REVIEW OF THE PRICE CONTROLS FOR NORTHERN IRELAND ELECTRICITY plc

BUSINESS PLAN FOR THE TRANSMISSION AND DISTRIBUTION BUSINESS

CONSULTATION PAPER

MAY 2001

FOREWORD

This consultation paper sets out certain issues relating to the setting of the price control for Northern Ireland Electricity's Transmission and Distribution Business. In setting this price control it is necessary to consider the level of operating costs and capital expenditure that an efficient business might need to incur.

As part of this process NIE has been asked to complete business plan questionnaires for its Transmission and Distribution business. This consultation paper sets out information submitted by the company in response to the business plan questionnaires and includes information on operating costs and capital expenditure over the period from 1996/97 and 1997/98 respectively until 2006/2007. All information in this consultation paper has been provided by the company to enable Ofreg representatives and others to scrutinise their proposals. At this stage Ofreg has taken no view about the appropriateness, or otherwise, of the information, or whether the costs are reasonable.

The implications for prices of NIE's figures is a rise of approximately % in real terms for the use of NIE's networks compared to an average 18% decrease in the last price control in England and Wales. It should also be noted that the information in the NIE Business Plan does not take into account the Scottish Interconnector which will add approximately £124m to NIE's asset base.
The financing and depreciation charge for the Interconnector will be collected in the Use of System Charge and therefore will affect NIE's revenue. With the Interconnector included the increase in the charge for the use of NIE's network is approximately 8.3%.

Chapter 1 contains an overview of the information provided by the company. **Chapter 2** contains summary narratives prepared by the company on actual capital expenditure and operating costs over the period from 1997/98 and 1996/97 respectively to 1999/2000 and its projections for the period from April 2000 to the end of March 2007. It also contains a summary prepared by the company on the quality of supply over the same period.

As the price control review progresses it will be necessary to take an independent view as to the appropriate level of operating costs and capital expenditure. Responses to this consultation paper will help to inform these judgements. Consultants have been appointed to assist with the analysis of the operating costs and capital expenditure. Further information will be published later in consultation papers summarising the results of this analysis.

Views are invited from those with an interest in these issues, including customers, their representatives, and other interested groups as well as the company itself. Responses should be received by Friday May 25 and should be addressed to:

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OVERVIEW

Introduction

1.01 Northern Ireland Electricity plc (NIE) owns and operates the network which transfers the power station output to the customer's premises in Northern Ireland. This network consists of the high voltage transmission system (275kV and 110kv) and the distribution system (below 110kV). Most of the transmission and distribution services provided by NIE's Transmission and Distribution Business (NIE T&D), are not subject to competition with customer's interests protected by regulation and price control.

1.02 The present price control for NIE T&D covers the period from April 1997 to the end of March 2002. This consultation paper contains a summary of information that has been submitted by NIE to Ofreg in determining the new transmission and distribution price control to take effect from the beginning of April 2002. At this stage no view has been taken about the appropriateness or otherwise of the information or whether the costs are reasonable.

1.03 Setting a price control, whatever its precise form, requires an estimate of the revenue that would be sufficient to finance an efficient business. Therefore it is necessary to consider the level of operating costs and capital expenditure, over the period of the control, that an efficient business might need to incur, and the appropriate level of return to shareholders and other providers of capital. Chapter 2 contains extracts from summary narratives prepared by NIE on actual capital expenditure and operating costs over the period from 1997/98 and 1996/97 respectively to 1999/2000 and its projections of capital expenditure and operating costs for the period from 2000/01 to 2006/07.

1.04 Ofreg has appointed consultants to assist with the analysis of costs. The consultants are presently analyzing the business plans and are discussing with the company whether the costs within the plan represent an efficient level.

1.05 Customers are concerned not only with price but also with quality of supply. As part of the review it will be important to understand customers views on this and the extent to which they are prepared to pay higher prices to meet the extra costs that may be associated with improvements in quality levels.

1.06 Ofreg has commissioned research into customer=s perception of NIE and issues relating to the standards of performance required of it and the quality of supply provided by it. The results of this research will be published in a future consultation paper. NIE commissioned a similar customer survey the results of which are referred to in Chapter 2 of this paper which contains a summary extract from information provided by NIE specifically related to the quality of supply provided by the company over the period from 1996/97 to 1999/2000 and projections of the likely performance of NIE=s T&D system with respect to customer minutes lost over the period from 2000/01 to 2006/2007.

Analysis of operating costs and capital expenditure

Operating Costs

1.07 NIE has provided historic and projected levels of operating costs for the period from 1996/97 to 2006/07 for the review of the transmission and distribution business price control and these are shown in Table 1 (All the figures in this and the subsequent Tables in this document are in 1999/2000 prices). This includes the five year period of the existing price control to the end of March 2002 and a possible new five year price control from that date. Total operating costs for the second regulatory period (RP2) from April 1997 to the end of March 2002 amount to £479.1 million and the projected figure for the third regulatory period (RP3) from April 2002 to the end of March 2007 is £528 million. Thus NIE projects total operating expenditure for RP3 for NIE T&D to be in real terms 10% above that for RP2.

1.08 The breakdown of operating costs into its constituent elements including depreciation, rates and insurance is shown in Table 2. The accounting treatment of depreciation and the projected level of rates influence the overall level of operating costs. The removal of depreciation and rates from the operating costs show the underlying costs for operating the transmission and distribution business as projected by the company.

1.09 The company's projected level of total depreciation for 1996/97 to 2006/07 is shown in Table 3. It is the summation of depreciation on the network and metering depreciation as shown in Table 2. In RP2 network depreciation amounts to £78.6 million, while in RP3 NIE projected figures show network depreciation increasing to £129.9 million, an increase of over 65 per cent. Metering depreciation at £15.7million is forecast to remain unchanged for RP3 from RP2. As the projected level of total depreciation is dominated by network depreciation the projected increase in total depreciation at 54% broadly reflects that in network depreciation.

1.10 The company's projected level of operating cost less total depreciation for 1996/97 to 2006/07 is shown in Table 4. It shows a projected marginal real decrease in total operating cost less total depreciation for RP3 relative to that incurred in RP2 of 0.6%.

1.11 The company's projected level of operating costs less depreciation and rates for 1996/97 to 2006/07 is shown in Table 5. NIE projects rates for RP3 to be in real terms 11% above the figure for RP2. It also projects a decrease in total operating cost less depreciation and rates for RP3 relative to the equivalent figure for RP2. The decrease from £347m to £340m represents a reduction of 2%.

Capital Expenditure

1.12 NIE has provided historic and projected levels of gross capital expenditures from 1997/98 to 2006/07 for the review of the transmission and distribution price control and these are shown in Table 6. This period includes that of the existing five year price control to the end of March 2002 and the new five year price control from April 2002. Table 6 shows that NIE projects a real decrease of 9% in gross capital expenditure for RP3 relative to the equivalent figure for RP2.

Table 1
NIE Transmission & Distribution Business
Operating costs

	1996/97 £m	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
Operating costs	139.5	87.5	102.8	92.9	94	101.9	479.1	102.1	104.4	106.3	108	107.2	528

(1999/2000 prices)

Table 2
NIE Transmission & Distribution Business
Operating costs by Function

	1996/97 £m	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m
Network Repairs & maintenance	17.4	12	13.4	13.7	13.5	13.4	13.4	13.4	13.4	13.4	13.4
Network services	0.8	4	4.3	9.6	9.7	9.5	9.3	9.2	9.1	9.1	9
Networks	9.5	5.2	5.2	7.3	7.4	7.2	7	7	6.9	6.9	6.8
Customer Services	24.1	18.2	19	20.4	20.6	20.1	19.7	19.6	19.4	19.3	19.1
Other	6.1	10.4	8.2	6	6.4	6.2	6.1	6	6	5.9	5.9
Advertising and marketing	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Corporate overheads	12.8	10	11	5.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Rates on the T&D system	5.2	7.2	7.3	7.6	7.8	7.9	8.1	8.3	8.4	8.6	8.7
Network Depreciation	14.9	12.5	13.5	15.1	17.4	20.1	22.1	24.6	26.8	28	28.4
Metering depreciation	3.1	3.1	3.1	3.2	3.2	3.1	3.3	3.2	3.2	3.1	2.9
Wayleaves	4.4	2.5	2.6	2.7	2.9	2.9	3	3.1	3.1	3.2	3.2
Insurance	2.6	2.2	2.4	2.5	2.9	3.1	2.9	2.8	2.8	2.8	2.8
Supply chain			3.6	3.3	3.7	3.6	3.5	3.4	3.3	3.2	3.2
Exceptional costs	38.4		9.1	-3.8	-4.8					1.3	0.4
Total operating cost	139.5	87.5	102.8	92.9	94	101.9	102.1	104.4	106.3	108	107.2

(1999/2000 prices)

Table 3
NIE Transmission & Distribution Business
Depreciation

	1996/97 £m	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
Depreciation	18	15.6	16.6	18.3	20.6	23.2	94.3	25.4	27.8	30	31.1	31.3	145.6

(1999/2000 prices)

Table 4
NIE Transmission & Distribution Business
Operating Costs excluding depreciation

	1996/97 £m	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
Operating costs excluding depreciation	121.5	71.9	86.2	74.6	73.4	78.7	384.8	76.7	76.6	76.3	76.9	75.9	382.4

(1999/2000 prices)

Table 5
NIE Transmission & Distribution Business
Operating costs less depreciation and rates

	1996/97 £m	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
Operating costs excluding depreciation and rates	116	65	79	67	66	71	347	69	68	68	68	67	340

(1999/2000 prices)

1.13 Table 6 also shows the breakdown of gross capital expenditure into its constituent components of transmission, distribution, network additional expenditure and non-network expenditure. It indicates that NIE projects real decreases of 9%, 7% and 30% in transmission, distribution and network additional capital expenditure respectively for the five years from April 2002 relative to the average during the five years preceding April 2002. It also indicates a projected increase of 140% in the average annual non-network capital expenditure for RP3 over that for RP2. The movement in network and non-network capital expenditure is summarised in Table 7.

1.14 Capital expenditures on transmission and distribution networks can be split between that required to expand the system to accommodate new customers (new business) or to cater for the incremental increase in demand for existing and new customers (load-related expenditure), and that required to replace existing network assets (asset replacement expenditure). In addition the transmission and distribution business may incur expenditure for other network assets such as metering and for other non-network assets. The various constituent components referred to above that form the gross capital transmission and distribution expenditures in Table 1 are shown in Tables 8, 9,10 and 11 respectively.

1.15 Table 8 indicates that NIE estimates that transmission load related expenditure for the five years from April 2002 relative to that for the preceding five years will decrease by 44%. As regards transmission asset replacement expenditure Table 8 indicates a projected increase in RP3 of 89% compared to the equivalent figure for RP2.

1.16 Table 9 indicates that NIE envisages distribution load related expenditure for the five years from April 2002 relative to that for preceding five years decreasing by 8% and the non-load related component decreasing by 4%. It also indicates that the new business element of distribution capital expenditure is projected to be 15% lower for RP3 than for RP2.

1.17 Network additional capital expenditure is broken down into its constituent parts of metering, distribution control centre, SCADA (supervisory control and data acquisition) and network IT in Table 10. This shows that NIE projects that the total level of metering expenditure for the five years from April 2002 will show a decrease in real terms of 31% over that for the preceding five years. It also shows that network IT expenditure for the five years from April 2002 will be 81% less than that incurred over the preceding five years.

1.18 Table 11 shows that non network expenditure is similarly dominated by IT expenditure. It indicates that NIE estimates that non network IT expenditure for RP3 will show an increase of 215% over the corresponding figure for RP2.

1.19 When a new customer is connected to the network or an existing customer wishes to upgrade their connection the company makes connection charges to these customers. NIE has asked the Director General to approve a change to its connection charge policy and this is currently under review. These charges can be treated as a capital receipt and be netted off the gross capital expenditure to form the net capital expenditure. The existing price control was set on the basis of funding net capital expenditure. Customer

Table 6
NIE Transmission & Distribution Business
Gross Capital Expenditure

	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
Transmission	9.5	10.7	6	10.7	19	**55.9**	17.8	9.8	5.3	13	4.6	**50.6**
Distribution	42.4	42.4	56.6	55.4	51.5	**248.3**	49.6	48.1	47	43	42.9	**230.5**
Network Additional Expenditure	10.2	11.2	19.4	16.9	14.9	**72.7**	11.2	11	9.9	9.7	8.9	**50.6**
Non-network Expenditure	0.8	0.9	3.4	2	1.3	**8.4**	5.3	5.3	3.7	2.7	3.1	**20.2**
Gross capital expenditure	**63**	**65.3**	**85.5**	**84.9**	**86.7**	**385.3**	**83.8**	**74.3**	**66**	**68.4**	**59.4**	**351.9**

(1999/2000 prices)

Table 7
NIE Transmission & Distribution Business
Network and Non-Network Capital Expenditure

	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
Network Expenditure	62.2	64.4	82.1	82.9	85.4	**376.9**	78.5	69	62.3	65.7	56.3	**331.7**
Non-network Expenditure	0.8	0.9	3.4	2	1.3	**8.4**	5.3	5.3	3.7	2.7	3.1	**20.2**
Gross capital expenditure	**63**	**65.3**	**85.5**	**84.9**	**86.7**	**385.3**	**83.8**	**74.3**	**66**	**68.4**	**59.4**	**351.9**

(1999/2000 prices)

Table 8
NIE Transmission & Distribution Business
Transmission Capital Expenditure

	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
Interconnector				1.5	1.8	**3.3**						
Load Related	8.2	7.8	2.9	6	11.9	**36.7**	10.6	1.9	2.3	4.1	1.7	**20.6**
Asset Replacement	1.3	2.9	3.1	3.3	5.3	**15.9**	7.2	8	3	9	2.9	**30**
Total	9.5	10.7	6	10.7	19	**55.9**	17.8	9.8	5.3	13	4.6	**50.6**

(1999/2000 prices)

Table 9
NIE Transmission & Distribution Business
Distribution Capital Expenditure

	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
New Business	11.5	13.4	11.7	11.6	10.9	**59.2**	10.5	9.9	10	10	10.1	**50.5**
Load Related	10.7	9.3	6.9	9.5	10.8	**47.3**	9.9	11.9	8.4	6.5	6.9	**43.7**
Non load related:												
Line refurbishment	9.9	10.5	23.2	22.5	20.0	**86.1**						
Network Improvement	5.2	3.8	6.8	6.4	5.0	**27.2**						
Other Asset Replacement	5.1	5.4	8.1	5.4	4.7	**28.7**	29.2	26.2	28.6	26.5	25.9	**136.4**
Total	42.4	42.4	56.6	55.4	51.5	**248.3**	49.6	48.1	47	43	42.9	**230.5**

(1999/2000 prices)

Table 10
NIE Transmission & Distribution Business
Network Additional Capital Expenditure

	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
Metering	3.1	2.4	2.7	3.4	4.6	**16.2**	2.4	2.3	2.2	2.2	2.1	**11.1**
DCC/SCADA	0.5	0.4	0.3	0.3	0	**1.5**						
Network IT	0.2	2.3	8.4	5.2	2.3	**18.4**	1	1.2	0.6	0.6	0.2	**3.5**
On-Costs	6.5	6.2	8	8	8	**36.6**	7.8	7.5	7.2	6.9	6.6	**36**
Total	10.2	11.2	19.4	16.9	14.9	**72.7**	11.1	11	9.9	9.7	8.9	**50.6**

(1999/2000 prices)

Table 11
NIE Transmission & Distribution Business
Non- Network Capital Expenditure

	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
IT	0.3	0.6	2.4	1.3	0.4	**5**	4.3	4.5	2.7	1.9	2.3	**15.8**
Other	0.5	0.3	1	0.7	0.9	**3.4**	1	0.8	1	0.8	0.8	**4.4**
Total	0.8	0.9	3.4	2	1.3	**8.4**	5.3	5.3	3.7	2.7	3.1	**20.2**

(1999/2000 prices)

contributions and net capital expenditures (namely gross capital expenditure less customer contributions) are shown in Table 12. A comparison of the level of customer contributions for RP2 and RP3 shows a projected 17% decrease in real terms for RP3 over RP2. NIE also projects a real decrease in net capital expenditure for RP3 relative to that for RP2 of 7.5%.

Quality of Service

1.20 Performance characteristics, which relate to the quality of service provided by NIE to its customers fall under two main headings: customer care and quality of supply.

Customer care

1.21 Customer care is concerned with the delivery of specific services, especially with the time taken by NIE to respond to or take action in a variety of circumstances such as responding to billing enquiries, the replacement of the main fuse after a failure and giving adequate notice of planned outages. It also covers the handling of complaints and appointments. Although the majority of these services are the sole responsibility of NIE's Supply Business some are the responsibility of NIE T&D and a few cover both NIE Supply and NIE T&D. Time-based criteria concerning customer care performance form the basis of most of the Guaranteed and Overall Standards, which are set by the Director General after consultation with NIE and others.

Quality of Supply

1.22 The performance characteristics under the quality of supply heading are concerned with the physical performance of the system and are principally the concern of NIE T&D. They include the frequency and duration of interruptions in supply to customers and variations in voltage and electrical frequency. These aspects are of particular interest to industrial consumers but, with the increasing proliferation and sophistication of electrically operated equipment in the home, they are also of increasing importance to the domestic customer.

1.23 In a broad sense then the quality of supply to a customer reflects the extent to which the electrical flows through the network are uninterrupted. The quality of supply is influenced by a number of factors which include the geography of the areas where the customers are located and the prevailing weather conditions. The level of quality of supply attained by NIE is also influenced by the operating practices and capital expenditure programme of the transmission and distribution business.

1.24 Whilst there are no mandatory standards covering quality of supply, the Director General requires NIE to provide certain information on the performance of its T&D network to be reported to him annually under Condition 19 Part II of NIE's Licence. The quality of supply for NIE's Transmission and Distribution Business was briefly discussed in Ofreg's recent consultation paper entitled 'Asset Accumulation and its effect on the Transmission and Distribution Price Control' (November 2000).

1.25 The relevant measures of quality of supply reported by NIE to the Director General include: availability, measured in terms of customer minutes lost (CMLs), security measured by customer interruptions per 100 connected customers, voltage measured by verified voltage complaints per 10,000 connected customers and overall reliability measured in terms of number of faults per 100 km of distribution system (mains only).

Table 12
NIE Transmission & Distribution Business
Net Capital Expenditure

	1997/98 £m	1998/99 £m	1999/2000 £m	2000/01 £m	2001/02 £m	RP2 TOTAL £m	2002/03 £m	2003/04 £m	2004/05 £m	2005/06 £m	2006/07 £m	RP3 TOTAL £m
Gross Capital Expenditure	63	65.3	85.5	84.9	86.7	**385**	83.8	74.3	66	68.4	59.4	**351.9**
Less Customer Contributions	10	11.5	9.4	9.4	8.7	**49**	8.6	8.3	8.1	8	7.9	**40.8**
Net Capital Expenditure	52.9	53.8	76.1	75.5	78	**336**	75.3	66	57.8	60.4	51.5	**311**

(1999/2000 prices)

1.26 While there are no standards for these aspects of performance currently laid down by the Director General, the results of the monitoring are used as comparators by both NIE and the Director General and form the basis of discussions on quality of supply performance between them.

Quality of Supply Performance

1.27 In 1995 as part of the previous price control submissions (for RP2 from April 1997 to end of March 2002) NIE recognised that the level of performance of NIE's transmission and distribution network compared unfavourably with the equivalent levels achieved by the Public Electricity Suppliers (PESs) in Great Britain. The divergence from the GB average is evident from Figures A[1] and B which compares CMLs and customer interruptions per 100 connected customers between 1990/91 and 1999/2000 for NIE and the PESs.

1.28 As a result of this divergence NIE stated that it had set target levels for performance improvement. These targets were quoted as an improvement of 33 per cent in security of supply, 49 per cent in availability and 8 per cent in overall reliability, compared with performance in 1994/95, by the year 2002/03. In its evidence to the MMC NIE said that it aimed to improve its overall CML performance in line with its estimates of the projected improvement of what it viewed as the comparator PESs (SWALEC, SWEB and SHE). NIE estimated that in terms of CMLs, the measure of availability, this would mean achieving an average CML of 107 for the distribution network by 2002/03 (117 by 2001/02 - the end of the current regulatory period (RP2)). A further three minutes would be added to CML because of transmission faults.

1.29 The level of CML is not uniform throughout NIE's network. In urban areas where distribution lines are largely underground and the population relatively dense, the CML figure is low, while in wholly rural areas which have overhead distribution lines and a sparse population the CML figure tends to be higher. The large improvement in CML envisaged by NIE depended primarily on reducing the CML in rural areas through significant capital expenditure principally on refurbishment or replacement of the 11 kV network together with an appropriate level of repair and maintenance work.

1.30 Indeed in its submission to the MMC NIE stated that indicative measures of availability improvement (ie reduced CMLs) were related to the length of 11kV line refurbished each year. NIE proposed to the MMC that the refurbishment programme should continue during the second regulatory period at a rate of 1750km/year. In setting the new price control, the MMC adopted a slightly lower rate of 1500km/year and considered this would be consistent with achieving a performance in the range of 120 – 140 CML by the end of RP2 (March 2002).

1.31 According to NIE by March 2000 the network availability index was 202 CML which was largely unchanged from that prevailing at the start of RP2. NIE states in its business plan that this '...is associated with fault CML and is considered to be due to the underestimation of the extent of incremental network deterioration implied in NIE's 1996

[1] The figure for 1998/99 has been adjusted to exclude the impact of the 1998 Boxing Day Storm and its aftermath (the actual CML figure for 1998/99 was 414).

Figure A
Customer Minutes Lost (CML) for Recs and NIE

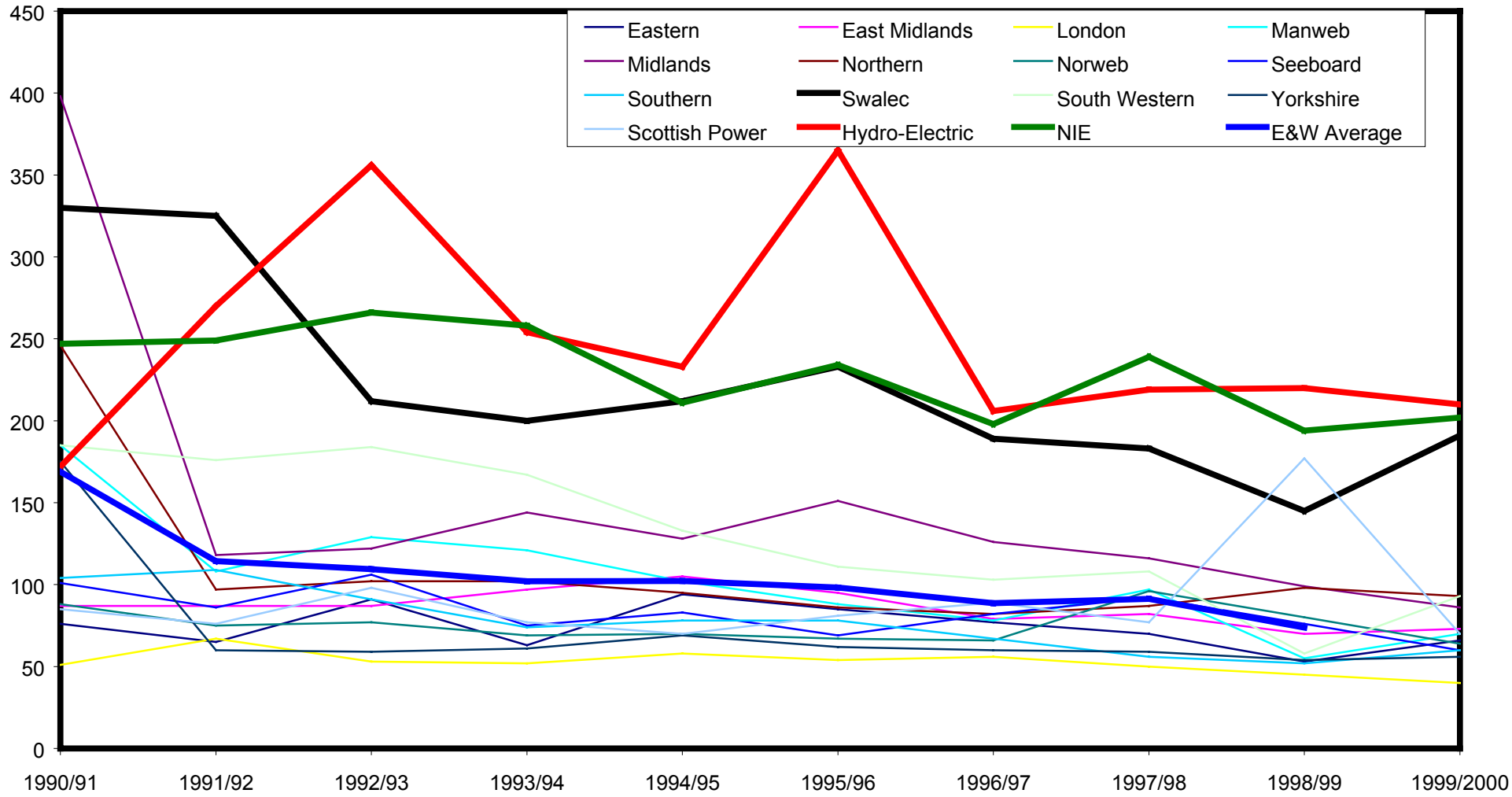
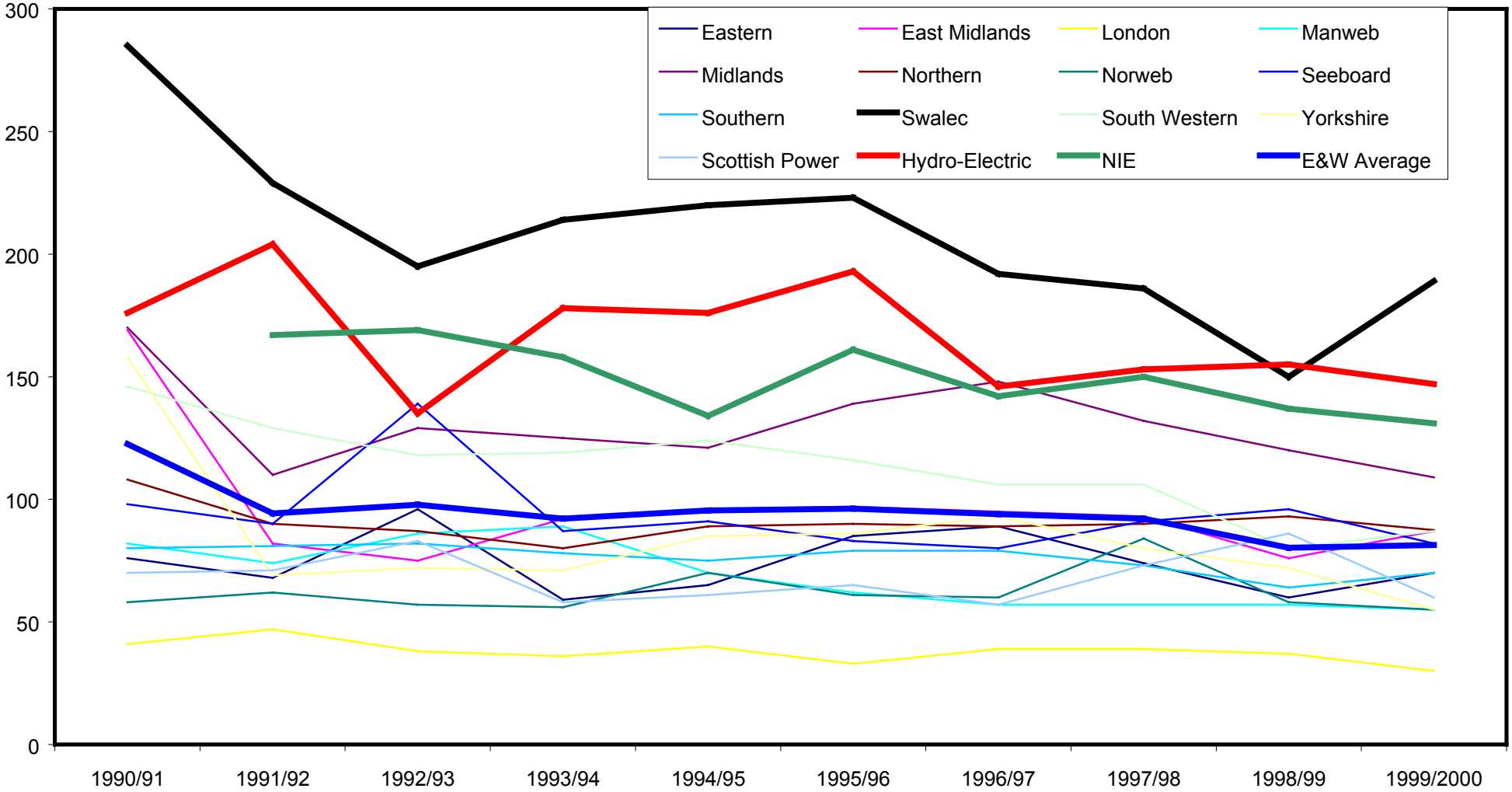


Figure B
Security of Supply: Interruptions per 100 Customers



forecasts to the MMC'. NIE argues that the MMC's target which was based on an assumed improvement rate of 0.55 CML/100 km of line refurbished now appears optimistic and that the underlying deterioration of the network indicates that an improvement rate of 0.4 CML/100 km is a more realistic figure.

1.32 NIE also states that its pre-arranged availability index (customer minutes lost as a result of pre-arranged as opposed to fault outages) has been adversely affected to the point of diverging from the improving trend among the GB companies by the extent of the line refurbishment programme undertaken by NIE in response to the extensive damage to the network caused by the storm on 26 December 1998. On that date the Northern Ireland electricity network was subjected to hurricane conditions, which were the worst in 70 years. NIE subsequently accelerated the distribution network refurbishment programme for the remainder of the second regulatory period in an attempt to improve the resilience of the network to the effects of future severe storms as well as improving average network performance.

1.33 NIE projects total CMLs to reduce to 144 by March 2002 (the end of RP2). This is marginally outside the upper end of the target range set by the MMC of 120 -140CMLs. NIE states that this will be made up of a reduction in fault CMLs from 100CML(March 2000) to 74 CML by March 2002. This reduction will be achieved from the accelerated refurbishment programme and other performance initiatives. NIE has also set targets to reduce pre-arranged CML from 102 CML (March 2000) to 70CML by March 2002, mainly by increased deployment of mobile generation and live-line working methods.

1.34 In its transmission and distribution business plan for RP3 NIE was asked by Ofreg to calculate its projections of capital and operating expenditure for the third regulatory period on the basis of maintaining the existing quality of supply into the future. This was based on the view that it is not clear that customers would be willing to pay more for an enhanced quality of supply. NIE states in its business plan that a survey it has undertaken shows that 79% of customers would not wish to sacrifice investment, and quality of service for a decrease in their bills. Ofreg has commissioned a separate customer survey into customer's perception of NIE and the quality of supply provided by it. The findings of this customer survey will be published in a separate consultation paper on NIE's quality of supply.

1.35 In line with Ofreg's request NIE has stated that 'the capital investment plan for the third regulatory period is based on the minimum level of expenditure consistent with preventing deterioration of network performance during the period'. In particular NIE envisages the overhead line refurbishment programme being reduced to a level consistent with offsetting incremental deterioration on the remainder of the network. NIE states however in its business plan that some additional performance benefit will follow from investments made during the second regulatory period and non-capex related improvements will also contribute to incremental improvements in fault availability and that the refurbishment of individual circuits will continue to improve the quality of supply for customers connected to those circuits. NIE concludes that it would be appropriate to set a performance improvement target of 33 CML for the third regulatory period comprising 20 fault CML and 13 PA CML but argues that in the context of capital investment constraints during the third regulatory period, the proposed target, which is equivalent to a reduction of over 20% during the period is considered challenging.

NIE's Narrative

Introduction

2.01 This narrative has been extracted from that provided by NIE as part of the price control review of NIE's Transmission and Distribution Business (T&D). It provides an overview of the factors that influenced and those that will influence the level and trend of transmission and distribution operating and capital expenditure during the second and third regulatory periods respectively.

Summary of Capital Expenditure over the second Regulatory period (RP2)

Investment level

2.02 The investment plan for RP2 shows a level of expenditure of £336.3m (net of customer contribution). This compares with the level of capex allocated by the MMC[2] for the period of £335.6m (MMC outcome of £310m indexed to October '99 price base) as outlined in Table 13.

Table 13
Comparison between Current Investment Plan and MMC allowances

	Plan ,m	**MMC ,m**
Transmission	**55.9**	**72.5**
Distribution:		
Load related	106.4	119.1
Non load related	141.9	125.8
Distribution sub total	**248.3**	**244.9**
Metering	36.1	29.0
Other	8.4	4.3
On-Costs	36.6	28.2
Gross capex	**385.3**	**378.9**
Contributions	-49	-43.3
Net capex	**336.3**	**335.6**

Transmission Investments and Outputs

2.03 Total capital investment planned for the transmission network (for RP2) amounts to

[2]MMC, March 1997,'Northern Ireland Electricity plc. A report on a reference under Article 15 of the Electricity (Northern Ireland) Order 1992.

£55.9m comprising load related expenditure of £36.7m, asset replacement expenditure of £15.9m, and expenditure of £3.3m to upgrade North/South interconnection.

2.04 The main deliverable from the load related investment is network infrastructure development and reinforcement to secure supplies to customers against anticipated load growth of 166 MW. This investment will eliminate documented weaknesses on the 110kV network and will enable the establishment of additional bulk supply injection points to reinforce distribution networks that are currently operating outside design and licence standards. This will reduce the risk of exposing customers to a prolonged loss of supply.

2.05 The asset replacement investment proposed will prevent significant plant obsolescence and reduce the risk of catastrophic failure. It reflects industry best practice in the management of reliability risk by replacing assets on the basis of condition.

2.06 The investment in interconnectors will facilitate cross border trading by securing and increasing transfer capacity to and from the system in the Republic of Ireland.

2.07 The four largest projects : Belfast Reinforcement, Newtownards 110/33kV Substation, Creagh (previously Bellaghy) 110/33kV Substation and Dungannon 275kV Substation account for over half of the planned transmission expenditure. The Belfast project has been successfully completed and the rest are expected to be completed during 2001/02. The variance between the level of expenditure currently planned and that contained in the Plan submitted to the MMC is £55.9m vs £72.3m respectively. The variance is mainly due to the decision to reinforce the transmission network in the west of the province with a new 275/110 kV substation at Dungannon (£3.7m) rather than at Omagh (Tyrone - £20.0m).

2.08 In addition there are two main programmes of asset replacement work in hand: i) 110kV overhead lines refurbishment (approximately 50% of the 110kV overhead network was constructed before 1960); and ii)275kV switchgear replacement (where 70% of switchgear is beyond its normal life expectancy). Some assets will remain on the network beyond their normal life expectancy, however the proposed level of asset replacement should be sufficient to limit safety and network performance risks and manage plant obsolescence.

Distribution investments and Outputs

2.09 Total capital investment planned for the distribution network (for RP2) amounts to ,248.3m, made up as follows:

New Business expenditure £59.2m - The main deliverable of new business expenditure is the provision of new connections, forecast at 44,000 over the period. This provides a benchmark investment cost of approximately £1345/additional customer.

Load related system work £47.3m -The plan makes allowance for the reinforcement of the distribution network to cater for increased system demand. The main deliverable of this is an infrastructure compliant with licence standards, capable of meeting 166 MW of load growth at an average cost of £285 /kW. The primary driver is not the delivery of an

explicit level of network performance but to ensure that the network can cope with the load applied, deliver satisfactory performance and operate to an appropriate level of security.

Overhead line refurbishment £86.1m - The main deliverables of this expenditure are: i) a reduction in fault CML (customer minutes lost) achieved primarily through refurbishment of the rural 11 kV overhead network; and ii) increased network resilience to severe storm conditions.

2.10 The Plan reflects the decision to accelerate the refurbishment programme after the Boxing Day 1998 storm. The planned level of 11kV line refurbishment over the five year period is equivalent to 1750km per annum as compared with the 1500km per annum allowed by the MMC. The programmes of 33kV and LV line refurbishment were substantially increased in 1999/2000. Against these categories it is planned to maintain the level of investment at the current level for the remaining duration of the plan. By the end of RP2 this will enable the replacement of all decayed poles on the 33kV network and the refurbishment of approximately half of the LV overhead network.

2.11 Analysis of the performance of refurbished circuits indicates that this work is highly effective in improving the fault rate of circuits refurbished. There is an underlying improvement in overall system fault availability of 30 CML since1994/95 and the performance of individual refurbished circuits has been improved by a factor of three times, increasing to between five and six on some circuits. Taken together with other measures this investment is expected to deliver network availability of 144 CML by the end of the period. This compares with the MMC's range of 120 - 140 CML.

2.12 *Network improvement £27.2m* - The main deliverables are environmental and safety improvements through investment in undergrounding of overhead lines, removal of 33kV tappings and four-pole structures and replacement of LV feeder pillars. These are long term programmes.

2.13 *Other asset replacement £28.7m* - The main deliverable is the replacement of distribution substations and switchgear that is life expired or subject to operational limitations.

2.14 *Additional investment £44.5m* - The main deliverables are the provision of new and replacement meters, the Distribution Control Centre project, SCADA and Trouble Management systems and IT systems to enhance customer service asset management, work management and other processes.

Summary of capital expenditure for the Third Regulatory Period

Introduction

2.15 The investment plan for the third regulatory period (RP3) differs from the plan for RP2 in that it contains no expenditure specifically targeted on network improvements. The capital investment programme during RP2 included network improvement programmes. However the proposed level of capital expenditure for RP3 represents the minimum required to prevent deterioration of network performance whilst meeting increased customer demand and maintaining compliance with statutory and licence obligations. However, modest network improvements should be achieved as a secondary consequence of investment associated with load related and asset replacement expenditure.

Investment level

2.16 Table 1 sets out the investment plan for RP2 and RP3 showing the allocation of capital expenditure against the different categories of expenditure. The five year expenditure that is proposed amounts to £311.03m net of customer contributions.

Capital Efficiency Assumptions

2.17 The level of gross capital expenditure proposed makes allowance for anticipated capital efficiencies of £15.77m during the period. Capital efficiency associated with New Business expenditure will allow us to reduce the level of customer contributions by £1.68m resulting in the net reduction of capital expenditure requirements to £14.09m.

Investment Level and Assessment of Risks

2.18 There are inherent risks associated with the long term forecasting of capital expenditure requirements for the period to 2007, particularly in circumstances where the investment requirement is primarily customer driven:

2.19 *Load Related Expenditure* - This expenditure is based on assumptions relating to load growth and future generation which are considered conservative.

2.20 *Further Interconnection* - The development of a more integrated network with ESB is considered as being in line with the objectives of the Strategy 2010 document. It is the joint intention of NIE and ESB to investigate and propose additional interconnection at 110kv. At this time no capital expenditure has been included in this investment plan for these potential projects.

2.21 *Safety & Environmental Expenditure* - No contingency has been included for additional costs arising from increased environmental and planning pressures in relation to existing and proposed lines and equipment.

Transmission network investments and outputs

2.22 The capital investment plan for the transmission network for RP3 has been prepared in consultation with the Transmission System Operator. It amounts to £50.58m comprising load related expenditure of £20.59m and asset replacement expenditure of £29.98m.

2.23 The objective of the load related expenditure is to ensure that growth in demand (forecast at 2.3% per annum for the period) does not compromise network integrity. The plan which is mainly scheme specific includes three major projects: i)Tyrone - provision of a second 275/110kV interbus transfomer at Tyrone Main (ii) Kells - Coleraine construction of a second 110kV circuit (iii) Tandragee - replacement of 275kV circuit breakers.

2.24 The objective of the asset replacement expenditure is to prevent significant plant obsolescence and to reduce the risk of catastrophic failure. The forecast level of expenditure is based on the outputs of a spreadsheet model which takes account of the assessed condition and replacement cost of transmission assets. The level of expenditure calculated by the model has been reduced by £2.37m to take account of overlap with expenditure proposed for the load related replacement of transmission assets.

Distribution network investments and outputs

2.25 Total capital investment on the distribution network amounting to £230.50m is proposed for RP3 made up as follows:

New Business Expenditure £5O.47m - The objective of this investment is the provision of network extensions to facilitate the connection of customers. The forecast level of expenditure, which is exclusive of customer contributions[3], is based on average growth in customer numbers of 1.4% per annum for the period.

Load Related Expenditure £43.68m - The objective of this investment is to ensure that growth in demand (forecast to be 2.3% per annum for the period) does not compromise distribution network integrity.

2.26 The work involves the reinforcement of the 33kV, 11kV and low voltage networks. The planned level of 33kV network reinforcement is mainly scheme specific and the major projects include: Mountpottinger - the establishment of a new 110/33kV substation and West Fermanagh - the establishment of a new 33/11 kV substation and associated 33kV reinforcement. The forecast level of load related expenditure on the 11kV, 6.6kV and low voltage networks is non-scheme specific and is based on the outputs of a number of technical models and uses an assessed marginal cost of network reinforcement.

2.27 *Asset Replacement Expenditure £136.36m* - Distribution asset replacement expenditure forecasts have been determined using two separate methodologies:

2.28 *Distribution Asset Replacement (General)* - The forecast level of expenditure associated with the replacement of the majority of distribution assets is based on the outputs of a

[3]The forecast level of customer contributions is based on the existing connection charge policy. NIE has been seeking Ofreg's approval to adopt a more cost-reflective charging policy and a decision is awaited.

spreadsheet model, which takes account of the assessed condition and replacement cost of the assets. This methodology is the same as that used to forecast transmission asset replacement expenditure. The objective of this investment is the management of reliability risk by the replacement of distribution assets on the basis of age, condition and risk.

2.29 *Distribution Asset Replacement (Overhead Lines*) **-** The Asset Replacement model described above assesses expenditure requirements using asset age profiles that are modified to take account of condition and risk. This methodology can be robust when age is assigned to an asset category, however, with distribution overhead lines the assignment of age is not straightforward. In practice, 33kV and 11/6.6kV overhead line circuits are subject to construction, repair and alterations over their lifetime. Asset replacement is piecemeal rather than a single complete replacement in accordance with best industry practice. Distribution overhead lines cannot therefore not be addressed with the same confidence by the Asset Replacement model that has been used to plan high level investment for the majority of the plant asset categories. In view of the difficulties of using the Asset Replacement model for distribution overhead lines, the approach taken has been to calculate expenditure requirements on the basis of unit costs and refurbishment volumes. The proposed level of overhead line refurbishment is consistent with maintaining network performance during the period. It is proposed, therefore, to refurbish 6,650km of 11kV overhead line during the period.

Proposed Level of Expenditure

2.30 The forecast level of expenditure for distribution asset replacement produced by the two separate methodologies described above has been reduced by £4.07m to take account of overlap with expenditure proposed for the load related replacement of distribution assets. It has also been further reduced by £5.42m to reflect projected efficiency savings. The derivation of the proposed level of distribution asset replacement expenditure is summarised in Table 14:

Table 14
Derivation of Distribution Asset Replacement Expenditure for RP3

Distribution Plant: model output	,70.7 lm
Distribution Lines: model output	,75.14m
Sub-total	,145.85m
Less overlap with LRE	(,4.07m)
Sub-total	,141.78m
Less Capital Efficiencies	(,5.42m)
Proposed expenditure	,136.36m

Other investment and outputs

2.31 Other capital expenditure amounting to £70.79m is proposed for RP3. It includes:

Metering Expenditure £11.14m - for the provision of metering for new connections and other customer requirements and the replacement of obsolete metering assets. The work includes meter recertification; and the introduction of the more modern Keypad meter.

Network IT Expenditure £3.50m - for the completion of the investment associated with the new distribution control centre at Craigavon.

Non-network Expenditure £20. 15m - this includes IT Expenditure of £15.91m aimed at enhancing customer service, asset management, work management and other business processes and an amount of £4.24m relating to investment in land, buildings and other non-operational items.

On-cost Expenditure (£36.0m) - The investment plan makes provision for capitalised on-costs in accordance with NIE's capitalisation policy.

Capital Efficiencies

2.32 It is anticipated that this programme of work can be delivered at a lower capital cost due to efficiency savings associated with labour, material and bought in service costs, and overheads. Various labour initiatives have been identified including flexible working, direct to site working and the application of strong commercial pressures. The creation of long-term contracts through strategic sourcing has opened the way for joint improvement initiatives with suppliers and contractors. Overheads will reduce as a result of supply chain and process improvements. Table 15 provides a high level assessment of efficiency savings:

Table 15
Projected capital efficiencies for RP3

	Capex Projection £M	**Saving**	**Capex Outturn £M**
Labour, Material and Bought In Service	327.63	.77 (3.6%)	315.86
Overheads	40	00 (10%)	36
Gross Capex	367.63	.77 (4.3%)	351.86

Summary of Operating Costs in the Second Regulatory Period(RP2)

2.33 In their 1997 review of price controls for NIE, the Monopolies & Mergers Commission (MMC) set tough transmission and distribution opex targets for the second regulatory period (RP2). Base year (1994/95) opex was reduced by £12.1 million, or 16%, from £76.4 million to £64.3 million[4]. Forecast operating costs for RP2 were rolled forwards from the adjusted base by assuming real annual efficiency gains of 3% in the use of manpower and materials and 1% for Repairs & Maintenance (R&M) expenditure.

2.34 NIE's out-turn operating costs are slightly higher than was envisaged by the MMC, reflecting the unforeseen additional costs associated with the Boxing Day storm of 1998, and the rising levels of service that have been provided to customers.

Improved Efficiency

2.35 There have however been efficiency improvements driven by changes to the structure and operation of NIE. These are reflected in the significant manpower reductions in the T&D Business where average employee numbers have fallen by 333, or 21%, since 1996/97, and 1,213, or 49%, since 1992/93.

2.36 An important driver of efficiency during RP2 has been business unbundling and separation which have improved NIE's understanding of cost drivers, and encouraged tighter cost control, by increasing the transparency of costs and by facilitating a managerial focus on cost reductions. A number of potentially competitive business support services have been taken out of the core business and placed in separate companies, which now provide services to the core business under arm's length, commercial contracts. The range of IT, supply chain and call centre services provided by Sx3, transport services provided by Open & Direct, and electrical contracting services provided by PowerTeam are all examples of this approach.

2.37 During RP2, Business Process Re-engineering (BPR) has provided a framework for identifying and applying best practice throughout NIE T&D. These include the introduction of new working practices, such as multi-skilling and working from home, the use of van-based stores to improve operational efficiency, and the introduction of live line working, mobile generators, and helicopter patrols to improve quality of supply.

2.38 In addition NIE's IT strategy has been designed to allow a reduction in manpower numbers and to increase the effectiveness of remaining staff (in addition to improving the quality of service).

Enhanced Customer Service

2.39 In tandem with efficiency gains, NIE has delivered extensive customer service improvements during RP2. Some of this has resulted from mandatory regulatory requirements. Quality-enhancing investment decisions have also been driven by NIE's obligation to respond to the higher levels of service that are now demanded by customers particularly those which emerged as a result of the Boxing Day 1998 Storm. Following this Storm NIE conducted an internal enquiry which culminated in the publication of "The Report 1998 Boxing Day Storm". That Report included recommendations to

[4]MMC op cit., paragraph 6, Table 1, page 278. Figures are in 1994/95 prices. NIE's actual opex of £76.4 million is without £5.4 million of 'excluded services'.

improve: communications with customers, to improve the management of restoration of supplies, and to improve the ability of the system to better withstand extreme conditions. During 1999 and 2000 NIE has invested heavily in IT systems to deliver the undertakings that it made in The Report. Customers remain supportive of NIE's approach - a recent survey undertaken by NIE shows that 79% of customers would not wish to sacrifice investment, and quality of service, for a decrease in their bills.

2.40 Customer service improvements focused on three areas; improved communications with customers, improvements in 24-hour response, and higher Guaranteed Standards' and Overall Standards' of performance.

Improved Communications with Customers

2.41 The main elements of the improved service are: increased customer call-handling capacity, enhanced messaging facilities and emergency hotlines. These improved communications with customers require NIE to incur significant additional costs. The annual operating cost is £146k for the system and £1.203m for the call handling managed service. This excludes the ongoing cost of systems supplied to meet call handling needs for live call handlers and the TMAN system.

Improvements in 24 Hour Response

2.42 NIE has restructured its fault and emergency activities into a separate 24-hour Fault and Emergency Business. It has introduced: (1) a new 24 hour Incident Centre, (2) enhanced operational call handling services, provided by Sx3, (3) the TMAN system which groups customer fault calls, and predicts where the fault has occurred (4) a new 14 person team of trouble analysts monitoring the network and dispatching resources to fault incidents and (5) a new 19 person team of Trouble Operatives with the capability to deal with most of the less-major incidents. The annual operating cost of TMAN is £983,000[5]. The 14 Trouble Analysts cost £290,000 per annum in salaries and training. The Trouble Operatives cost £708,000 per annum in salaries, transport, communications, training, and tools & equipment. The Incident Centre has annual support costs of £25,000.

Tighter Standards of Performance

2.43 In conjunction with Ofreg NIE introduced new Guaranteed and Overall Standards in October 1999.These required NIE to incur significant additional costs, as most of the service improvements are supported by new IT systems. TMAN allows the T&D Business to meet higher standards relating to the restoration of supply. SOSA[6] and JMS[7] allow the T&D Business to meet higher standards relating to scheduling appointments, notifying customers of interruptions, and providing supply. SOSA has a running cost of £240,000 per annum and JMS has a running cost of £500,000 per annum. There will also be additional training costs associated with the new performance standards of £50,000.

[5]Support and maintenance of the NMS and TMAN system costs £575k per annum. Support, maintenance and circuit rental for the TMAN wide area network costs £408k per annum.

[6]Service Order Scheduling and Appointments

[7]Job Management System

Summary of Projected Operating Costs over the Third Regulatory Period

2.44 A number of forces will tend to put upward pressure on operating costs during RP3 including: growth of the network, rising levels of service in response to customer demands, statutory obligations imposed by Ofreg, rising factor input prices and increased threat of litigation.

2.45 In addition NIE continues to face a number of company-specific factors that influence its revenue expenditure relative to other transmission and distribution companies in the UK. These include: customer sparsity, NIE's small scale, Northern Ireland's geographic isolation, harsh weather and an unfavourable landscape, and a lack of scope economies, as NIE is prevented from diversifying into generation in Northern Ireland.

2.46 To set against this upward pressure on costs, NIE will vigorously pursue opportunities for efficiency gains through: the use of IT to reduce manpower requirements (although the scope to do so will be less than in RP2), reaping the benefits of unbundling and the separation of the businesses, bench marking against best practice (to ensure that internal operations and services provided by Viridian Group companies match up to best practice in terms of quality and costs), the implementation of new management techniques and the implementation of better asset management techniques.

Overview of Future Opex Requirements

2.47 NIE T&D has a strategy in place aimed at reducing controllable costs and increasing efficiency. By the end of RP3, total operating costs (as shown in Table 16 - calculated net of depreciation and exceptional items) are forecast to fall from their 1999/00 level by £2.8 million, a reduction of 3.5% in real terms. However, a significant proportion of operating costs is outside NIE's control. Rates, Wayleaves, licence fees and interconnector charges fall into this category, and total non-controllable costs are expected to increase. By the end of RP3, controllable operating costs are forecast to fall from their 1999/00 level by £5.7 million, a real reduction of 8.6%. With growth in the network at 2.0% p.a[8], the annual real reduction in controllable opex per kilometre of network is between 2.6% and 4.8%.

2.48 NIE responded to the MMC's one-off cut in allowed operating costs by making a significant step-change efficiency improvement, and the assumed annual cost reductions have maintained the pressure for efficiency throughout RP2. As the business has become a lean organisation, there are now fewer opportunities to make efficiency gains. The cost reductions proposed are not inconsistent with the efficiency reductions expected by the MMC in 1997, taking account of the reduced scope for further efficiencies, five years on.

2.49 The most significant operating cost items are 'salaries and related expenses', 'repairs and maintenance' (R&M), 'services bought-in from Group companies', and 'materials and bought-in services' (MBIS) as shown in Table 17 (these costs are analysed in greater detail below). For the first three of these cost categories NIE is aiming to reduce total cost over the price control period. Allowing for the impact of network growth, this will require challenging efficiency gains. In the case of MBIS, a large proportion of costs is uncontrollable, consisting of licence fees, rates and Wayleaves, and a hardening in market conditions influences others such as insurance premiums.

[8]Circuit length has grown by 2% per annum from 1994/95 to 1999/2000, and sales have grown by 2.5% per annum over the same period. These growth rates are forecast to continue in RP3.

Table 16
NIE T&D Controllable and Total Operating Costs for End RP2 and RP3[9]

1999/00 price base	1999/00 £'000	2000/01 £'000	2001/02 £'000	2002/03 £'000	2003/04 £'000	2004/05 £'000	2005/06 £'000	2006/07 £'000
Controllable Opex	**66123**	**64271**	**63204**	**61992**	**61592**	**60197**	**60807**	**60405**
Annual Reduction %		2.8	1.7	1.9	0.6	0.6	0.6	0.7
Cumulative Reduction %		2.8	4.4	6.2	6.9	7.4	8	8.6
Annual Reduction in Controllable Opex/km %		4.8	3.7	3.9	2.6	2.6	2.6	2.7
Total Opex	**77930**	**77941**	**76988**	**76029**	**75822**	**75591**	**75433**	**75174**
Annual Reduction%		0	1.2	1.2	0.3	0.3	0.2	0.3
Cumulative Reduction%		0	1.2	2.4	2.7	3	3.2	3.5
Annual Reduction in Total Opex%		0	3.2	3.2	2.3	2.3	2.2	2.3

(1999/2000 prices)

[9]Total operating costs are calculated net of depreciation and exceptional items

Table 17
Breakdown of Total Operating costs for NIE T&D for end RP2 and RP3[10]

Salaries & related expenses	16698	15957	15224	14427	14285	14143	14000	13857
R&M	13634	13498	13363	13363	13363	13363	13363	13363
Services bought in from Affiliates: Sx3 Open + Direct	1.35e+08	1.34e+08	1.31e+08	1.28e+08	1.27e+08	1.25e+08	1.24e+08	122344340
Services bought in from other business's of Licensee: Supply PPB Interconnector	2.84e+08	3.15e+09	3161581	3163566	3176554	3190541	3204530	3218519
Materials and Bought In Services	19480	23305	23635	23820	23980	24109	24308	24401
Corporate Overheads	5180	3243	3242	3242	3242	3242	3242	3242
TOTAL OPEX	77930	77941	76988	76029	75822	75591	75433	75174

1999/2000 prices

[10]Total operating costs are calculated net of depreciation and exceptional items

Key cost lines

Salaries and Related Expenses

2.50 During RP2 the T&D Business' staff structure has continued to evolve to reflect the desirability of greater outsourcing and the use of contractors in relation to peripheral, ancillary, non-core activities, to reduce overheads and increase efficiency. By the end of RP3 the number of non-industrial employees is forecast to fall from 536 to 461, while the number of industrial employees is forecast to fall from 620 to 530. These figures represent reductions of 14% and 15% respectively. The forecast cost of salaries and related expenses for RP3 has built up from the manpower plan, based on average non-industrial and industrial salaries. The manpower reductions translate into reductions in salaries and related expenses of 17% as shown in Table 17.

2.51 The key driver for the reduction in non-industrial manpower numbers will be a process of centralisation and rationalisation, closely linked to the successful implementation of a number of new IT systems. These are based on a number of initiatives:

- The current 13 locations forming a base for connections planners will be reduced to 3,
- Additions to Troubleman will allow centralisation of despatch for fault engineers, reducing manpower requirements in customer service centres and in administration,
- Centralisation of complaints through a new customer information system,
- The number of control centres will be reduced from three to one,
- The current 13 customer service centres will be rationalised contingent on the successful implementation of the new IT systems.

2.52 The key driver for the reduction in industrial manpower numbers will be a process of contracting out operations to reduce overheads. For example, the Customer Service division of NIE will increasingly contract with PowerTeam for 'metering' and '24 hour response' services. The planned industrial manpower reductions in the Network Services division are tightly focused on unskilled workers. Overhead lines staff and technicians are not being released as they are highly skilled staff that would be difficult and costly to replace or hire under contract.

Repairs & Maintenance (R&M)

2.53 The main categories of R&M spend are 'planned maintenance' and 'fault & emergency maintenance'. Planned maintenance expenditure includes all pre-planned programmes of preventative maintenance. The primary drivers of planned maintenance are: an acceptable level of plant performance and availability; plant longevity against lowest life cycle costs; and containment of safety and environmental risks. Fault and emergency expenditure includes all work which, by its nature, cannot be preplanned, but which must be dealt with immediately, often on an emergency basis. A significant element of this work is generated from third party damage to NIE equipment, such as contractors damaging underground cables. The primary drivers of this expenditure are: customer standards on restoration; customer expectations; network performance targets; and safety.

2.54 During RP2, NIE's approach to planned maintenance has changed, yielding efficiency gains and improvements in the level of service delivered to customers. Key developments include contracting out of unskilled work and a shift from traditional cyclic maintenance to condition and reliability-based maintenance. Unplanned maintenance has been positively influenced by: initiatives to minimise third party interference, the analysis of plant failures to identify trends that indicate future potential failures so that appropriate corrective action can be taken and development of a dedicated Fault and Emergency Business as outlined above. As a result of the changes in business operations, and the investments that have been made to support R&M activity, overall R&M costs have been driven down whilst levels of service have improved.

2.55 Forecast R&M expenditure is based on an efficiency saving of 3% per annum and a growth rate of 2% per annum from the 99/00 base of £13.6m to the end of RP2 in 2001/02. For RP3, an efficiency saving of 2% per annum and growth rate of 2% per annum is assumed. Table 17 sets out the profile of forecast R&M costs.

2.56 There are four key factors that will put upward pressure on R&M costs during RP3 . First the growth of the network (with a lag) increases the need for R&M expenditure. Second rising customer expectations regarding the restoration of supply following network incidents. Third, the rising cost of factor inputs. Fourth, the prospect of new legislation associated with, for example, requiring more restrictive working practices within areas of special scientific interest or areas of outstanding natural beauty.

2.57 Against this NIE expects to make efficiency gains in R&M operations during RP3. These gains are becoming progressively harder to make compared with RP2 as NIE has developed into a leaner organisation. The transition to condition and risk-based maintenance, and the use of new techniques in the analysis of failures, will ensure that maintenance is targeted as efficiently as possible, and will reduce emergency maintenance due to faults.

2.58 NIE has compared its R&M expenditure against two key benchmarks: the MMC allowance and a comprehensive world-wide bench marking study covering almost 80% of R&M expenditure. Both provide evidence that the base year expenditure represents an efficient level, upon which to base forward projections.

2.59 In setting the price control for the current regulatory period the MMC adopted projections for R&M expenditure based on a 3% pa real efficiency improvement offset by a 2% network growth. Actual 1999/2000 expenditure is some £2m below the figure MMC adopted as the efficient level.

2.60 During RP2 NIE has benchmarked the substantive part of its R&M activities against a number of electricity utilities throughout the world in two main programmes operated by the UMS Group comprising i) Distribution, and ii) Substation, Transmission Operations and Maintenance. Between them the two programmes covered almost 80% of NIE's total R&M expenditure. UMS concluded that NIE's overall performance in the STOM programme was impressive. The only major area of opportunity being with respect to distribution feeder breaker maintenance. Likewise, the Distribution programme shows little opportunity for improvement.

Services Bought In from Affiliates

2.61 Affiliate companies provide services to the T&D Business under arm's length commercial contracts. Sx3 provides a range of technology based services including supply chain, IT, meter reading and data collection, call centres, and wayleaves administration. In addition, Open & Direct provide transport services (vehicle purchase and maintenance), and Zenith Properties provide property services.

2.62 Sx3 represents an important element of the Group's strategy of unbundling and as a separate subsidiary company within the Viridian Group, provides services to NIE on a commercial basis. This arrangement has led to efficiency improvements for a number of reasons. First, due to the existence of commercial contracts, costs are open and transparent, so that Sx3's charges can be benchmarked against the charges of potential alternative suppliers. Second, Sx3 operates in the open competitive market for new customers in addition to NIE. NIE benefits from this arrangement as Sx3's costs are driven down to the prevailing market levels or better, and these efficiencies must be passed on to NIE due to the transparency of costs and charges. Third, Sx3 and NIE T&D

work on a partnership basis to identify new ways of driving down costs.

2.63 By the end of RP3, Sx3 charges are forecast to fall by £1.2 million from their 1999/00 level, a reduction in real terms of 9% as shown in Table 17. We are confident that the commercial relationship between NIE and Sx3 ensures that quality services are provided at least cost. Some bench marking work has been undertaken to confirm that this is the case. This is set out in Table 18.

Table 18
Summary of Benchmarking of Sx3 Charges

Service	Benchmark
Systems Integration Division	Deloitte and Touche compared daily rates with those charged by 5 other IT service companies, demonstrating that Sx3's rates are competitive. Deloitte and Touche compared staff utilisation with a world class company's, demonstrating Sx3's efficiency. A comparison of daily rates charged to NIE T&D with rates charged to clients outside Viridian, shows that NIE T&D benefits from a very competitive rate.
Desktop Managed Service	A comparison of Sx3 salaries against the 1999 Turner Hallier Executive Customer Services Salary Survey (the companies in this survey provide equivalent desktop managed services) demonstrates that Sx3 salaries are market competitive.
Call Centre	Charges to NIE compare favourably with Sx3 charges to other clients following competitive tenders. Charges to NIE are lower than quotations from call centres locally.
Training	A comparison of the cost of four engineering courses provided by Sx3, relative to the price charged by other training providers, shows Sx3 rates to be competitive. A comparison of charges for conference facilities provided by Sx3, relative to the charges of other providers, shows Sx3 rates to be competitive. A comparison of charges for IT training courses provided by Sx3 relative to the price charged by other training providers, shows Sx3 rates to be competitive.

2.64 The cost of transport services (which are provided by Open & Direct) are forecast to fall in line with manpower reductions over the period as shown in Table 17. Benchmarking confirms that Open & Direct charges are competitive compared with the rates charged by Avis, Budget, Europcar and McCausland.

Materials and Bought-In Services

2.65 MBIS include a range of different products and services that are required for the running of the T&D business. Uncontrollable costs, which account for half of all MBIS costs, include licence fees, rates and Wayleave rents. The most significant controllable costs relate to charges for telecoms services provided by Nevada tele.com[11], insurance

[11] Nevada tele.com is a joint venture between Viridian Capital Limited and Energis, which provides internet and telecommunications services. The services provided by nevada tele.com to NIB T&D include: operations (the Managed Voice Service); private mobile radio; BT circuits rental; Scada; IVR; Wan/Lan; Troubleman.

premiums and excesses, rents, consultancy transport and training. The other significant controllable costs are rents which is the payment to Danesfort Developments for NIE headquarters; consultancy which relates to specialist engineering, legal and business consultancy services, and transport costs which consist of fuel cards and mileage allowance for company cars.

2.66 During RP2 the T&D Business has focused on core activities. Materials and services that constitute non-core activities are bought in on a commercial basis, following a tendering process in those cases where this will reduce total costs. During RP2 NIE has implemented a Strategic Sourcing programme which has involved a rationalisation of suppliers and the use of longer-term contracts, which has enabled the T&D Business to reduce transaction costs. It has also provided additional leverage to NIE's buying power.

2.67 At the end of RP3, controllable MBIS charges will be marginally below their 1999/2000 level. Efficiency gains in some areas, such as telecommunications, will be offset by changes in market conditions for some goods and services, for example, insurance premiums, which are expected to rise over the next two to three years. The fact that services are provided within commercial relationships will continue to produce efficiency savings during RP3. Uncontrollable costs will however increase significantly. A large proportion of this reflects an increase in rates. However, the forecast increase does not make allowance for the impact of the recently announced Rating Revaluation for Northern Ireland in 2003. Table 17 sets out the profile of forecast MBIS costs.

2.68 The assumptions underlying the forecasts of some significant controllable costs are that:

- nevada tele.com charges are forecast to fall in real terms by 2.5% p.a. from 2000/01. Many of the services delivered to NIE by nevada tele.com are bespoke solutions that require individual development and costs. Nevertheless, some bench marking has been undertaken for these services as set out in Table 19.

- Insurance premiums and excesses will increase in the year 2000/01 and are forecast to fall by just under 1% p.a. to 2006/07. The market cost of insurance is expected to increase by 20-25% over the next year as a result of merger activity. NIB has responded to the hardening in the market by setting up a risk management group to drive down the number of accidents, and consequently, the number of claims.

- Training and transport costs are forecast to fall in line with manpower reductions.

Table 19
Summary of Benchmarking of MBIS Charges

Service	Benchmark
'operations'	Service and product lines have been benchmarked against a leading telecoms provider and significant savings have been demonstrated.
'miscellaneous' ally, DX3000 transfer)	Benchmarked against a leading telecoms provider and significant savings have been demonstrated.

Corporate Overheads

2.69 Total corporate overheads will fall by ,£1.9m, or 37%, in 2000/01, reflecting the direct allocation of some salary cost and sponsorship, and the absence of corporate re-branding costs in 2000/0 1. NIE T&D's share of corporate overheads is 70%, consistent with the

base year. The forecast profile of these charges is set out in Table 17.

Quality of Supply

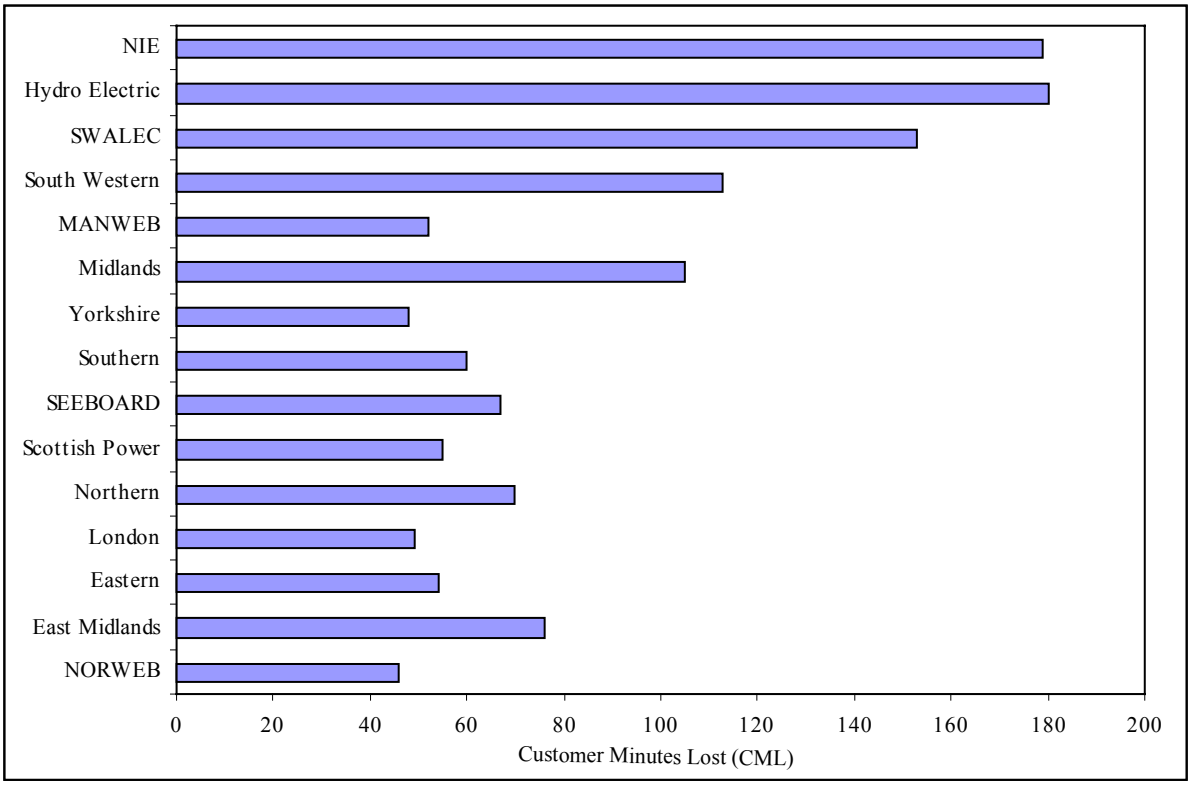
Summary of NIE's narrative on output measures and performance indicators

2.70 This section provides information extracted from a paper prepared by NIE on its output measures and performance indicators including analysis of actual performance and the provision of forecast information.

Performance Improvement Strategy

2.71 In 1993/94 the performance of NIE's network as measured by the availability index was at the bottom end of the scale when compared to the performance of the distribution networks in GB as indicated by Figure c.

Fig. C Comparison of NIE Fault CML with GB PESs – 1993/94



2.72 An assessment of the fault history for each part of the distribution system identified the 11kV overhead network as contributing 70 per cent of all fault-related customer interruptions. NIE therefore began its overhead refurbishment programme in 1994/95.

MMC Targets

2.73 In its submission to the MMC, NIE proposed that the refurbishment programme should continue during the second regulatory period at the rate of 1750 km/yr. In setting the new price control, the MMC adopted a slightly lower rate of 1500 km/yr and considered this would be consistent with achieving a performance in the range of 120 B 140 CML by the end of the period.

2.74 The MMC's target was based on an assumed improvement rate of 0.55 CML/100 km of line refurbished, which in the light of experience now appears optimistic in that it under-estimates the underlying deterioration of the remainder of the network. Experience to date indicates that an improvement rate of 0.4 CML/100 km is a more realistic figure.

2.75 Following the Boxing Day 1998 storm which caused extensive damage to the network and very extensive disruption to supplies, NIE implemented plans to accelerate the 11 kV refurbishment programme for the remainder of the second regulatory period. In addition, a supplementary programme that included the 33 kV and LV networks was introduced in order to improve the resilience of the networks to future storms. In its report on the impact of the storm in Northern Ireland, the Northern Ireland Affairs Committee gave their support to these measures.

2.76 When the projected availability improvements provided by NIE to the MMC are revisited to take account of the increased refurbishment programme, an equivalent availability target of 139 CML by the end of the current period is implied. This calculation is based on the original optimistic forecast improvement rate of 0.55 CML/100 km.

Analysis of Actual Performance

2.77 The effect of network deterioration and weather variations tends to mask performance improvements when measured by *overall* network performance. Analysis of the impact of refurbishment on *individual* circuits that have been included in the programme concluded that, on average, the performance of a refurbished circuit is *three times better* than its performance prior to refurbishment.

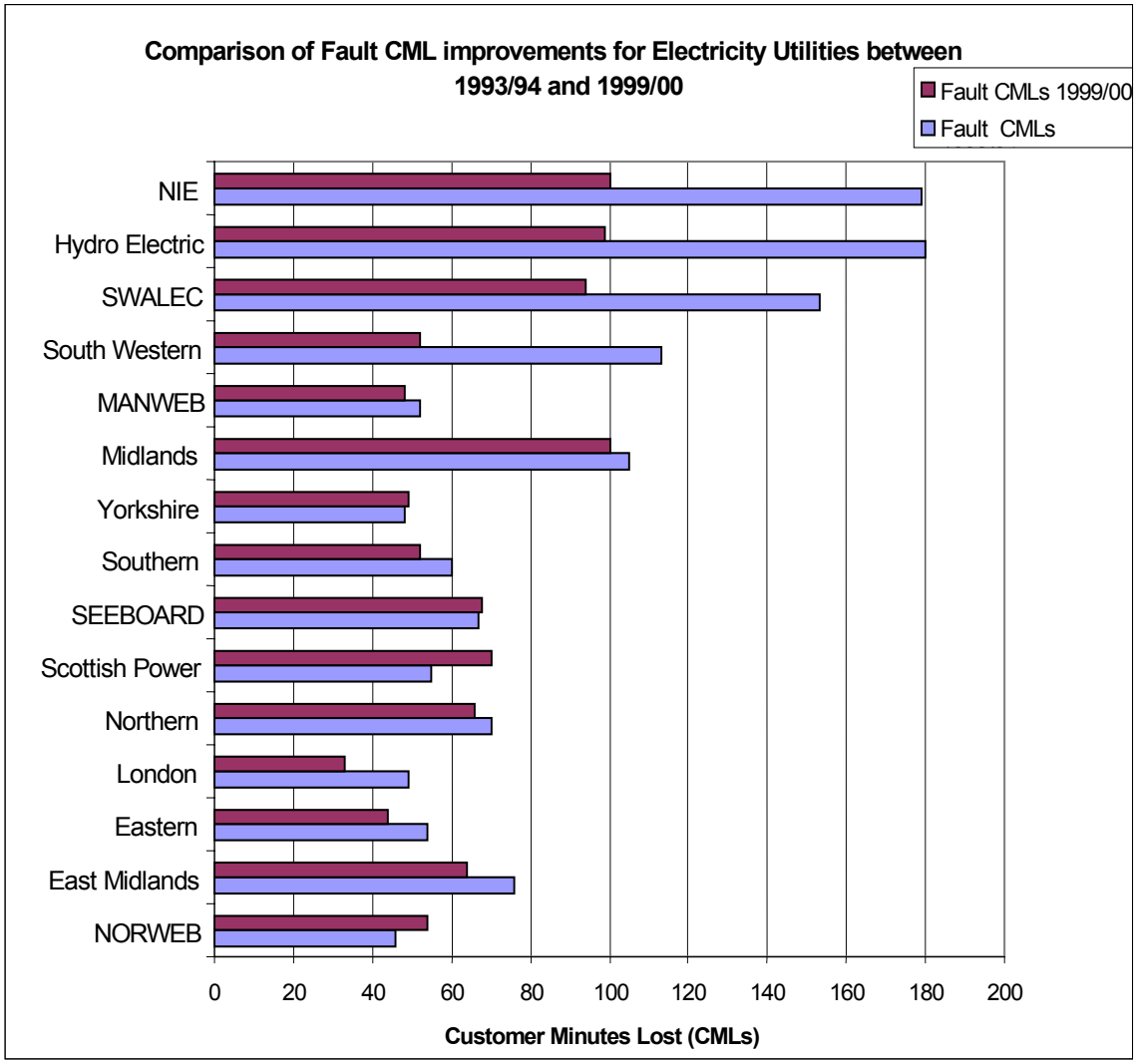
2.78 In terms of overall network performance the paper identifies an underlying improvement in fault availability of 30 CML in the period between 1994/95 and 1999/2000. By March

2000, the network availability index was 202 CML as compared to the revised MMC target of 183 CML. The main variance is associated with fault CML and it is considered to be due to the underestimation of the extent of incremental network deterioration implied in NIE's 1996 forecasts to the MMC.

Comparison with GB companies

2.79 Figure 2 demonstrates the improvement in the performance of NIE's network compared with the improvements achieved by the GB companies. NIE's fault CML is continuing to converge towards the GB average. In common with comparable companies, Hydro-Electric and SWALEC, NIE has significantly improved network performance to the extent that it is no longer an extreme performance outlier.

Fig D Comparison of Fault CML Improvements for Electricity Utilities between 1993/94 and 1999/2000



2.80 NIE's pre-arranged (PA) availability index has been affected by the extent of the line refurbishment programme. NIE pre-arranged CML has increased and has diverged from the improving trend apparent among the GB companies. NIE has set challenging targets to significantly reduce PA CML by the end of this regulatory period. The pre-arranged CML will fall significantly with the reduction in the refurbishment programme in the next regulatory period.

Performance Projections to the end of the Second Regulatory Period

2.81 There has been an underlying improvement in fault availability of 30 CML in the period between 1994/95 and 1999/2000. By extrapolating and taking account of the accelerated refurbishment programme and other performance initiatives, it is forecast that fault CML

will reduce from 100 CML (March 2000) to 74 CML by March 2002.

2.82 NIE also has set targets to reduce pre-arranged CML from 102 CML (March 2000) to 70 CML by March 2002, mainly by increased deployment of mobile generation and live-line working methods. The paper provides a rigorous assessment of network performance which suggests network availability of 144 CML by March 2002. By taking account of forecasting tolerance, it is concluded that network availability will lie within the range of 140 – 155 CML by March 2002.

Performance Projections for the Third Regulatory Period

2.83 The NIE Capital Investment Plan for the third regulatory period is based on the minimum level of expenditure consistent with preventing deterioration of network performance during the period.

2.84 The overhead line refurbishment programme will be reduced to a level consistent with offsetting incremental deterioration on the remainder of the network.

2.85 Some additional performance benefit will follow from investments made during the second regulatory period and non-capex related improvements will also contribute to incremental improvements in fault availability. Also, the refurbishment of individual circuits will continue to improve the quality of supply for customers connected to those circuits.

2.86 The reduction in the overhead line refurbishment programme during the third period will reduce pre-arranged CML. The projected improvements also make allowance for further improvements from mitigation techniques.

2.87 It is not possible to set an absolute performance target for the end of the third period because of the forecasting tolerance associated with the remainder of the second period. It is considered appropriate, however, to set a performance improvement target of 33 CML for the third period, comprising 20 fault CML and 13 PA CML.

2.88 In the context of capital investment constraints during the third regulatory period, the proposed target, which is equivalent to a reduction of over 20% during the period is considered challenging.