credit of CE's personnel that they persevered in getting to work through some of the worst travelling conditions for many decades.
- 2.22 In viewing YEDL's preparedness for this event, the AE has noted that CE invoked its emergency procedures in a timely manner, alerting its personnel to the severe weather forecast and escalating its level of alert according to the changing circumstances during the course of the event.

- 2.23 The AE has taken account of the way in which CE sought as much help as possible to tend to the number of incidents brought about by the thaw and the way in which it re-deployed its personnel to various advanced spotting roles so as to optimise the skills and expertise of the jointing teams at its disposal.
- 2.24 The AE is satisfied that the affected sections of YEDL's distribution network comply with the requirements of Security of Supply Standard P2/6 and are design, constructed and maintained to current UK practice.
- 2.25 The AE is satisfied that YEDL has met the criteria for preventative and mitigating actions set out in Appendix 4 to paragraph 8.58 of Special Licence Condition CRC 8.
- 2.26 The AE therefore concludes that YEDL's claim is justified and recommends to Ofgem that the amount of residual CML above the threshold value should be excluded from YEDL's performance for regulatory reporting year 2010/11.

Appendix A Record of Audit part 1

Table A-1: Appointed Examiner's Information Log

"One-Off" Exceptional Event	Reporting Year 2010/11	
Licensed Area	YEDL	
Date of event	29 November to 17 December 2010 ('long-running')	
Cause	Prolonged snow and ice followed by thaw	
Notification to Ofgem	24 December 2010	
SoF received	25 February 2011	
SoF information	 severe weather – snow and ice with extremely low temperatures followed by a rapid thaw. the event affected both (NEDL and YEDL) of CE's licensed areas virtually simultaneously. CE received 44 severe weather warnings during the course of the event. mobility impossible in some places – restoration times above the DNO's norm. one of the DNO's operational sites impossible to access for a time. helicopters could not fly during the severe weather. particularly at LV, the number of incidents affecting the DNO's underground cables following the rapid thaw was much greater than the DNO's daily average. Restoration times were still adversely affected. incidents due to the event being restored throughout the period. the DNO invoked its emergency procedures throughout the event. the DNO used all its available non-jointing personnel on spotting and / or temporary repairs. the DNO contacted its contractors and NEWSAC. the DNO got as many additional jointing teams as were available - the DNO could have deployed more than the number of jointing teams available. at the peak a total of 88 jointing teams were working on underground system faults compared with the normal weekend level of 16 teams. there is no previous 'case history' for dealing with this type of event – AE and the DNO agreed to use the DPRC 3 process. 	
Additional pre-visit information provided	Based on the SoF the AE drew up a list of initial questions. These were discussed during the audit visit. This initial list of questions, together with YEDL's response, is contained in paragraph 1.31 of the report.	
Location of audit visit	CE's Penshaw Control Centre	
Date of audit visit	20 June 2011	
Visiting Auditor	Geoff Stott (BPI)	

YEDL's Representatives	Tony Ingham, Jeremy Meara, Jim Morrell, Danielle Oates and Ian Punshon
Information provided during and subsequent to the audit visit	Comprehensive documentation / information including: sight of CE's commercially confidential review of its policies and procedures. a copy of CE's confidential, comprehensive internal review of the event. a discussion regarding the extent of the area affected by the event – basically the whole of the DNO's area. a discussion concerning the start and end dates of the event. confirmation of the above by examining the DNO's 'IRIS' incident records. a review of the DNO's calculations regarding its normal (average) incident restorations times. examination of the severe weather warnings that CE received. copies of media reports confirming the severe weather and its affect on mobility. the calculations that the DNO has used to determine the average restoration time for reporting year 3009/10. discussion of YEDL's incident analyses supporting its claim. examination of the information provided by YEDL, its incident database and its statistical analysis of the preceding reporting year and the event under review shows: the event started on 29 November 2010 when heavy snow began to affect its licensed area and the number of incidents increased; following the difficulties in mobility, a thaw set in which resulted in a huge increase in the number of incidents affecting YEDL's underground cable network; NEDL, YEDL's sister DNO was similarly affected and CE requested help from its contractors and from other DNOs via NEWSAC; the event ended on 17 December 2010 when activity returned to its average level, giving an event duration of 19 days; the average customer interruptions for 19 days of reporting year 2009/10 is 76,224; the average customer minutes lost for 19 days of reporting year 2009/10 is 76,224; the average customer minutes lost for 19 days of the event was 1,250 (125 HV and 1,125 LV / services); the total amount of customer interruptions during the event was 108,361; giving a residual of 6,404,133 [13256186 - 6852053].

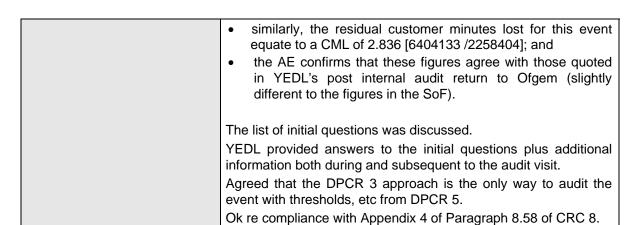


Table A-2: Impact on CI and CML

	Residual CI		Residual CML	
	Claimed Audited		Claimed	Audited
Total	1.423	1.423	2.836	2.836
YEDL Threshold (total)	1.1 0.9		.9	
Part 1 Exceptionality Test	Pass Pass		ass	
Part 1 Precondition of eligibility (meets App 3 to paragraph 8.57 of CRC 8)	Pass			

YEDL's measurement systems are subject to QoS audits for accuracy of reporting and it is not within the AE's ToR to repeat that work as part of the examination of exceptional event claims, although any consequential adjustments to reporting accuracy will be reflected in Ofgem's final adjudication of reported performance for regulatory reporting year 2010/11