2002/03 Electricity Distribution Quality of Service Report

July 2004

Contents

Summary

Ofgem considers quality of service to be one of its key priorities in network regulation. Ofgem has been undertaking a programme of work to improve regulation of electricity distribution companies to ensure they deliver an appropriate level of service to customers.

This report sets out the quality of service performance in the period 1 April 2002 to 31 March 2003 for the 14 electricity distribution network operators (DNOs). 2002/03 was the first year that the DNOs faced financial incentives on their quality of service performance. This year included the October 2002 storms, which had a serious impact on 8 of the 14 DNOs. Following the storms Ofgem received over 3,000 customer requests for determination of disputes as to whether the DNOs should pay out compensation under the standards of performance. These requests were processed, following which customers received £1.8 million in storms compensation[1]. This also led to the development of new interim arrangements[2] which make it quicker and easier to claim compensation following storms.

[1] Press release R/81, 2 September 2003, Customers to get £1.8 million October storms compensation.
[2] Press release R/104, 13 November 2003, Interim storms compensation arrangements announced.

Introduction[3]

All licensees who operate transmission or distribution systems are required to report annually to Ofgem on their performance in maintaining system security, availability and quality of service. This information provides a picture of the continuity and quality of service experienced by final customers.

Ofgem has made a commitment to publish an annual report on the overall performance of all 14 Distribution Network Operators (DNOs) and this report is the second of its kind. The aim of the report is to pull together the key information on the DNOs' quality of service in a format that is easy to understand. Transmission system information is published by the three companies responsible for transmission networks in the UK, National Grid Transco, SP Transmission and Scottish & Southern.

The document contains the following sections:

Section 1 – Background to the Electricity Distribution Network Operators
Section 2 – Explanation of the Key Quality of Service Measures
Section 3 – Performance in 2002/03
Section 4 – Ongoing Work

Summary tables and additional information are contained in the appendices.

Data for 2002/03 has been adjusted to reflect audits of reporting accuracy which took place in summer 2003. This was the second year of such audits and this together with the workload arising from the storms in October 2002, have delayed publication of this report. Ofgem intends to make the complex information relating to the distribution network operators as meaningful and user friendly as possible and welcomes any comments or suggestions for the format of future reports.

Publication of the Guaranteed and Overall Standards (GOSPs) is now the responsibility of energywatch.

Ofgem intends to publish the 2003/04 Quality of Service Report by December 2004.

Comments should be sent by the end of September 2004 to:

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[3] The Quality of Supply Report supersedes the old Distribution and Transmission System Performance Reports that Ofgem previously produced.

Section 1 - Background on the 14 Electricity Distribution Network Operators

At privatisation, the Public Electricity Suppliers (PESs) were responsible for both the distribution and supply of electricity, taking the place of the former regional electricity boards. However, with the introduction of competition in supply, it was important to ensure that all supply businesses, both new and old, had fair access to the distribution networks.

The Utilities Act 2000 introduced separate licences for distribution and supply, and required that these be held by separate legal entities.

Distribution

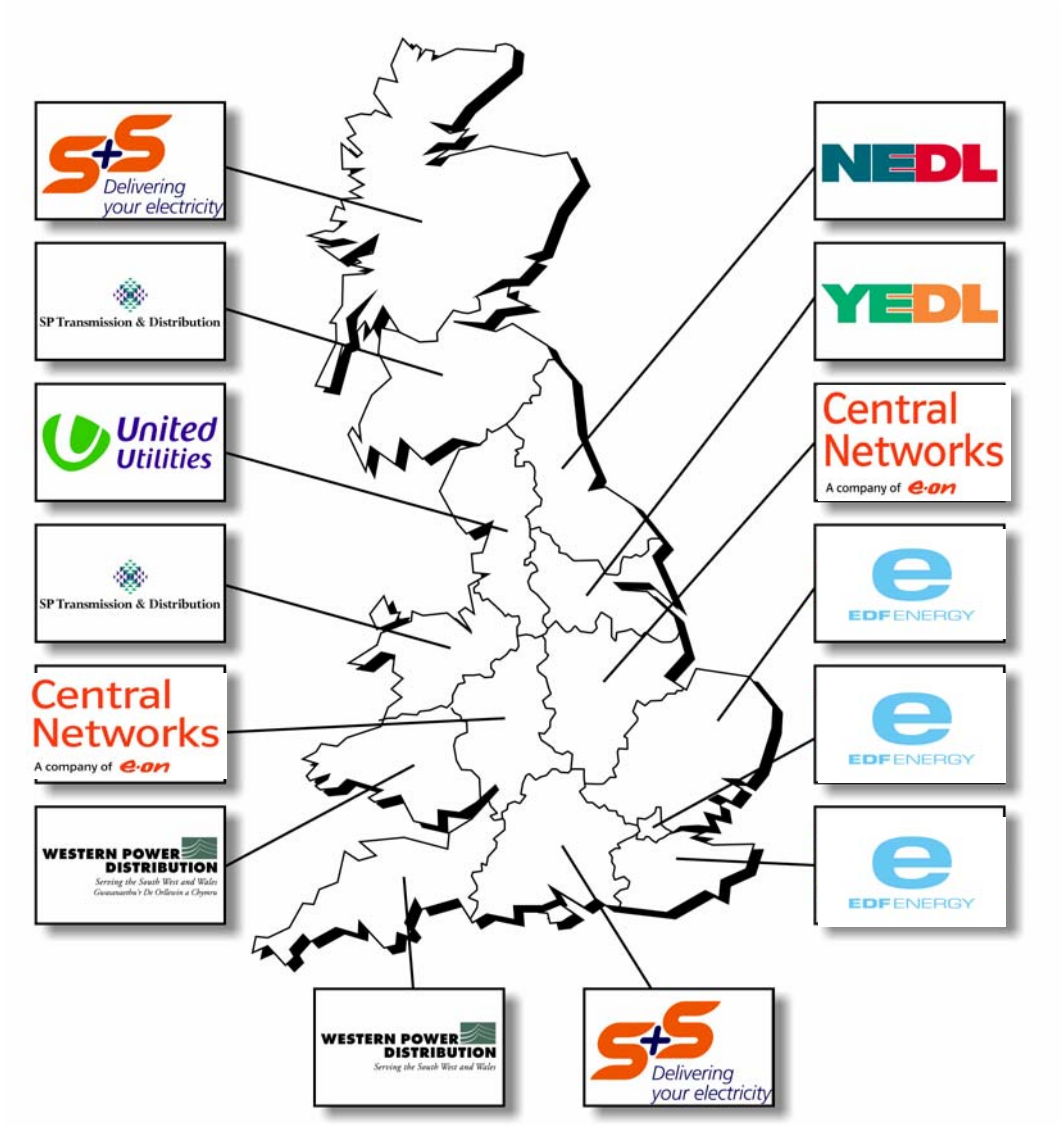
Distribution Network Operators are responsible for local distribution of electricity along overhead wires and through underground cables. This includes responsibility for ensuring that customers have a reliable electricity supply and restoring customers promptly in the event of an interruption to their electricity supply as set out in the Guaranteed and Overall Standards and the Quality of Service Incentive Scheme, which are discussed later in this document. Following privatisation and a number of corporate acquisitions, the 14 distribution licenses in 2002/03 are owned by 7 separate companies (see Map).

How much does distribution cost the customer?

Electricity distribution costs account for around £2 billion annually and makes up 25 to 30 per cent of customers' electricity bills.

For a typical domestic electricity customer, based on consumption of 3300 kWh of electricity a year, the distribution element of their bill would be approximately £60.

Map of Great Britain showing the Geographical Areas of the 14 Distribution Network Operators



Name in the report	Name on Map
CN West	Central Networks
CN East	Central Networks
EPN	EDF Energy
Hydro	Scottish & Southern
LPN	EDF Energy
NEDL	NEDL
SP Distribution	SP Transmission & Distribution
SPN	EDF Energy
Southern	Scottish & Southern
SP Manweb	SP Transmission & Distribution
UU	United Utilities
WPD S Wales	Western Power Distribution
WPD S West	Western Power Distribution
YEDL	YEDL

Distribution Network Operator (DNO) Information

Distribution Network Operator Information 2002/03

DNO	Total No of Customers	Length of circuit km									
		132kV		66kV		33kV		HV		LV	
		Overhead	Underground	Overhead	Underground	Overhead	Underground	Overhead	Underground	Overhead	Underground
CN West	2,307,275	1,339	303	775	18	1,018	386	14,761	11,459	6,303	23,888
CN East	2,445,398	2,459	206	0	0	2,827	1,441	12,863	12,380	5,255	31,253
EPN	3,386,938	2,355	231	0	0	3,875	2,590	19,276	17,553	9,457	36,784
Hydro*	676,005	-	-	0	0	5,255	628	21,582	4,249	4,314	10,265
LPN	2,232,604	30	469	17	445	0	637	1	9,288	0	19,772
NEDL	1,512,029	603	73	1,017	438	355	416	10,180	7,432	2,955	16,408
SP Distribution*	1,933,862	-	-	0	0	2,963	1,838	16,953	15,189	4,544	24,110
SPN	2,145,958	1,179	333	0	0	1,313	1,276	5,792	11,124	4,632	23,745
Southern	2,725,534	1,903	398	6	162	3,474	1,856	13,457	14,697	8,986	29,841
SP Manweb	1,452,557	1,299	213	0	0	1,940	1,580	12,623	6,494	5,675	17,162
UU	2,281,769	1,333	249	0	0	1,388	1,730	7,967	11,438	3,000	31,205
WPD S. Wales	1,065,530	1,154	87	354	3	1,280	359	12,237	5,028	3,205	9,840
WPD S. West	1,446,280	1,377	70	0	0	2,826	868	16,817	6,093	7,743	12,272
YEDL	2,156,135	1,062	395	879	136	1,284	1,859	8,822	9,942	1,865	33,975

Note: The 132kV network in Scotland forms part of the Transmission system

Section 2 - Key Quality of Service Measures

There are two main sets of quality of service measures for the DNOs.

- Overall measures of the quality of service the DNOs provide; and
- Guaranteed and Overall Standards of Performance.

Overall Measures of Quality of Service

The quality of service Incentive Scheme which was introduced in April 2002 financially incentivises the DNOs with respect to the overall quality of service they deliver in the following areas:

- **the number of interruptions to supply per year** – the number of customers affected by power cuts lasting 3 minutes or longer per 100 customers per year. Where several outages occur affecting the same customer as part of the same fault, this will only count as one power cut[4].
- **the duration of interruptions to supply per year** – the average minutes without power per customer per year, only including power cuts which last for three minutes or longer.
- **the quality of telephone response**[5] – is assessed through a customer survey carried out on a monthly basis by Accent Marketing and Research. Accent survey a sample of customers who have recently called their DNO with respect to power cuts or a dangerous situation, asking for customers' views in 4 key areas:

  (i) the politeness of the member of staff;
  (ii) their willingness to help;
  (iii) the accuracy of the information given (if information was given); and
  (iv) the usefulness of the information given (if information was given)

  This sample is asked to score the DNOs on a scale of 1-5[6] based on their experience of the telephone conversation they had with the DNO. The results of this sample are then aggregated to derive an overall score for each DNO, with the DNOs ranked according to their performance relative to other DNOs.

In addition, DNOs are required to report the following information:

- **the number of short interruptions to supply per year** – the number of customers affected by power cuts lasting less than three minutes per 100 customers per year.
- **disaggregated information on interruptions**.

[4] Unless the second or subsequent power cuts occurred more than 3 hours after all customers in the first power cut were restored, or after 18 hours in the case of temporary restoration.
[5] Rewards and penalties are calculated using DNOs' upper 95% confidence performance scores.
[6] Where 5 is equal to very satisfied and 1 equal to very dissatisfied

Guaranteed and Overall Standards of Performance

A summary of the standards of performance is set out in Appendix 2.

This report sets out performance on the Overall measures of quality of service and penalties/rewards under the incentive scheme. Data on standards of performance is now energywatch's responsibility.

Targets for the Number and Duration of Interruptions

Individual targets for the number and duration of interruptions were set as part of the Price Control in December 1999. The variation across DNOs is intended to reflect differences between the networks such as; the areas they cover, the extent to which they are overhead or underground, their age profiles, their population bases and how customers are distributed. Additionally, in Scotland the two distribution companies are not responsible for the 132kV networks, the two Scottish transmission companies have this responsibility.

On 1 April 2002 Ofgem introduced an incentive scheme which penalises or rewards DNOs dependent on their performance against their targets for customer interruptions and customer minutes lost.

The targets[7] for 2002/03 to 2004/05 are set out in Table 2.1 below.

Table 2.1 DNO 2002/03, 2003/04 and 2004/05 Targets

DNO	2002/03 and 2003/04 Targets		2004/05 Targets	
	Average number of interruptions per 100 connected customers	Average number of minutes lost per connected customer	Average number of interruptions per 100 connected customers	Average number of minutes lost per connected customer
CN West	131.00	125.87	131.00	116.90
CN East	81.30	92.73	81.30	71.00
EPN	102.02	82.31	92.02	82.31
Hydro	135.10	195.80	135.10	195.80
LPN	38.62	45.03	31.82	45.03
NEDL	89.70	96.54	89.70	96.54
SP Distribution	66.40	87.70	66.40	87.70
SPN	96.80	96.65	96.80	85.17
Southern	99.75	100.58	93.56	100.58
SP Manweb	47.20	65.80	47.20	65.80
UU	56.45	68.20	54.80	68.20
WPD S. Wales	152.80	129.20	152.80	129.20
WPD S. West	103.86	84.54	80.50	62.60
YEDL	84.82	74.43	84.82	66.69

In measuring DNOs' performance against the targets, Ofgem recognises that the number of interruptions arising on other networks are outside the DNO's control. They are therefore excluded. However, a DNO can take appropriate actions to mitigate the duration of these interruptions. 10 per cent of the duration of interruptions on other networks is therefore included in assessing performance against targets.

DNOs may also claim an adjustment for events which they believe were exceptional and had a significant impact on their performance. Ofgem will only make such an adjustment if the event is found to be exceptional. In deciding the extent of any adjustment Ofgem will take into account whether the DNO has taken all reasonable steps to restore customers in an efficient and effective manner.

[7] A number of adjustments were made to DNOs' targets on 1 April 2002 and 31 March 2003 to reflect changes in definitions and measurement systems for the number and duration of interruptions. These changes do not make the targets easier or harder to achieve than those originally set in December 1999, but make them consistent with how performance is measured on an ongoing basis. The targets in Table 2.1 above reflect the changes.

Section 3a – International Comparison

Unplanned Customer Interruptions & Customer Minutes Lost 1999 - 2001[8]

Figure 3.1 and 3.2 show Britain's performance on the number and duration of unplanned interruptions relative to other European countries. Clearly, the British distribution networks provide better quality and security than is experienced in many European countries.

Figure 3.1 Unplanned (1999 – 2001) Minutes Lost per customer per year

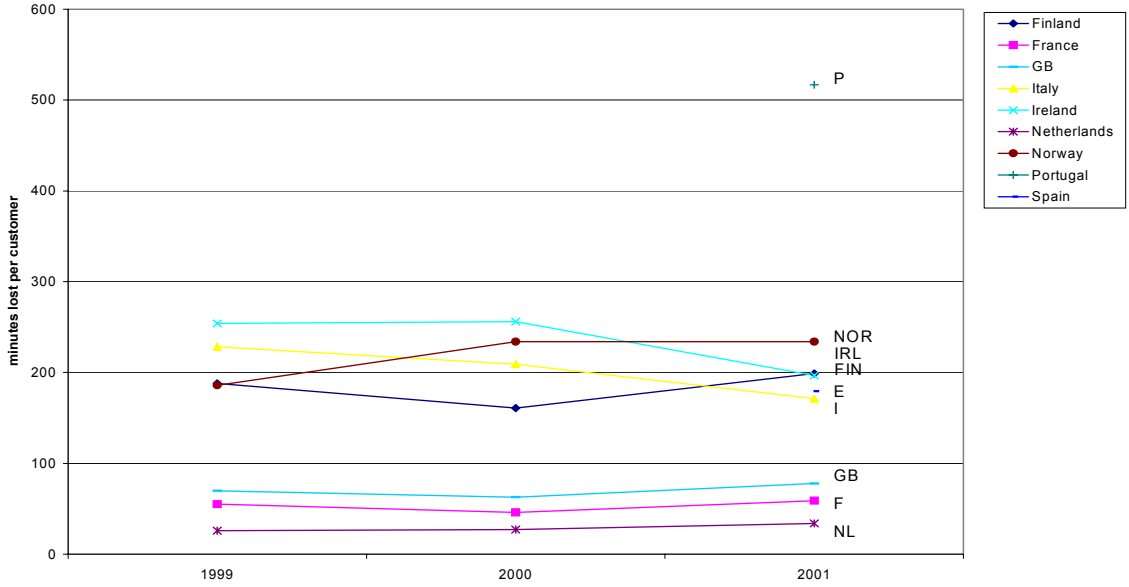
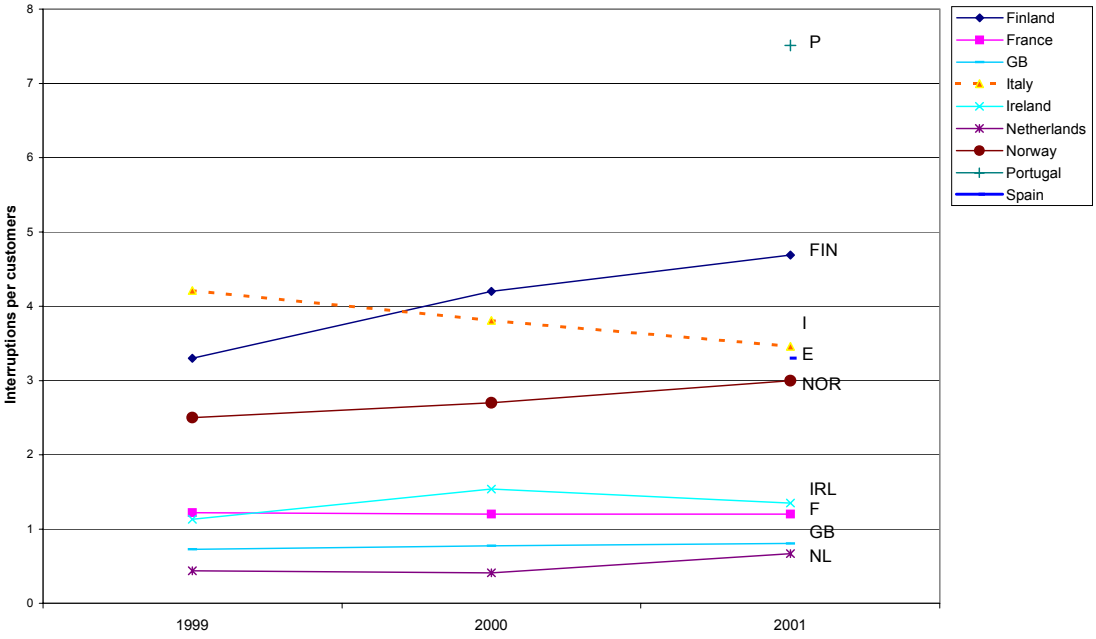


Figure 3.2 Unplanned (1999 – 2001) Interruptions per customer



[8] Council of European Energy Regulators, Second Benchmarking Report on Quality of Electricity Supply, page 30

Section 3b - DNOs' Performance in 2002/03

Figure 3.3 Average Customer Interruptions (CIs) per 100 customers 2002/03

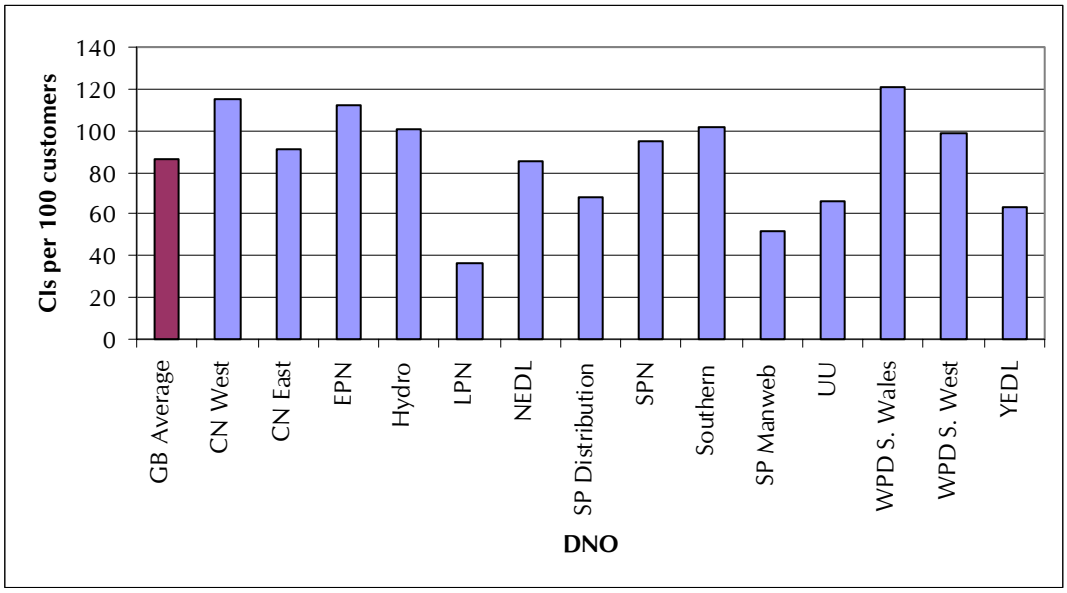


Figure 3.3 shows the average number of customer interruptions per 100 customers in 2002/03 across Great Britain was 86.2. It also shows the level of performance for each DNO. The data covers all interruptions, including those caused by bad weather, faults and pre-arranged shutdowns for maintenance and construction.

Figure 3.4 Average Customer Minutes Lost (CMLs) 2002/03

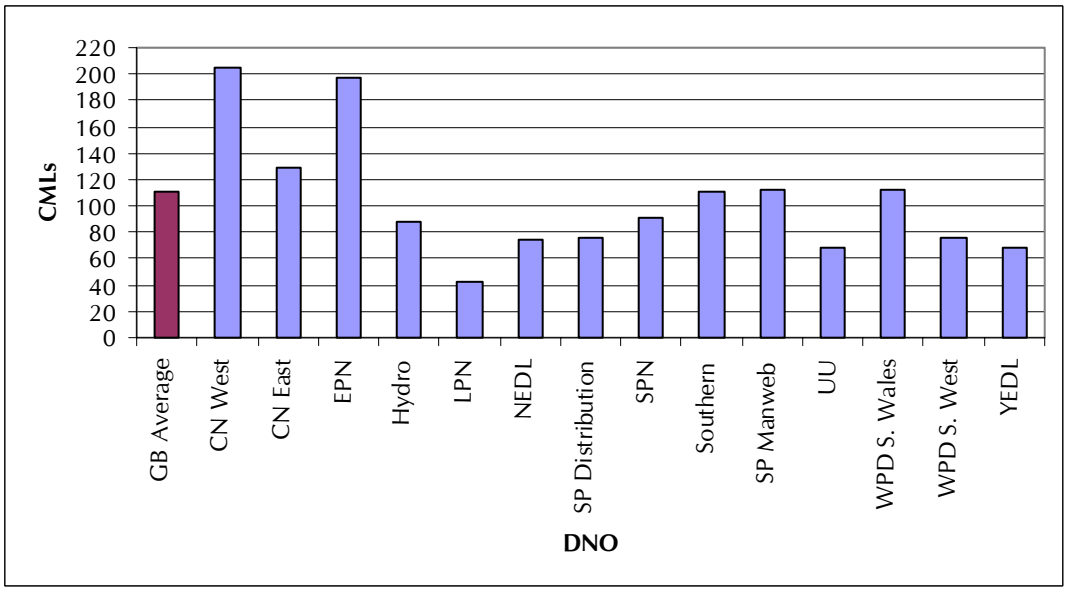


Figure 3.4 shows the average number of minutes customers were off supply in 2002/03 across Great Britain was 110.4. It also shows the level of performance for each DNO. Restoration of supplies in remote areas and those with low population density can sometimes be delayed by difficult terrain and longer distances between DNO depots and customers and similarly in urban areas the time taken to reach a fault may be affected by traffic congestion. DNOs are typically tackling these issues by investing in protection, network automation and remote control. Performance in 2002/03 was significantly affected by the October 2002 storms, which account for approximately 27 CMLs.

Figure 3.5 Short Interruptions per 100 Connected Customers 2002/03

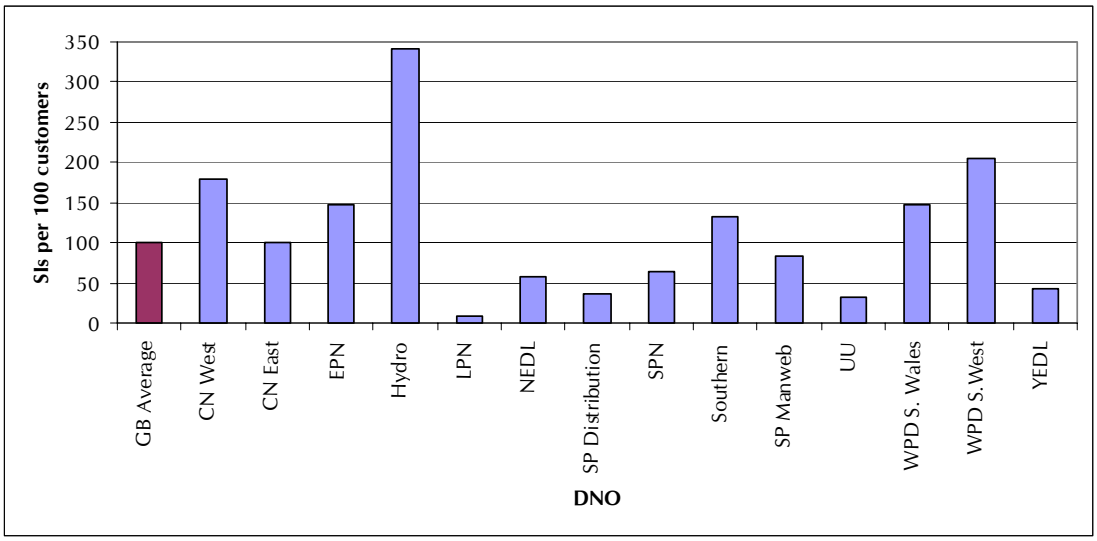


Figure 3.5 shows the average number of short interruptions per 100 connected customers across Great Britain was 101. It also shows the performance of each of the DNOs. CN West, EPN, Hydro, Southern, WPD South Wales and WPD South West all reported significantly above the GB average. LPN, NEDL, SP Distribution, SPN, SP Manweb, United Utilities and YEDL were all below the GB average.

Short interruptions are brought about by operations of the network designed to reduce the length of interruptions. The majority of short interruptions are associated with automatic restoration schemes, such as:

- pole mounted auto reclosers;
- ground mounted auto-reclosers;
- rural automation schemes; and
- load transfer schemes.

2002/03 Performance[9] against Targets

Figure 3.6 Customer Interruptions – 2002/03 Performance Relative to 2002/03 Targets

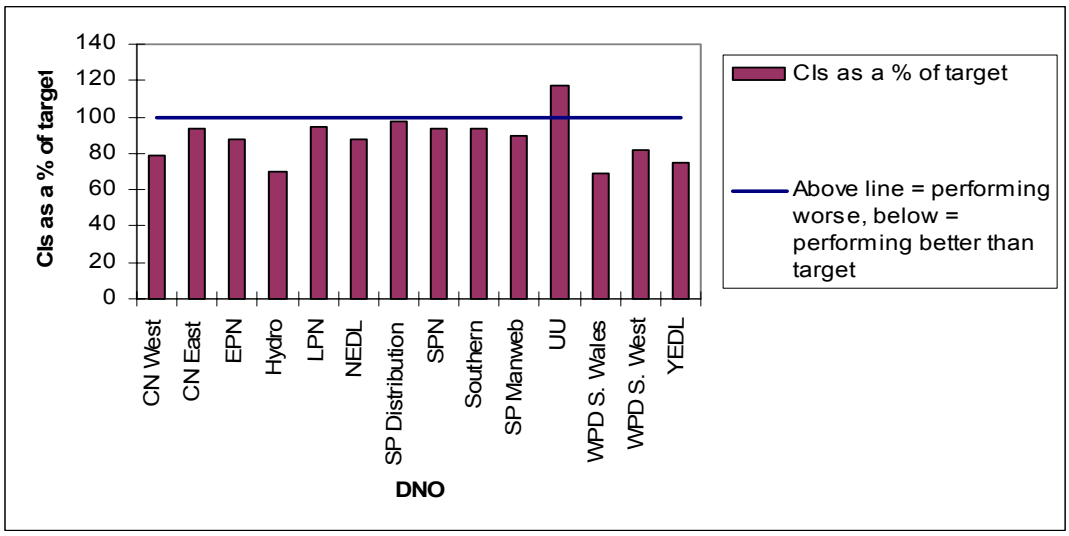
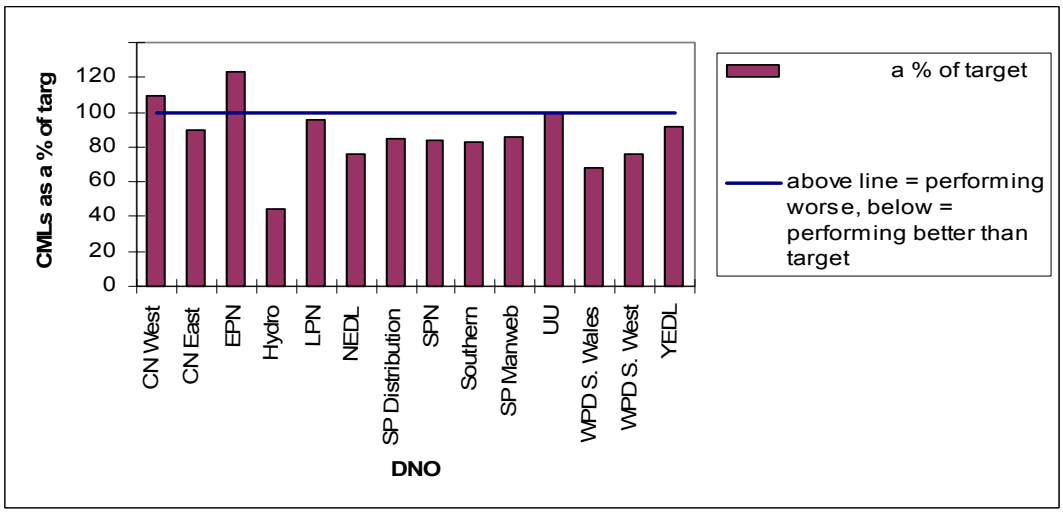


Figure 3.7 Customer Minutes Lost – 2002/03 Performance Relative to 2002/03 Targets[10]



Figures 3.6 and 3.7 show DNOs' 2002/03 performance relative to their targets for the year. In 2002/03 most DNOs outperformed their targets.

It is important to note that comparisons against the Price Control targets are only one way of assessing performance, many of the DNOs have made substantial improvements in performance year on year.

As part of the Price Control Review, Ofgem and the DNOs are undertaking work on improving comparisons of quality of supply performance, to help ensure that robust targets are set for all DNOs as part of the next Price Control (see section on benchmarking and comparing quality of supply performance).

[9] Incentive scheme performance, following adjustments for reporting accuracy and exceptional events.
[10] CN West and EPN are above their CML targets as a result of the October storms. Ofgem found that these DNOs did not take all reasonable actions to mitigate the impact of the storms. However, as CN West and EPN went beyond their legal obligations in paying out compensation to a wider group of customers following the storms, they have been allowed to net these payments off against their CML penalties for the same event.

Section 3c – DNO Summaries

This section contains a page on the performance of each of the 14 DNOs. It sets out their:

- 2001/02 and 2002/03 performance for the number and duration of interruptions;
- 2002/03 and 2004/05 targets;
- 2002/03 quality of telephone response performance;
- 2002/03 rewards/penalties[11];
- 2002/03 unplanned performance against benchmarks[12]; and
- fault rates per 100km of circuits.

Note: Comparisons of the number of faults in 2001/02 and 2002/03, with levels in previous years should be treated with caution due to the impact of reporting changes.

In addition each DNO has provided commentary on its 2002/03 performance.

Comparing and Benchmarking Quality of Supply Performance

The number of unplanned power cuts (CIs) and customer minutes lost (CMLs) varies significantly between the DNOs. A significant part of this variation is due to differences in the characteristics of their service territories (inherent characteristics) or to the way in which their networks have been designed over previous decades (inherited characteristics).

In order to gain a better understanding of DNOs' performance, their scope for performance improvement and the actions needed and cost to be incurred to deliver such improvements, it is useful to look at physically similar parts of networks and to compare performance at a more disaggregated level. Appendix 1 contains a more detailed explanation of the disaggregation process. The work has been used to derive benchmarks for unplanned interruptions and unplanned customer minutes lost for each DNO.

[11] There are no rewards for outperforming 2002/03 CI and CML targets, only penalties if either or both are failed. There are rewards or penalties for telephony performance in 2002/03.

[12] The unplanned performance used here is based on disaggregated performance with a different treatment for exceptional events. Therefore, these figures may differ from performance reported elsewhere.

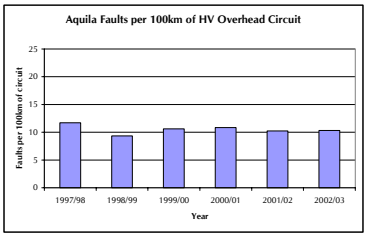
CN West – Quality of supply and network performance for 2002/03

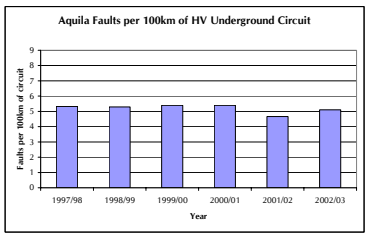
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	123.54	103.34	131.00	131.00
CML	125.87	137.94	125.87	116.90

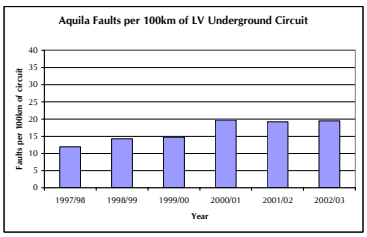
	2002/03 Quality of telephone response performance
CN West's upper 95% confidence score	4.24
Industry mean	4.25

Rewards/Penalties (£ million) 2002/03		
	Gross	Net[13]
Telephony	0	0
CI	0	0
CML	-0.62	-0.04

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	95.4	94.6
Unplanned CML	87.7	76.6







Commentary provided by CN West

Central Networks (West)'s underlying performance for 2002/03 shows an improvement of over 15% from the previous year,[14] demonstrating our focus on maintaining secure and reliable electricity supplies.

On 27th October 2002 winds up to hurricane strength blew across the Central Networks (West) distribution area. Supplies to 330,000 customers were affected and the level of network damage was such that we were not able to restore power to some areas for several days. The performance result for 2002/03 includes 28.21 Customer Minutes Lost (CMLs) attributable to the storm.

During 2002/03 the network replacement, refurbishment and maintenance programmes were completed as planned. These include:

- on-going replacement of less reliable 'small cross-section' lines which constitute a substantial part of the overhead network,
- installation of more devices on our networks in both rural and urban areas to enable quicker restoration of supplies using remote control, and
- the targeted replacement of 'Consac' underground cable to help prevent repeat faults on the low voltage network.

A dedicated team has also been created to co-ordinate the enhanced tree clearance programme, ensuring that resources are targeted effectively to minimise supply interruptions to customers served by overhead line networks.

Our investment plans for 2003/04 and beyond build on the progress made during 2002/03 and will continue to deliver further significant improvements in customer service.

Disaggregation and benchmarking

We welcome the opportunity provided by the disaggregation and benchmarking work initiated by Ofgem, to generate investment plans which support long term network performance aspirations, as part of the Distribution Price Control Review process.

However, the benchmarks arising from this work are the result of an embryonic process whose robustness is still unproven. With only one year's data they also do not fully capture the inherent variability in performance. Consequently, the benchmarks are not suitable for direct comparison but can be used to inform long term aspirations.

[13] See footnote on page 13.
[14] Based upon CI and not including the impact of the October storm

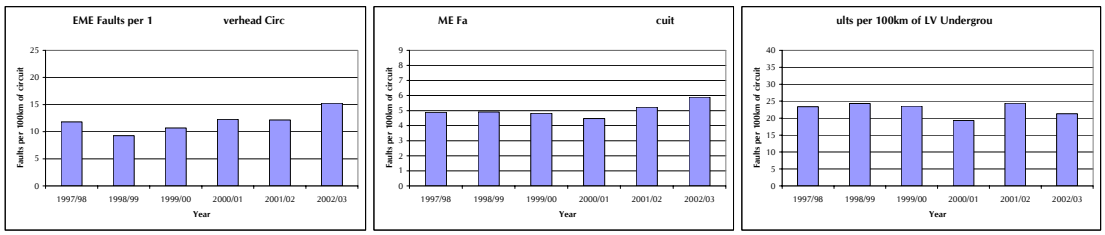
CN East – Quality of supply and network performance for 2002/03

	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	78.82	75.97	81.30	81.30
CML	92.73	83.09	92.73	71.00

	2002/03 Quality of telephone response performance
CN East's upper 95% confidence score	4.35
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	0.08
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	81.4	76.8
Unplanned CML	94.5	62.4



Commentary provided by CN East

This year's performance was better than our IIP targets with the average duration of supply interruptions being 83.09 minutes. This is a 10% improvement on the previous year's total. This year electricity has been available for 99.98% of the time with 54.14% of customers having no interruptions. The number of interruptions per 100 customers has improved to 75.97 compared with last year's figure of 78.82.

We have experienced a slight decrease in the number of unplanned incidents at HV and above with a total of 2,880 this year compared with 2,999 for the previous year. The HV incidents contribute the largest proportion of customer interruptions and minutes lost.

The total unplanned CML figure is 76.8, compared with 81.34 for the 2001/2002 reporting year. CMLs for planned incidents are 6.29 compared with 11.39 for the previous year. As well as investments to maintain quality of supply we have also undertaken a number of initiatives to improve quality of supply in particular:

- Installation of Pole Mounted Auto Reclosers
- Fitting Auto Sectionalising Links
- Equipping ground mounted equipment with remote control actuators
- Fitting Remote Earth Fault Indicators
- Tree Clearance
- Enhanced Restoration Activities
- Working Patterns
- Automatic Vehicle Location (AVL)
- CableSafe

Disaggregation and benchmarking

We also welcome the opportunity provided by the disaggregation and benchmarking work initiated by Ofgem, to generate investment plans which support long term network performance aspirations, as part of the forthcoming Distribution Price Review.

The benchmarks arising from this work carried out by the Disaggregation Workgroup are the result of an embryonic process whose robustness is still unproven. With only one year's data they also do not fully capture the inherent variability in performance. Consequently, the benchmarks are not suitable for direct comparison but can be used to inform long term aspirations. It will also be seen that the unplanned performance figures used for comparison are higher than those of our total performance in the incentive scheme. This difference arises from the performance data not fully reflecting actual underlying network performance.

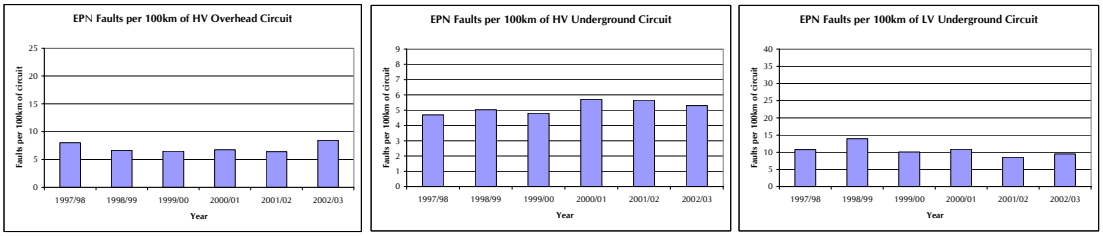
EPN – Quality of supply and network performance for 2002/03

	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	102.02	91.98	102.02	92.02
CML	80.21	101.62	82.31	82.31

	2002/03 Quality of telephone response performance
EPN's upper 95% confidence score	4.10
Industry mean	4.25

Rewards/Penalties (£ million) 2002/03		
	Gross	Net[15]
Telephony	-0.15	-0.15
CI	0	0
CML	-1.49	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	89.8	77.4
Unplanned CML	77.6	63.1



Commentary provided by EPN

For the second year of Ofgem's new IIP reporting procedures we are pleased to have seen an improvement in underlying network performance in terms of Customer Interruptions (CI) and Customer Minutes Lost (CML), excluding the impact of exceptional events.

We have achieved this level of improvement, through the continued application of our highly successful, remote control programme and adoption of a new Network Management System. This has provided the capability for 314, 11kV circuits to be automated, resulting in most customers, not directly affected by a fault, having their supplies restored automatically with 3 minutes of the initial interruption.

Following the October 2002 storms we recognised that network performance can be further improved under these conditions and have initiated a number of related actions to address this. These include the accelerated replacement of low voltage, open wire, overhead lines with bundled, insulated conductors and the replacement of smaller sized, high voltage, overhead line conductors.

Disaggregation and benchmarking

EDF Energy is fully supportive of the disaggregation process and believes it has gone a long way to explaining the differences in performance between High Voltage (HV) circuits with differing network characteristics. While this is the first year this measure has been reported, it has been very transparent in identifying the differences in performance between DNO's for the different circuit types and voltage levels. In the development of the process between Ofgem and the DNO it was identified that there are some differences between DNOs in the interpretation of an HV circuit, therefore, going forward this area needs further investigation.

While EDF Energy are fully supportive of the disaggregation process we do have some concerns that there are a number of other influences that can affect network performance that have not been taken account of and, therefore, through the future development of the process we would support further research in this area.

[15] See footnote on page 13.

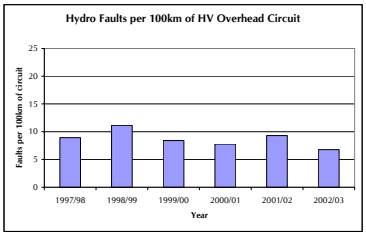
Hydro – Quality of supply and network performance for 2002/03

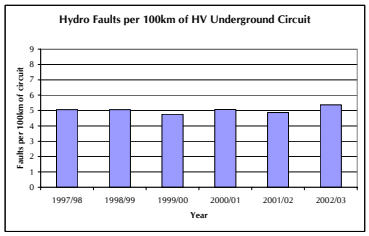
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	119.87	94.56	135.10	135.10
CML	142.10	87.22	195.80	195.80

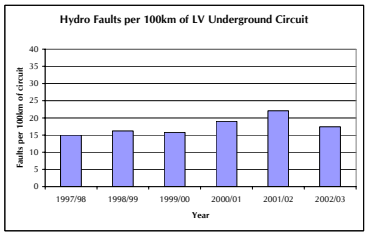
	2002/03 Quality of telephone response performance
Hydro's upper 95% confidence score	4.57
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	0.16
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	83.0	107.6
Unplanned CML	71.5	99.8







Commentary provided by Hydro

Scottish Hydro-Electric Power Distribution [SHEPD] delivers electricity supplies to customers in the north of Scotland, including the Western and Northern Isles, a territory which covers 25% of the UK land mass. The system performance for SHEPD in 2002/3 was the best ever with significant reductions in both the number of interruptions and the duration of those interruptions. This performance has been achieved through three main factors, system investment, reasonably benign weather and effective operating procedures.

We invested £39M during 2002/2003 on our network bringing the total over this price review period to £137M. We continued the extensive refurbishment of our overhead line network with nearly 3,000 km refurbished during the year. This has reduced the number of faults experienced by our customers and improved the resilience of our network. We have continued to install system automation and have significantly reduced the number of customers affected by any particular fault. This technology has also made it possible to restore large numbers of customers more quickly, by remote control.

The weather in 2002/3 was less severe than normal with lightning activity levels lower than in recent years. There were two periods of severe gales in January and February, but the affect on the system was significantly reduced because the storms were not accompanied by snow and line icing.

Our contingency and restoration plans that exist for each of our high voltage circuits worked well. These, coupled with focused staff operating with effective restoration procedures enabled supplies to be restored more quickly when faults did occur.

Disaggregation and benchmarking

We have played an important role in the development of the disaggregation process, but believe it needs further development before it will be able to robustly identify benchmarks. The disaggregation process at HV takes into account some physical network characteristics, but does not consider the exposure of the Scottish networks to severe weather, or the lack of interconnectivity of these remote networks. The benchmarking process and output needs skilled interpretation and understanding, however with more development, the process should be valuable to help inform investment decisions and inter-company comparisons.

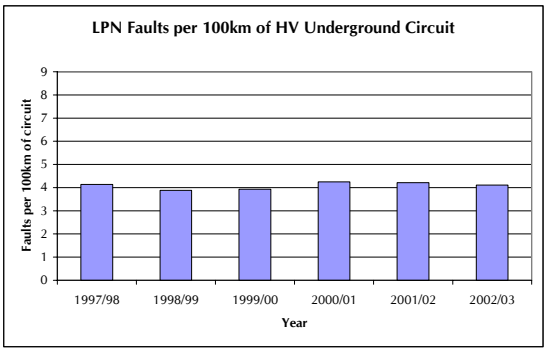
LPN – Quality of supply and network performance for 2002/03

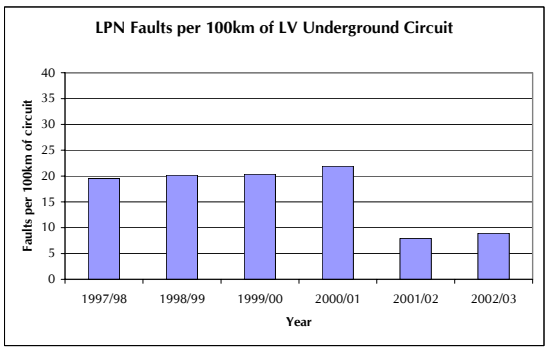
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	38.62	36.44	38.62	31.82
CML	42.28	43.17	45.03	45.03

	2002/03 Quality of telephone response performance
LPN's upper 95% confidence score	3.95
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	-0.23
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	35.1	44.9
Unplanned CML	40.1	42.4





Commentary provided by LPN

We are pleased to report that customers in the LPN distribution area continue to enjoy the most secure electricity supply in the country. Network performance has been stable through 2002/03, with Customer Interruptions (CI) showing a good improvement however Customer Minutes Lost represents a small decline. For the reporting year 2002/03 our reported performance was 36.44 interruptions per 100 connected customers and 43.17 customer minutes lost per connected customer.

Whilst our highly successful, high voltage, automation programme continues to deliver significant benefits to customers in terms of improved CI and CML, we have identified that this can be further improved if communication with remote substations can be enhanced. A project has been set up to investigate alternative communication arrangements, which may be capable of offering improved and cost effective solutions.

Due to the success of our high voltage network performance improvement programme, the Low Voltage network now contributes 50% of the total CML output and considerable effort is being focussed towards gaining improving network performance in this area.

Disaggregation and benchmarking

EDF Energy is fully supportive of the disaggregation process and believes it has gone a long way to explaining the differences in performance between High Voltage (HV) circuits with differing network characteristics. While this is the first year this measure has been reported, it has been very transparent in identifying the differences in performance between DNO's for the different circuit types and voltage levels. In the development of the process between Ofgem and the DNO it was identified that there are some differences between DNOs in the interpretation of an HV circuit, therefore, going forward this area needs further investigation.

While EDF Energy are fully supportive of the disaggregation process we do have some concerns that there are a number of other influences that can affect network performance that have not been taken account of and, therefore, through the future development of the process we would support further research in this area.

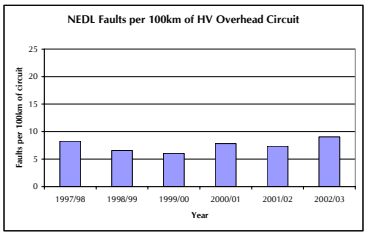
NEDL – Quality of supply and network performance for 2002/03

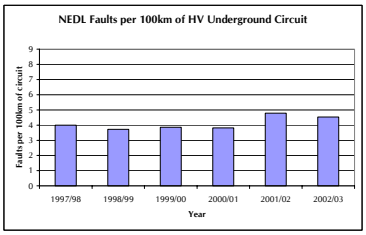
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	83.84	79.04	89.70	89.70
CML	88.05	72.89	96.54	96.54

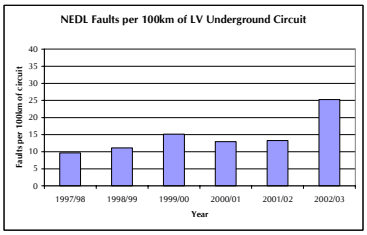
	2002/03 Quality of telephone response performance
NEDL's upper 95% confidence score	4.51
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	0.13
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	74.1	80.2
Unplanned CML	62.3	68.3







Commentary provided by NEDL

The performance of NEDL's network in 2002/3 showed a continuing improvement on the previous year and surpassed the performance targets set by Ofgem for 2004/5.

This excellent result was due to two main reasons, the improvement works previously carried out to enhance performance and the extremely benign weather giving rise to a historically low number of weather related faults.

Following the end of the foot and mouth crisis we were able to recommence work on the overhead line network. In particular, we were able to continue with the refurbishment of the 20 kV lines including those supplying north Northumberland.

Other major investments to improve quality of supply were:

- A new grid supply point to feed the Tyne Valley.
- Reinforcement substations to supply continued industrial/commercial developments in Gateshead, Newcastle and Cramlington
- General reinforcement substations in Northallerton and Boroughbridge.

An action plan for improving the quality and speed of our response to customer queries, and in particular those associated with loss of supply, was implemented during this period. We now pro-actively inform customers of the progress of faults to ensure that they are kept fully informed about when supplies will be restored and the cause of the interruption when known. The resulting improvement in performance is reflected in Ofgem's customer service surveys.

Disaggregation and benchmarking

The company welcomes the introduction of disaggregation as a means of better informing the target setting process. This should result in challenging but realistic targets that companies will be able to deliver in a cost-effective and timely manner.

The present process does not fully take into account all of the inherent and inherited differences in distribution networks that have a real impact on performance. We therefore look forward to working with Ofgem in the coming months to resolve outstanding issues.

The process is useful in accounting for the performance differences between different parts of the network (e.g. rural and urban areas). However, those customers who are located in remote areas generally experience lower levels of reliability due to the extensive nature of the system that supplies them. Notwithstanding the outcome of the disaggregation process, the company remains committed to improving the supplies to such customers.

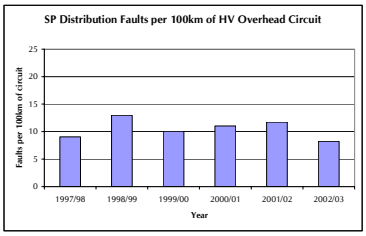
SP Distribution – Quality of supply and network performance for 2002/03

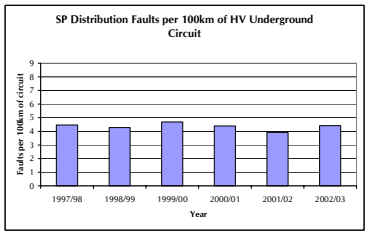
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	59.93	64.99	66.40	66.40
CML	63.75	74.13	87.70	87.70

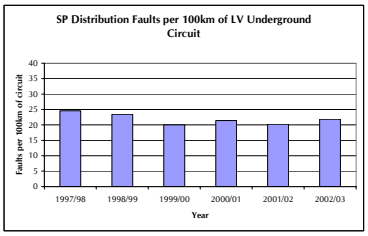
	2002/03 Quality of telephone response performance
SP Distribution's upper 95% confidence score	4.31
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	0.05
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	61.2	63.6
Unplanned CML	65.9	53.9







Commentary provided by SP Distribution

In a number of respects 2002/03 was another good year for SP Distribution. For the second year in succession we are pleased that:

- Our network performed better than the IIP targets set by Ofgem for achievement by 2004/05.
- Ofgem's auditors confirmed that our incident reporting processes achieve the level of accuracy required by Ofgem.

The apparent deterioration in performance between 2001/02 and 2002/03 reflects the typical performance fluctuations that occur from year-to-year and is largely the result of external influences such as changing weather patterns. However we remain confident that the performance of our network continues to reflect the significant investments we have made to improve supply reliability and network resilience in recent years. During 2002/03 this investment continued, notable investments including:

- £4.9m to improve the network in the Borders area following the impact of storms in 1998 and 2001.
- £1.6m to improve protection equipment and install automatic supply restoration facilities.
- £0.7m to improve supplies to our least well served customers.

In addition we spent £47.7m proactively replacing obsolete assets. However despite this ongoing asset replacement the average of age our assets continues to increase. The failure rate graphs show that no adverse trends are currently visible but we remain vigilant since our predictions are that asset failures will increase in future unless we can agree additional funding for accelerated replacement programmes with Ofgem.

In SP Distribution we aim to provide all our customers with high levels of service at all times. We are therefore very pleased to receive a small financial reward in recognition of the quality of telephone service we provide to our customers relative to that provided by other network operators.

Disaggregation and benchmarking

During 2002/03 Ofgem and the industry worked closely to develop a new 'disaggregation and benchmarking' tool to help us understand how companies networks perform relative each other and what opportunities might exist to improve their performance further.

This tool, which attempts to remove the effects of geography and design, is at an early stage and it is not clear that all the relevant influences have been removed. Current results also rely upon the network performance data for just one year, 2002/03, when the UK was affected by a major storm. However, this work is showing some potential and we support its further development.

We are pleased that our current CI is better than the benchmark and as part of the ongoing Distribution Price Review we are developing plans and the associated funding requirements to improve our future CML performance towards the benchmark level.

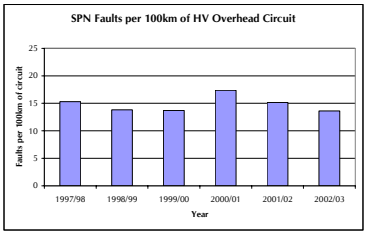
SPN - Quality of supply and network performance for 2002/03

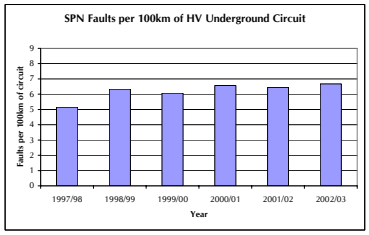
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	93.29	90.42	96.80	96.80
CML	96.65	81.25	96.65	85.17

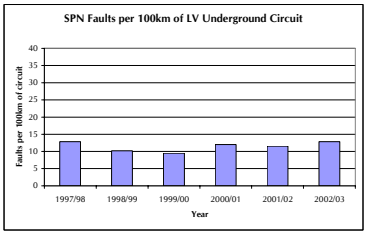
	2002/03 Quality of telephone response performance
SPN's upper 95% confidence score	4.22
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	-0.02
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	85.0	71.6
Unplanned CML	72.9	53.8







Commentary provided by SPN

We are pleased to report for the second year of Ofgem's new IIP reporting procedures that we have seen improvement in our reported network performance in terms of Customer Interruptions (CI) and Customer Minutes Lost (CML), excluding the impact of exceptional events. For the reporting year 2002/03 our reported performance was 90.42 interruptions per 100 connected customers and 81.25 customer minutes lost per connected customer.

We have achieved this through the continued application of our highly successful remote control programme and our overhead line refurbishment programme.

We have also put in considerable effort into improving our response times to faults through a number of initiatives which include vehicle tracking and the issue of pagers to all operational staff. This has resulted in the faster deployment of field based resources and the improved restoration of customer's supply following a fault.

Following the October 2002 storms we identified a number of areas where network performance can be improved under these conditions and have initiated a number of related actions to address this. These include the accelerated replacement of low voltage, open wire, overhead lines with bundled, insulated conductors and the replacement of smaller sized, high voltage, overhead line conductors.

Disaggregation and benchmarking

EDF Energy is fully supportive of the disaggregation process and believes it has gone a long way to explaining the differences in performance between High Voltage (HV) circuits with differing network characteristics. While this is the first year this measure has been reported, it has been very transparent in identifying the differences in performance between DNO's for the different circuit types and voltage levels. In the development of the process between Ofgem and the DNO it was identified that there are some differences between DNOs in the interpretation of an HV circuit, therefore, going forward this area needs further investigation.

While EDF Energy are fully supportive of the disaggregation process we do have some concerns that there are a number of other influences that can affect network performance that have not been taken account of and, therefore, through the future development of the process we would support further research in this area.

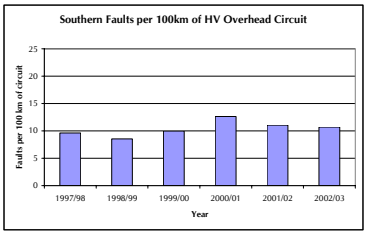
Southern – Quality of supply and network performance for 2002/03

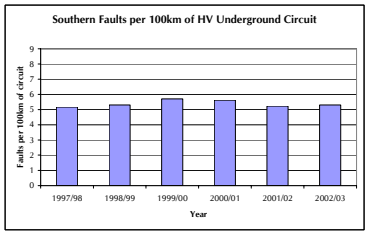
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	99.75	93.23	99.75	93.56
CML	89.70	83.00	100.58	100.58

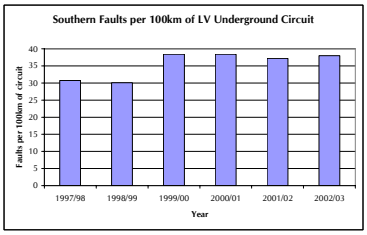
	2002/03 Quality of telephone response performance
Southern's upper 95% confidence score	4.43
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	0.17
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	87.9	79.0
Unplanned CML	73.4	66.3







Commentary provided by Southern

The network and our teams performed well in a year of comparatively benign weather.

There was one major event in the year, when severe weather swept across our territory towards the end of October 2002, with storm force winds in excess of 100mph. We were well prepared, and had already transferred staff from our Scottish territory in advance of the storm. Our emergency plans were effective, and the majority of supplies were restored within the first 24 hours. The DTI identified Southern as a delivering benchmark performance, and no specific improvement actions were placed on our company. Southern has invested significantly in BLX covered conductor technology with almost 30% of the high voltage network now built to this enhanced standard, and the storm event demonstrated the increased resilience of this technology which performed exceptionally well, sustaining only 1% of the total number of faults.

During 2002/2003 we have continued to significantly invest in our network. Over the year we spent £91M on improvements to our overhead lines, underground cables and plant. During the current price review we have now invested £285M which continues to show benefit in reducing customer hours lost and improving our overall network resilience. We refurbished over 2,000km of overhead lines during the year and continued to increase our use of covered conductor on both HV and LV Circuits (BLX and ABC). A high proportion of our network now has the benefit of remotely controlled circuit breakers and switches, which enable significant blocks of customers to be restored more quickly.

Disaggregation and benchmarking

We have played an important role in the development of the disaggregation process, but believe it needs further development before it will be able to robustly identify benchmarks. The process at HV takes into account some physical network characteristics, but does not yet consider tree density, which is a big issue for SEPD. The benchmarking technique at LV does not reveal our excellent response performance on these networks, which is marred by the poorly performing consac cable networks that require considerable expenditure to replace. With further development, the process should be valuable to help inform investment decisions and inter-company comparisons.

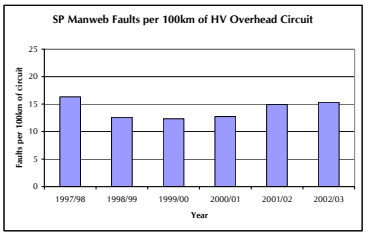
SP Manweb – Quality of supply and network performance 2002/03

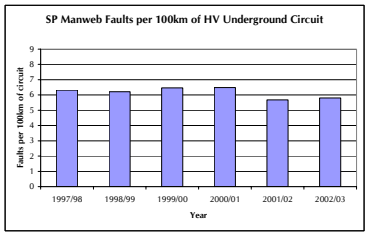
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	47.06	42.55	47.20	47.20
CML	52.51	56.39	65.80	65.80

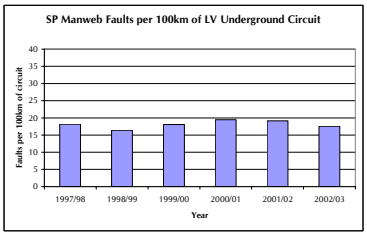
	2002/03 Quality of telephone response performance
SP Manweb's upper 95% confidence score	4.31
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	0.03
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	38.3	65.8
Unplanned CML	44.3	53.0







Commentary provided by SP Manweb

In a number of respects 2002/03 was another good year for SP Manweb. For the second year in succession we are pleased that:

- Our network performed better than the IIP targets set by Ofgem for achievement by 2004/05.
- Ofgem's auditors confirmed that our incident reporting processes achieve the level of accuracy required by Ofgem.

We are also pleased that our continued drive to provide high levels of customer service was also recognised in 2002/03 by us receiving a small financial reward for the quality of telephone service we provide to our customers relative to that provided by other network operators.

Unfortunately our overall performance was adversely affected by a storm on Sunday 27 October 2002 when SP Manweb's area experienced high winds gusting to over 90MPH and heavy rainfall with over 50mm of rain falling within 24-hours in some locations. The result was over 1850 faults on our network with supplies being interrupted to over 100,000 customers. In a report commissioned by the DTI to look at our response to the storm, we were pleased that independent technical experts concluded that:

- *"Overall, the company demonstrated strength in depth in coping with an emergency on this scale."*, and;
- *"Overall, there were no major areas of poor performance in relation to the way the system emergency was managed."*

Disaggregation and benchmarking

During 2002/03 Ofgem and the industry worked closely to develop a new 'disaggregation and benchmarking' tool to help us understand how companies networks perform relative each other and what opportunities might exist to improve their performance further. This tool, which attempts to remove the effects of geography and design, is at an early stage and it is not clear that all the relevant influences have been removed.

Current results also rely upon the network performance data for just one year, 2002/03, when the UK was affected by a major storm. However, this work is showing some potential and we support its further development.

We are pleased that SP Manweb's performance is shown to be significantly better than the benchmark level on both measures. However we do not believe that this means we should stop investing to improve supply reliability, only that future investments should be more targeted towards reducing the differential in supply reliability experienced by worst served customers.

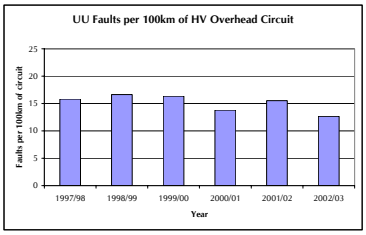
United Utilities – Quality of supply and network performance for 2002/03

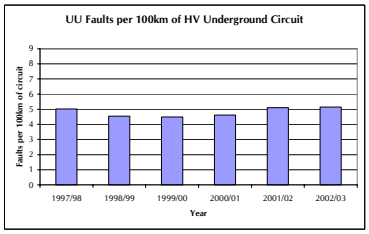
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	56.45	66.48	56.45	54.80
CML	64.41	67.71	68.20	68.20

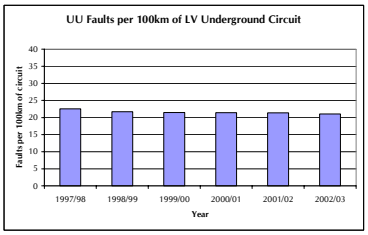
	2002/03 Quality of telephone response performance
United Utilites' upper 95% confidence score	4.26
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	0
CI	-0.53
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	64.3	64.6
Unplanned CML	62.7	55.2







Commentary provided by United Utilities

United Utilities (UU) aims to deliver customer service and network performance beyond the minimum levels set by the regulator and ensure our customers receive a high quality service at a reasonable cost. 2002/03 was an abnormal year for UU network performance, as we suffered an exceptional number of 33kV and 132kV incidents that contributed an additional 14.7 customer interruptions and 5.3 customer minutes lost compared to 2001/02[16]. The underlying performance, excluding these exceptional events continues is 51.78 CIs and 62.41 CMLs, and continues to improve each year.

Telephone response commentary

UU are committed to improving levels of customer service and improvements will be visible, as measured via future surveys. After initial problems with availability and timeliness of the data were resolved, new initiatives were put in place. These included the updating of the fault reporting system to include location names that were meaningful to local residents, and identifying the correct message boxes to update the automated customer information service. Additional training was conducted by experienced customer service personnel to cover areas where knowledge gaps had been highlighted by the survey. To ensure full understanding of the IIP process, a staff incentive scheme was devised related to improving our position in the comparative performance table.

Disaggregation and benchmarking

The disaggregation process is designed to take account of some of the characteristic differences between the DNO networks. No account is taken of the causes of other differences in performance. Examples of these in UU's networks are the comparatively large networks operating at 6.6kV and the extensive use of Consac cable. Networks operating at 6.6kV tend to have shorter circuits connecting lower numbers of customers. The disaggregation process compares those HV circuits only with circuits with similar lengths and customer numbers. However, the disaggregation process takes no account of the comparatively poor performance of Consac cable. These and other differences in characteristics account for the differences between the actual and disaggregated performance figures.

[16] The customer interruptions contribution from the 33kV and 132kV network performance in 2001/02 was 3.7 interruptions per 100 connected customers. The contribution in 2002/03 increased to 18.4 interruptions per 100 customers. The customer minutes lost contribution from the 33kV and 132kV network performance in 2001/02 was 1.8 minutes per connected customer. The contribution in 2002/03 increased to 7.1 minutes per connected customer. In response to this atypical performance, United Utilities has instigated several specific investment programmes designed to restore the 33kV and 132kV network performance to its normal level.

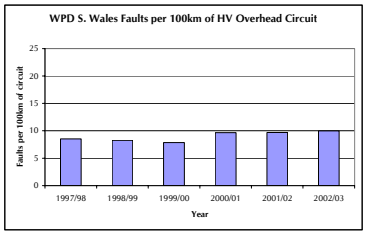
WPD South Wales – Quality of supply and network performance for 2002/03

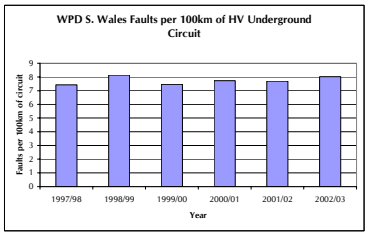
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	120.65	105.30	152.80	152.80
CML	91.75	87.65	129.20	129.20

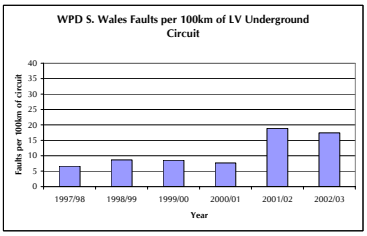
	2002/03 Quality of telephone response performance
WPD South Wales' upper 95% confidence score	4.37
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	0.05
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	86.5	82.8
Unplanned CML	50.6	66.9







Commentary provided by WPD South Wales

Our first three years as owners of the electricity network in South Wales have seen us deliver a significant improvement in network performance. The underlying improvement trend over this period has seen Customer Interruptions fall by 31% and Customer Minutes Lost fall by 28% over the same period.

This trend was continued during 2002/03 and WPD have delivered an excellent performance achieving both the CML and CI target set by Ofgem for 2004/05.

In addition to the figures reported above, 82.4% of customers who reported a high voltage fault were restored within one hour of the fault occurring.

There is one exceptional event to report for the year. In October 2002 the UK was hit by a major storm that resulted in widespread damage to the electricity network. Nine electricity distributors were affected and in total almost two million customers were without their electricity supply across the UK. Western Power Distribution experienced some of the worst of the weather conditions experiencing wind speeds of up to 97mph. In total 400,000 customers were affected, but with pre-planning and constant monitoring of the weather and fault situation, WPD was able to restore over 99% of customers within 18 hours. Following this event, the DTI commissioned an investigation, which cited WPD as a "benchmark company" for its storm performance.

The October storm accounted for over 15% of our reported Customer Minutes Lost from the year. Following consultation with Ofgem, the effect of the storm on performance is excluded from our IIP performance figures.

Disaggregation and benchmarking

WPD supports the benchmarking process and has actively contributed to the joint Ofgem and industry working group. The benchmarking process will enable comparisons of Quality of Supply performance between companies to be undertaken in a fair and consistent way. This will enable appropriate targets to be set. Underperforming companies can be set challenging targets whilst frontier-performing companies can be set less demanding targets.

For the reporting year 2002/03 WPD South Wales achieved a performance that exceeded its benchmark performance for CML and is close to the benchmark performance for CI. Our CML performance was 76% of the benchmark figure and our CI performance was 105% of the benchmark.

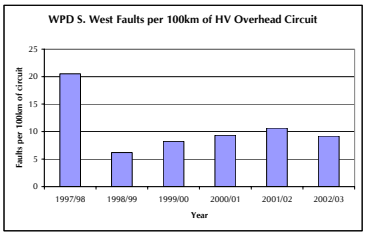
WPD South West – Quality of supply and network performance for 2002/03

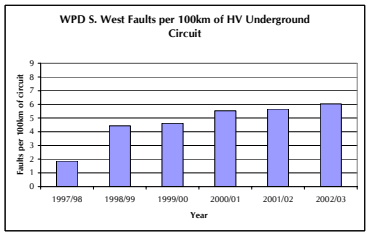
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	103.86	85.47	103.86	80.50
CML	84.54	64.57	84.54	62.60

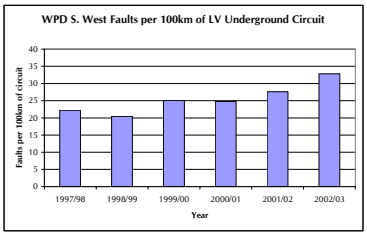
	2002/03 Quality of telephone response performance
WPD South West's upper 95% confidence score	4.46
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	0.11
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	78.6	87.1
Unplanned CML	50.9	71.8







Commentary provided by WPD South West

The performance of the WPD South West network in 2002/03 showed a continued underlying improvement on the previous year and is approaching the performance targets set by Ofgem for 2004/05.

In addition to the figures reported above, 77.3% of customers who reported a high voltage fault were restored within one hour of the fault occurring.

The gap between our current performance and our 2004/05 targets is a significant challenge for the company. Customers in WPD South West have already benefited from large performance improvements over the last five years, demonstrating that WPD South West is a frontier performing company at operating a predominately overhead network in a challenging rural terrain. The work by Ofgem on dissaggregation has identified the severity of the targets for some companies and will allow Ofgem to make comparisons on a more equitable basis.

There is one exceptional event to report for the year. In October 2002 the UK was hit by a major storm that resulted in widespread damage to the electricity network. Nine electricity distributors were affected and in total almost two million customers were without their electricity supply across the UK. Western Power Distribution experienced some of the worst of the weather conditions experiencing wind speeds of up to 97mph. In total 400,000 customers were affected, but with pre-planning and constant monitoring of the weather and fault situation, WPD was able to restore over 99% of customers within 18 hours. Following this event, the DTI commissioned an investigation which cited WPD as a "benchmark company" for its storm performance.

The October storm accounted for over 15% of our reported Customer Minutes Lost for the year. Following consultation with Ofgem, the effect of the storm is excluded from our IIP performance figures.

Disaggregation and benchmarking

WPD supports the benchmarking process and has actively contributed to the joint Ofgem and industry working group. The benchmarking process will enable comparisons of Quality of Supply performance between companies to be undertaken in a fair and consistent way. This will enable appropriate targets to be set. Underperforming companies can be set challenging targets whilst frontier-performing companies can be set less demanding targets.

For the reporting year 2002/03 WPD South West achieved a performance that exceeded its benchmark performance for both CI and CML. Our CI performance was 90% of the benchmark figure and our CML performance was 71% of the benchmark.

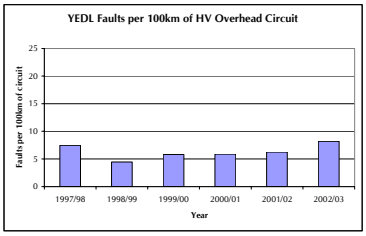
YEDL – Quality of supply and network performance for 2002/03

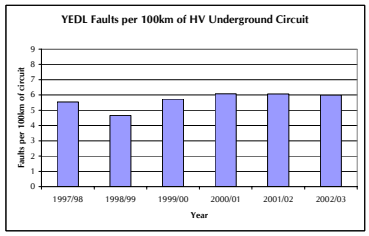
	2001/02 Performance	2002/03 Performance	2002/03 Targets	2004/05 Targets
CI	78.08	63.61	84.82	84.82
CML	54.60	64.03	74.43	66.69

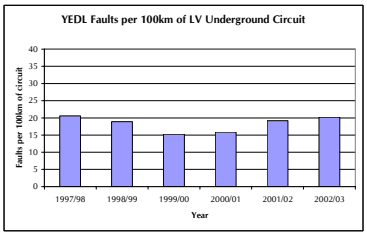
	2002/03 Quality of telephone response performance
YEDL's upper 95% confidence score	4.40
Industry mean	4.25

Net Rewards/Penalties (£million) 2002/03	
Telephony	0.10
CI	0
CML	0

Disaggregation and benchmarking		
	2002/03 Performance	Benchmark
Unplanned CI	61.0	68.5
Unplanned CML	62.8	59.5







Commentary provided by YEDL

The performance of YEDL's network in 2002/3 showed a continuing improvement on the previous year and surpassed the performance targets set by Ofgem for 2004/5.

This excellent result was due to two main reasons, a low number of faults on the 132 kV and EHV network, and the extremely benign weather giving rise to a historically low number of weather related faults.

Following the end of the foot and mouth crisis we have been able to complete our work programmes to improve the protection of rural networks and to replace the most vulnerable overhead lines with much stronger modern constructions.

The main emphasis of the company's investments on quality of supply continues to be on improving lower-performing areas with a target to improve at least 20 HV circuits each year. Areas improved in 2002/3 included Aisby, Appleby, Bempton, Cottingham, Hampole, Hillam, Middleton-on-the-Wolds, Ricall, Stallingborough, West Melton, and Wistow.

An action plan for improving the quality and speed of our response to customer queries, and in particular those associated with loss of supply, was implemented during this period. We now pro-actively inform customers of the progress of faults to ensure that they are kept fully informed about when supplies will be restored and the cause of the interruption when known. The resulting improvement in performance is reflected in Ofgem's customer service surveys.

Disaggregation and benchmarking

The company welcomes the introduction of disaggregation as a means of better informing the target setting process. This should result in challenging but realistic targets that companies will be able to deliver in a cost-effective and timely manner.

The present process does not fully take into account all of the inherent and inherited differences in distribution networks that have a real impact on performance. We therefore look forward to working with Ofgem in the coming months to resolve outstanding issues.

The process is useful in accounting for the performance differences between different parts of the network (e.g. rural and urban areas). However, those customers who are located in remote areas generally experience lower levels of reliability due to the extensive nature of the system that supplies them. Notwithstanding the outcome of the disaggregation process, the company remains committed to improving the supplies to such customers.

Section 4 - Ongoing Work

Over the last few months Ofgem has been carrying out detailed benchmarking analysis to compare performance across DNOs and identify the scope for improvement in their interruption performance.

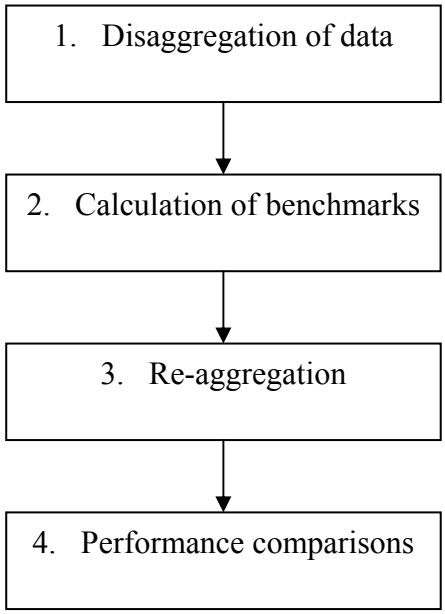
Accent has also been carrying out consumer research on behalf of Ofgem to gain a better understanding of consumers' priorities and their willingness to pay for quality of service improvements.

In light of this work, Ofgem published initial proposals for revised quality of service arrangements in June 2004. These proposals are designed to ensure that DNOs have appropriate incentives for quality of service in both the short and long-term.

APPENDIX 1 - Comparing and Benchmarking Quality of Supply Performance

This section describes the disaggregation process and the methodology Ofgem has adopted to calculate benchmark performance levels for each DNO. The disaggregation process is a four-stage process, this is illustrated in Figure A.1.

Figure A.1 Four-stage disaggregation process



The first step in disaggregation is to consider the four voltage levels within a distribution network (Low Voltage - LV, High Voltage – HV, Extra High Voltage - EHV and 132 kV[17]) separately. The disaggregation process and benchmark calculations are specific to each voltage level and are summarised below.

Low voltage

As DNOs have limited ability to influence the number of power cuts at LV, the initial benchmarks are based on their current levels of performance. However, the benchmarks for the duration of power cuts are based on the assumption that poorer performing DNOs move 75 per cent of the way to the national average duration of interruptions (CML per CI).

High voltage

The HV network has been disaggregated into a number of circuit groups with physically similar characteristics. The bands are defined so that the differences in key characteristics such as the percentage of overhead line, length and the number of connected customers are minimised and that no group is dominated by a single DNO.

[17] A LV system is a system that operates at a nominal voltage level of 1kV or less. A HV system refers to voltage levels above 1kV up to and including 22 kV and EHV refers to voltages greater than 22 kV but below 132 kV. The 132 kV networks are only part of the distribution networks in England and Wales. In Scotland they form part of the transmission network and therefore have not been considered in this analysis.

For each circuit group key physical and performance statistics have been calculated such as:

- average circuit length;
- average customer density (number of customers per circuit);
- average faults per km;
- average number of customers interrupted per fault; and
- average and upper quartile CML per CI.

Ofgem has calculated benchmark levels of performance for each circuit group. The CI benchmark is based on the DNO's own value for average circuit length and customer density, but the national average for fault rates per km and customers interrupted per fault relative to customer density.

The CML benchmark is based on the same approach but using the upper quartile level of performance for the CML per CI.[18]

Extra High Voltage and 132 kV

For EHV and 132 kV circuits there are relatively few incidents each year, which tends to result in volatile performance. In order to address the volatility, the benchmarks are based on each DNOs' average performance over the last ten years.

Aggregation and Comparison

The benchmarks at each voltage level (or band) can be summed to give an aggregate benchmark for each DNO. Actual DNO performance[19] can then be compared with the benchmark as set out in section 3c. This takes into account some of the key inherent and inherited factors affecting DNOs' performance and therefore allows a better understanding of their performance and their scope for improvement.

However, care should be taken in interpreting the results as there are a number of potential factors that may explain the remaining performance gaps. These include factors such as:

- management performance;
- local environmental differences (e.g. tree density);
- other differences in network design; and,
- historic network investment (e.g. some DNOs invested in large volumes of LV Consac cable, which has performed significantly worse than was generally expected).

[18] Actual 2002/3 performance and the benchmarks have been adjusted upwards by 2.6 per cent to account for the October storm period which was excluded from the performance data. In addition an adjustment has been made to CN West's performance for missing data.

[19] The unplanned interruptions data used for the disaggregation and performance comparison analysis excludes performance relating to the period 25 October to 1 November 2002. There are therefore some differences between these figures and the figures used for the purposes of the quality of service incentive scheme.

Further work

As discussed in Section 4, Ofgem has now carried out further disaggregation and benchmarking work using 2003/04 data as part of the price control review. This resulted in very similar performance benchmarks to those based on 2002/03 data, which increases confidence in their robustness.

APPENDIX 2 - Guaranteed and Overall Standards of Performance

Standards of performance are an important element in the regulatory framework and serve to protect the interests of customers in key service areas.

There are two types of standards:

- Guaranteed Standards (GS) set service levels that must be met in each individual case and are established by a series of Statutory Instruments. If the licence holder fails to provide the level of service required, it must make a payment to the customer affected subject to certain exemptions. The exemptions are set out in Appendix 2.
- Overall Standards (OS) require DNOs' average level of performance for particular services to be above a minimum level.

Guaranteed Standards[20] (GS) cover 8 service areas, which are shown in Table A2.1. These standards have been set to guarantee a level of service that it is reasonable to expect companies to deliver in all cases. A customer who does not receive the required level of service is entitled to a compensation payment, subject to certain exemptions. It is for the DNO to consider the application of the standards of performance regulations and decide whether an exemption applies. However, customers may challenge the application of the exemption and refer the issue to Ofgem. In such cases Ofgem decides whether or not the DNO has acted consistently with its legal obligations and whether the customer is due compensation.

Table A2.1 Guaranteed Standards of Performance

Reporting code	Service	Performance Level	Penalty Payment
GS1	Respond to failure of distributors fuse	All DNOs to respond within 3 hours on weekdays (at least) 7 am to 7 pm, and within 4 hours at weekends between (at least 9 am to 5 pm)	£20
GS2*	Restoration of supply following a fault	Supplies must be restored within 18 hours, otherwise a payment must be made	£50 domestic customers £100 non-domestic, plus £25 for each further 12 hours
GS2A*	Multiple Interruptions	Four or more separate interruptions each lasting 3 or more hours in any single year (1 April – 31 March)	£50
GS3	Estimating charges for connection	5 working days for simple jobs and 15 working days for most others	£40
GS4*	Notice of planned interruption to supply	Customers must be given at least 2 days notice	£20 domestic customers £40 non-domestic
GS5	Investigation of voltage complaints	Visit within 7 working days or substantive reply within 5	£20
GS8	Making and keeping appointments	Companies must offer and keep a morning or afternoon appointment, or a timed appointment if requested by the customer	£20
GS9	Notifying customers of payments owed under the standards	Payment to be made within 10 working days	£20

* Customers need to claim under these standards, for the remaining standards payments are automatic

[20] GS6 and GS7 relate to electricity supply businesses and are therefore not shown in this report.

Overall Standards (OS) set the minimum levels of performance that distribution businesses are required to achieve over a 12-month period in specific service areas. A description of these standards is provided in the table below.

There is currently no obligation to make a payment to the customer if a DNO fails to meet an OS. Under SI 3265 (2001) DNOs are required to report on their performance against the Overall Standards. This is a further incentive for DNOs to achieve the required level of performance.

Table A2.2 Overall Standards of Performance

Reporting code	Service	Target level
OS1	Restoration of Supply: Minimum percentage of supplies to be reconnected following faults within 18 hours	99.5%
OS2	Voltage Complaints: Minimum percentage of voltage complaints to be corrected within 6 months	100%
OS3a	New Connections: Minimum percentage of domestic consumers connected within 30 working days	100%
OS3b	New Connections: Minimum percentage of business premises connected within 40 working days	100%
OS4	Correspondence: Minimum percentage of customers letters to be responded to within 10 working days	100%
OS5	Multiple interruptions (from 1 April 2002): Minimum percentage of customers experiencing no more than five interruptions each lasting 3 minutes or more	96% - 99%

Individual DNO targets:

- OS5 – LPN 99%, CN East, EPN, SP Distribution, SPN, Southern, SP Manweb, UU, and YEDL 98%, CN West, Hydro, NEDL, WPD S. Wales and WPD S. West 96%.

APPENDIX 3 - TABLES

Table 3.1
Reported & Revised 2002/03 Customer Interruptions and Customer Minutes Lost

DNO	Reported 2002/03 CIs	Overall accuracy adjustment	Revised 2002/03 CIs		Reported 2002/03 CMLs	Overall accuracy adjustment	Revised 2002/03 CMLs
CN West	115.26	0.00%	115.26		204.17	0.00%	204.17
CN East	90.64	0.00%	90.64		131.60	-2.37%	128.48
EPN	112.11	0.00%	112.11		197.99	0.00%	197.99
Hydro	100.67	0.00%	100.67		88.71	0.00%	88.71
LPN	36.44	0.00%	36.44		43.17	0.00%	43.17
NEDL	85.33	0.00%	85.33		74.95	0.00%	74.95
SP Distribution	68.51	0.00%	68.51		76.20	0.00%	76.20
SPN	94.57	0.00%	94.57		91.61	0.00%	91.61
Southern	102.01	0.00%	102.01		110.42	0.00%	110.42
SP Manweb	51.93	0.00%	51.93		112.12	0.00%	112.12
UU	66.48	0.00%	66.48		67.71	0.00%	67.71
WPD S. Wales	120.72	0.00%	120.72		112.71	0.00%	112.71
WPD S. West	98.69	0.00%	98.69		75.88	0.00%	75.88
YEDL	63.62	0.00%	63.62		68.33	0.00%	68.33
Great Britain			86.24				110.38

Note: Ofgem has made adjustments to the reported figures for CN West, CN East, EPN, SPN, Southern, SP Manweb, WPD South Wales and WPD South West, the adjusted incentive scheme figures are shown in Table 3.5

The figures in this table do not exclude exceptional events

Table 3.2

Short interruptions in 2002/03

Short interruptions by "causes" (including LV)	GB Average	CN West	CN East	EPN	Hydro	LPN	NEDL	SP Distribution	SPN	Southern	SP Manweb	UU	WPD S. Wales	WPD S.West	YEDL
Automatic operation and restored by automatic switching	25,081,290	3,386,254	1,724,732	4,818,866	2,146,819	163,722	673,681	526,702	1,264,018	3,515,939	1,172,055	730,754	1,413,641	2,843,281	771,882
Automatic operation and restored by manual or remote switching	968,493	227,071	57,577	120,086	4,037	21,802	118,416	8,988	121,939	63,480	19,761	-	95,626	31,618	92,187
Manual or remote operation	1,822,919	545,866	683,331	67,790	5,687	127	83,975	96,601	1,700	21,299	24,840	-	63,740	100,828	34,983
Operation of switchgear on other connected systems	242,360	-	880	10,717	146,096	-	-	78,724		-	5,943	-	-	-	-
Total	28,115,062	4,159,191	2,466,520	5,017,459	2,302,639	185,651	876,072	711,015	1,387,657	3,600,718	1,222,599	730,754	1,573,007	2,975,727	899,052
Short interruptions per 100 connected customers															
Automatic operation and restored by automatic switching	90	147	71	142	318	7	45	27	59	129	81	32	133	197	36
Automatic operation and restored by manual or remote switching	3	10	2	4	1	1	8	0	6	2	1	0	9	2	4
Manual or remote operation	7	24	28	2	1	0	6	5	0	1	2	0	6	7	2
Operation of switchgear on other connected systems	1	0	0	0	22	0	0	4	0	0	0	0	0	0	0
Total	101	180	101	148	341	8	58	37	65	132	84	32	148	206	42

Table 3.3

Revised 2002/03 Customer Interruptions & Customer Minutes Lost: Split by Source

Customer numbers 2001/02	CN West 2307275	CN East 2445398	EPN 3386938	Hydro 676005	LPN 2232604	NEDL 1512029	SP Distribution 1933862	SPN 2145958	Southern 2725534	SP Manweb 1452557	UU 2281769	WPD S.Wales 1065530	WPD S. West 1446280	YEDL 2156135		GB Total 27767874
Number																
Unplanned interruptions (000's)	2,495	2,149	3,643	563	786	1,117	1,193	1,944	2,644	687	1,482	1,066	1,321	1,339		22,429
Pre-arranged interruptions (000's)	163	64	69	62	28	78	63	85	95	45	35	198	107	33		1,125
Incidents on National Grid Company or Transmission Companies (000's)	0	0	83	41	0	95	68	0	41	0	0	22	0	0		350
Incidents on embedded generators (000's)	0	0	2	14	0	0	1	0	0	1	0	0	0	0		17
Incidents on any other connected systems (000's)	1	4	0	0	0	0	0	0	0	21	0	0	0	0		26
Total (000's)	**2,659**	**2,217**	**3,797**	**681**	**813**	**1,290**	**1,325**	**2,029**	**2,780**	**754**	**1,517**	**1,286**	**1,427**	**1,372**		**23,948**
CIs	**115.26**	**90.64**	**112.11**	**100.67**	**36.44**	**85.33**	**68.51**	**94.57**	**102.01**	**51.93**	**66.48**	**120.72**	**98.69**	**63.62**		**86.24**
Duration																
Unplanned interruptions (000's)	430,306	298,289	649,074	48,211	89,742	94,062	128,140	180,066	277,372	150,794	144,678	81,021	90,510	138,369		2,800,633
Pre-arranged interruptions (000's)	40,716	15,374	19,326	10,307	6,635	15,805	14,771	16,515	22,996	11,923	9,809	38,743	19,236	8,950		251,104
Incidents on National Grid Company or Transmission Companies (000's)	0	0	2,145	1,120	0	3,461	4,452	0	576	0	5	328	0	0		12,087
Incidents on embedded generators (000's)	0	0	40	328	0	0	4	0	0	42	0	0	0	0		414
Incidents on any other connected systems (000's)	60	513	0	0	0	0	0	0	0	106	0	0	0	4		683
Total (000's)	**471,082**	**314,176**	**670,585**	**59,966**	**96,377**	**113,328**	**147,367**	**196,581**	**300,944**	**162,865**	**154,492**	**120,093**	**109,745**	**147,322**		**3,064,923**
CMLs	**204.17**	**128.48**	**197.99**	**88.71**	**43.17**	**74.95**	**76.20**	**91.61**	**110.42**	**112.12**	**67.71**	**112.71**	**75.88**	**68.33**		**110.38**

Note: Figures may differ slightly due to rounding
Note: Ofgem has made adjustments to the reported figures for CN West, CN East, EPN, Southern, SP Manweb, SPN, WPD S Wales and WPD S West following verification of their exceptional event claims, the adjusted incentive scheme figures are shown in Table 3.5
These figures are unadjusted for exceptional events

Table 3.4

2002/03 Sum of Customers Interrupted & Sum of Customer Minutes Lost: Split by Voltage Level

	CN West	CN East	EPN	Hydro	LPN	NEDL	SP Distribution	SPN	Southern	SP Manweb	UU	WPD S.Wales	WPD S.West	YEDL		GB Total
Customer Numbers	2,307,275	2,445,398	3,386,938	676,005	2,232,604	1,512,029	1,933,862	2,145,958	2,725,534	1,452,557	2,281,769	1,065,530	1,446,280	2,156,135		27,767,874
Sum of number of Customers Interrupted																
132 kV (000's)	166	84	18	0	70	66	0	125	137	0	121	37	107	42		975
EHV (000's)	160	118	460	140	66	115	195	63	295	98	254	15	237	37		2,252
HV (000's)	1,973	1,774	2,899	420	426	823	934	1,680	1,951	534	913	1,082	889	1,024		17,321
LV (000's)	265	219	290	50	203	165	99	117	325	78	196	112	171	203		2,494
LV Services (000's)	94	17	46	15	49	26	27	44	32	22	33	19	23	66		513
Incidents on National Grid Company or Transmission Companies (000's)	0	0	83	41	0	95	68	0	41	0	0	22	0	0		350
Incidents on embedded generators (000's)	0	0	2	14	0	0	1	0	0	1	0	0	0	0		17
Incidents on any other connected systems (000's)	1	4	0	0	0	0	0	0	0	21	0	0	0	0		26
Total (000's)	**2,659**	**2,217**	**3,797**	**681**	**813**	**1,290**	**1,325**	**2,029**	**2,780**	**754**	**1,517**	**1,286**	**1,427**	**1,372**		**23,948**
CIs	**115.26**	**90.64**	**112.11**	**100.67**	**36.44**	**85.33**	**68.51**	**94.57**	**102.01**	**51.93**	**66.48**	**120.72**	**98.69**	**63.62**		**86.24**
Sum of customer minutes lost																
132 kV (000's)	13,632	2,966	646	0	2,237	644	0	3,311	2,636	1	7,532	909	2,238	1,062		37,813
EHV (000's)	27,247	6,337	25,386	10,152	3,282	4,035	8,641	7,144	15,955	8,677	8,571	278	4,745	610		131,062
HV (000's)	353,783	255,708	501,402	40,078	25,550	75,536	112,544	150,055	191,600	122,742	91,210	92,382	68,245	100,994		2,181,830
LV (000's)	63,819	44,954	108,981	6,895	53,606	27,117	17,365	27,320	83,936	25,886	43,249	23,478	31,468	36,404		594,480
LV Services (000's)	12,541	3,698	31,984	1,392	11,701	2,535	4,361	8,751	6,240	5,410	3,924	2,717	3,049	8,248		106,553
Incidents on National Grid Company or Transmission Companies (000's)	0	0	2,145	1,120	0	3,461	4,452	0	576	0	5	328	0	0		12,087
Incidents on embedded generators (000's)	0	0	40	328	0	0	4	0	0	42	0	0	0	0		414
Incidents on any other connected systems (000's)	60	513	0	0	0	0	0	0	0	106	0	0	0	4		683
Total (000's)	**471,082**	**314,176**	**670,585**	**59,966**	**96,377**	**113,328**	**147,367**	**196,581**	**300,944**	**162,865**	**154,492**	**120,093**	**109,745**	**147,322**		**3,064,923**
CMLs	**204.17**	**128.48**	**197.99**	**88.71**	**43.17**	**74.95**	**76.20**	**91.61**	**110.42**	**112.12**	**67.71**	**112.71**	**75.88**	**68.33**		**110.38**

Note: Figures may differ slightly due to rounding
Note: The 132kV network in Scotland forms part of the Transmission system
Note: Ofgem has made adjustments to the reported figures for CN West, CN East, EPN, SPN, Southern, SP Manweb, WPD South Wales and WPD South West, the adjusted incentive scheme figures are shown in Table 3.5
The figures in this table do not exclude exceptional events

Table 3.5

Incentive scheme: 2002/03 Customer Interruptions & Minutes Lost as a Percentage of Respective 2002/03 Targets

DNO	2002/03 CI Target	2002/03 Incentive Scheme CIs	2002/03 Incentive Scheme CIs as % of 2002/03 Target		2002/03 CML Target	2002/03 Incentive Scheme CMLs	2002/03 Incentive Scheme CMLs as a % of 2002/03 Target
CN West*	131.00	103.34	78.9		125.87	137.94	109.59
CN East*	81.30	75.97	93.4		92.73	83.09	89.60
EPN*	102.02	89.40	87.6		82.31	101.62	123.46
Hydro	135.10	94.56	70.0		195.80	87.22	44.55
LPN	38.62	36.44	94.4		45.03	43.17	95.87
NEDL	89.70	79.04	88.1		96.54	72.89	75.50
SP Distribution	66.40	64.99	97.9		87.70	74.13	84.53
SPN*	96.80	90.42	93.4		96.65	81.25	84.07
Southern*	99.75	93.23	93.5		100.58	83.00	82.52
SP Manweb*	47.20	42.55	90.1		65.80	56.39	85.70
UU	56.45	66.48	117.8		68.20	67.71	99.28
WPD S. Wales*	152.80	105.30	68.9		129.20	87.65	67.84
WPD S. West*	103.86	85.47	82.3		84.54	64.57	76.38
YEDL	84.82	63.61	75.0		74.43	68.33	91.80
GB average		77.50				80.87	

*Note: CN West's 2002/03 CI and CML figures were reduced as a result of 1 exceptional event

CN East's 2002/03 CI and CML figures were reduced as a result of 3 exceptional events

EPN's 2002/03 CI and CML figures were reduced as a result of 2 exceptional events

SPN's 2002/03 CI and CML figures were reduced as a result of 1 exceptional event

Southern's 2002/03 CI and CML figures were reduced as a result of 1 exceptional event

SP Manweb's 2002/03 CI and CML figures were reduced as a result of 1 exceptional event

WPD S Wales' 2002/03 CI and CML figures were reduced as a result of 1 exceptional event

WPD S West's 2002/03 CI and CML figures were reduced as a result of 1 exceptional event

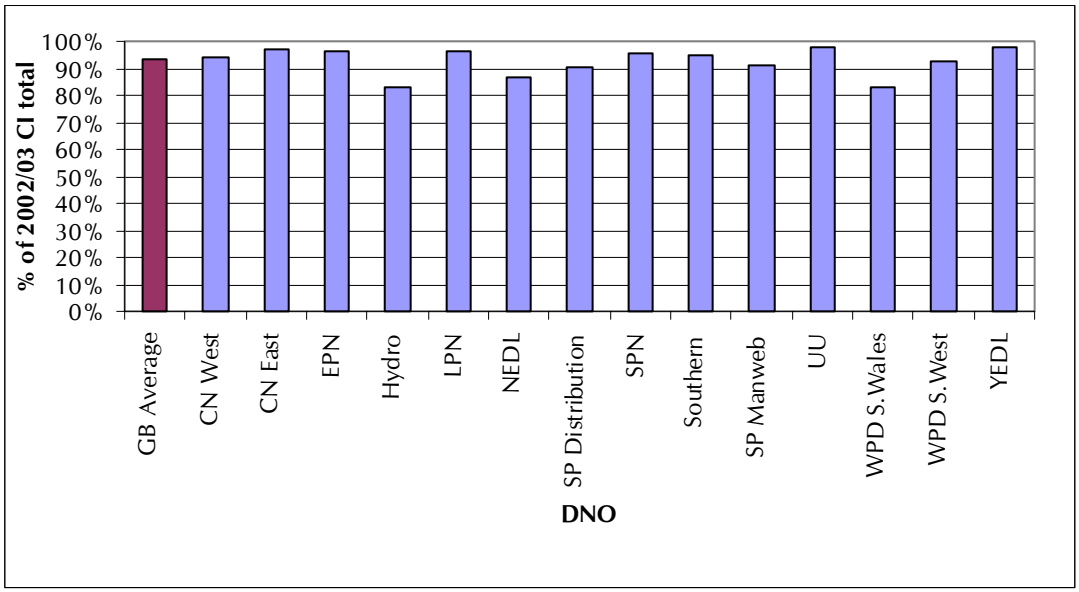
APPENDIX 4

Sources of 2002/03 Customer Interruptions (CIs) and Customer Minutes Lost (CMLs)

The number and duration of interruptions to supply can be broken down into the following five categories:

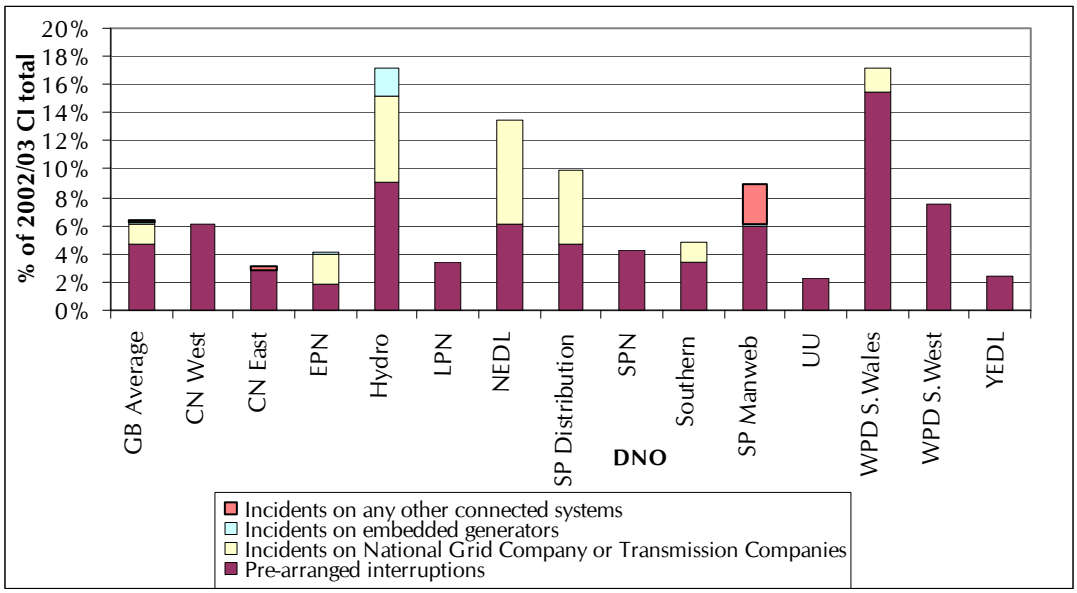
- unplanned interruptions arising on the DNO's own network;
- pre-arranged interruptions on the DNO's network;
- interruptions arising on the National Grid Company's system or the Transmission Companies' systems (in Scotland);
- interruptions arising from generators connected to the distribution network; and
- interruptions on any other connected systems.

Figure 4.1 Proportion of 2002/03 CIs due to Unplanned Interruptions[21]



[21] There are no "correct" proportions of customer interruptions and customer minutes lost across the various sources and improvements in one area will, if all else remains equal, lead to higher proportions being attributed to other sources. Figures 4.1, 4.2, 4.3 and 4.4 should be considered in conjunction with the actual levels of performance shown in Figures 1 and 2.

Figure 4.2 Proportion of 2002/03 CIs by Sources other than Unplanned Interruptions



Figures 4.1 and 4.2 show the sources of interruptions to supply in 2002/03. Unplanned incidents are the most significant cause of interruptions, accounting for over 80 per cent of interruptions for all DNOs and exceeding 90 per cent for 10 DNOs. Unplanned interruptions are caused by many factors, such as;

- failure of equipment;
- lightning hitting lines and damaging equipment;
- high winds blowing over poles and bringing power lines down;
- strikes by large wildfowl; and
- third party activity such as workers accidentally severing power cables.

Planned interruptions relate to the temporary suspension of supply for reasons such as carrying out repairs, maintenance and construction. Customers are required to be given two days notice prior to the start of such work. New industry working practices and techniques, such as "hot-glove" working are reducing the need to interrupt supplies to carry out repairs. Incidents on the National Grid Company or Transmission Companies are generally rare, but due to the voltages involved, when they do occur they affect large numbers of customers.

Figure 4.3 Proportion of 2002/03 CMLs due to Unplanned Interruptions

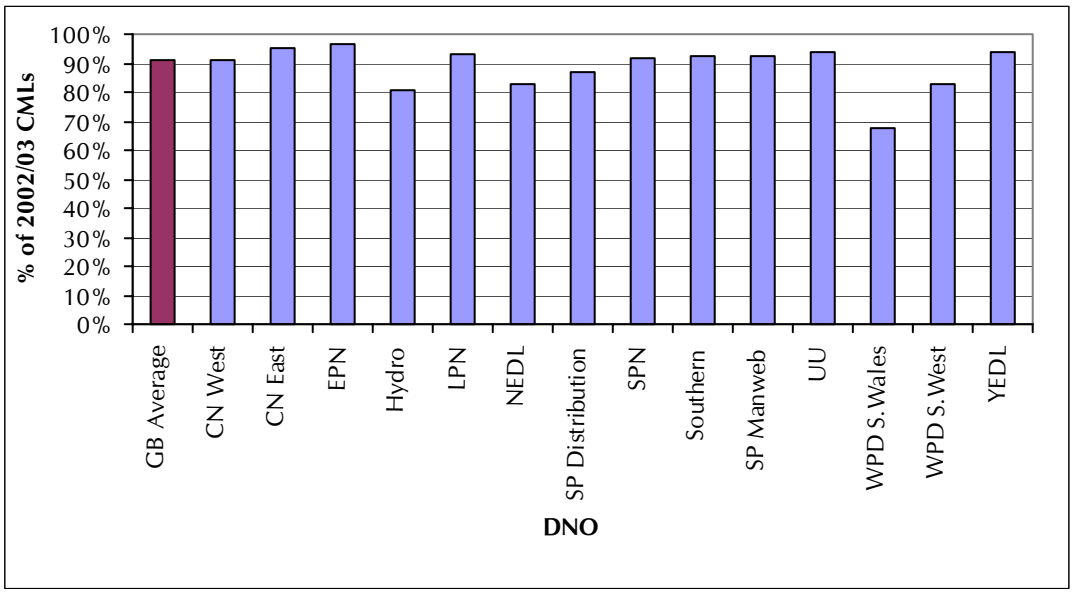
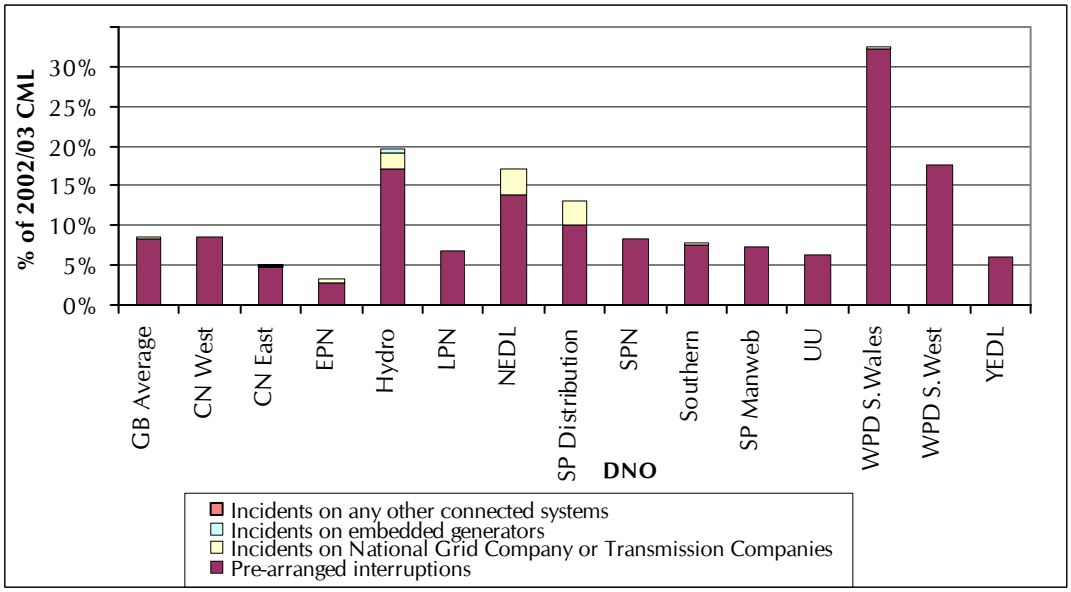


Figure 4.4 Proportion of 2002/03 CMLs by Sources other than Unplanned Interruptions



Figures 4.3 and 4.4 show the proportion of the duration of interruptions to supply in 2002/03 by source. Unplanned interruptions account for the bulk of customer minutes lost, with 9 DNOs having over 90 per cent of their minutes lost being due to this source. Within the remaining categories, planned work can be seen to be more significant in terms of customer minutes lost than it was in terms of customers interrupted.

2002/03 Customer Interruptions (CIs) and Customer Minutes Lost (CMLs): Split by Voltage Level

The number and duration of interruptions can also be disaggregated by the voltage level at which they occurred. The voltage levels are classified as follows:

- 132kV;
- Extra High Voltage (EHV) – voltages greater than 22kV but less than 132kV;
- High Voltage (HV) – voltages from 1kV up to 22kV;
- Low voltage (LV) voltages less than 1kV; and
- LV Services – the service line connecting the electricity main to the distribution company's protection device situated upon the customer's premises.

Figure 4.5 Great Britain Average: 2002/03 Proportion of Customer Interruptions by Voltage

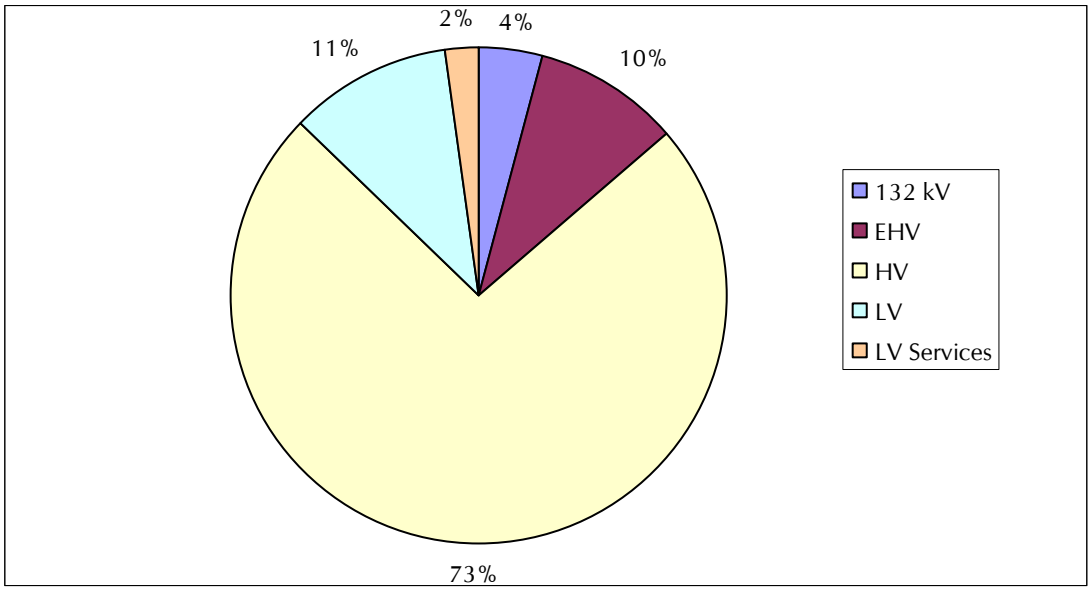
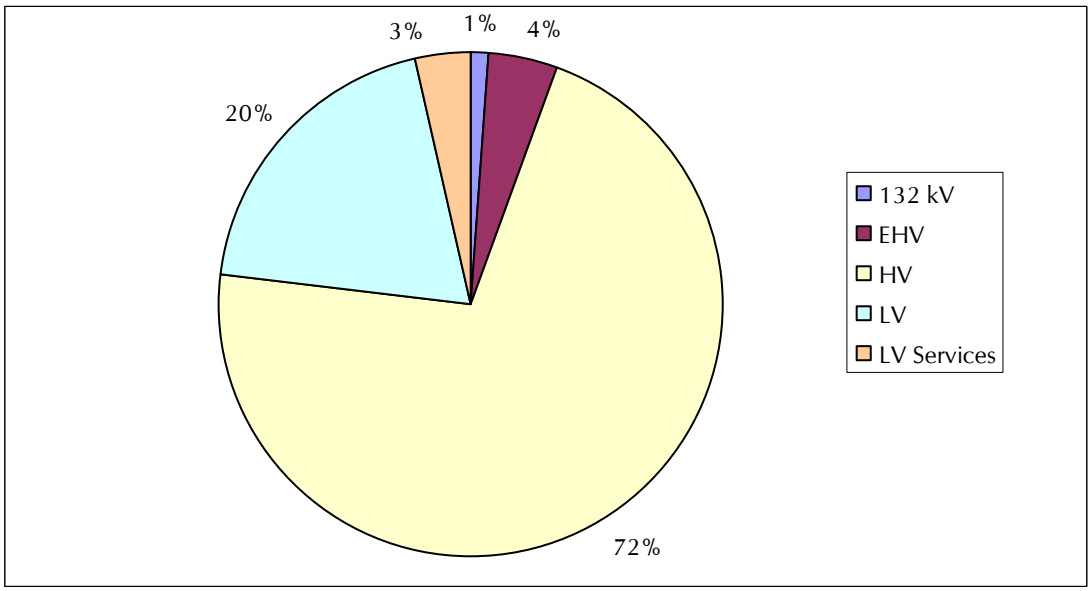


Figure 4.6 Great Britain Average: 2002/03 Proportion of Customer Minutes Lost by Voltage



Figures 4.5 and 4.6 show on a Great Britain basis, the proportion of customer interruptions and customer minutes lost according to the voltage levels at which the faults occurred. As seen in both figures, around 70 per cent of interruptions and minutes lost nationwide were as a result of faults on the HV network. Amongst DNOs this proportion was generally typical, although LPN, with 52 per cent of its interruptions and 26.5 per cent of its minutes lost coming from HV faults, is significantly below this level as nearly its entire HV network is underground.