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**Reviews of Public Electricity
Suppliers 1998 to 2000**

Distribution Price Control Review

Final Proposals

**REVIEWS OF PUBLIC ELECTRICITY SUPPLIERS
1998-2000**

**DISTRIBUTION PRICE CONTROL REVIEW
FINAL PROPOSALS**

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FOREWORD

The existing distribution price controls are due for revision from 1 April 2000.

Ofgem has published four consultation papers, draft proposals and an update on these draft proposals as part of the distribution price control review. The February 1998 consultation paper explained that the present distribution price control review is part of a wider programme of reviews of Public Electricity Supplier (PES) activities. In July 1998, a further consultation paper was published that described the main considerations likely to be relevant for the distribution price control review. The December 1998 consultation paper set out information derived from PESs' responses to business plan questionnaires on distribution business operating costs, capital expenditure and quality of supply over the period until 2004/05. A fourth consultation paper was published on 20 May 1999 which described Ofgem's initial thinking on the main considerations relevant to the distribution price control review. Draft proposals were published on 12 August. A summary of the responses to this paper is provided in annex 1. A further update was published on 8 October in the form of an open letter to the Chief Executives of the companies.

As part of the price control review Ofgem has taken advice from a range of consultants and advisers. A firm of management consultants, Pannell Kerr Forster (PKF), has assisted with the analysis of operating costs. PB Power has supported PKF during this process as well as assisting with the analysis of capital expenditure. A senior industrial adviser, Peter Warry, has also given advice in relation to these matters. KPMG, a firm of accountants, has audited the financial model which has been used to calculate the price controls set out later in this paper. Ofgem's management committee has considered the final proposals. In addition, throughout the process advice from three senior business advisers, Hugh Donaldson, John Sadler and Sir Keith Stuart, has been particularly valuable.

In the light of the consultation process and advice described above this paper sets out final proposals for revised distribution price controls. These are based on projections of operating and capital costs, targets for quality of supply and conclusions on financial issues. All these issues are addressed in this paper.

Each PES has until 20 December 1999 to decide whether it will accept these proposals. If a PES does not accept then it will be necessary to make a reference to the Competition Commission (previously the Monopolies and Mergers Commission), which will consider these matters and report in due course. If a reference is necessary and it appears that the Competition Commission will not be in a position to make recommendations in time to allow licences to be modified from 1 April 2000, then it will be important to consider whether transitional arrangements or licence modifications would be appropriate to protect the interests of customers.

Ofgem
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1 FORM OF CONTROL

Introduction

- 1.1 Each PES distribution business at present constitutes an effective regional monopoly. In order to protect customers from the potential abuse of monopoly power each distribution business is subject to controls on the prices it can charge and the quality of supply it must provide. In making proposals for revised distribution price controls, the Director General of Electricity Supply (DGES) has been guided by his statutory duties.
- 1.2 The primary objectives of this price control review have been to strengthen the incentives on companies to increase efficiency and reduce costs, so that prices to customers can be lowered, while recognising that sufficient revenue must be raised to maintain an appropriate quality of supply, to finance required new investment and to allow an appropriate return to capital providers. The aim has been to encourage PESs to achieve a balance between:
 - quality of supply;
 - efficient capital investment;
 - efficient operating expenditure; and
 - efficient financial management.
- 1.3 In order to balance these elements when setting a price control, it would be beneficial to have a universal model which weighed quality of supply against costs; and which permitted capital and operating expenditure to be treated in such a way that overall cost efficiency could be judged without reference to the individual cost components. In such a system, there could be standardised allowances for capital and operating costs, and these could be varied according to the quality of service delivered.
- 1.4 To date, such a system has not been devised. It would in any case require a higher standard of operational and financial information than is presently capable of being produced by each PES; and a level of harmonisation which would improve the current inconsistencies in measuring operational and financial information across all PESs.
- 1.5 As a result, these proposals try to take into account the different elements referred to in 1.2 above and estimate any trade-offs between them. Improvements in information will be sought as part of the future work programme on Information and Incentives (see below), as will a more coherent and predictable system for comparing different types of costs and weighting these against service standards.
- 1.6 Companies which perform satisfactorily can expect to make an average rate of return. In the case of above average performance, companies can expect an above-average rate of return, although this should only result from efficiency and not involve higher prices to customers.

- 1.7 Companies which under-perform can expect to make a lower rate of return. Customers should not be expected to pay for inadequate service; nor should they be expected to bear the costs of inefficiency or mismanagement by companies in their licensed or other activities. Therefore, the distribution price control review has focused on considering the efficient costs and quality of supply of the distribution businesses.

Type of Price Control

- 1.8 At present each PES's distribution business is subject to an RPI-X price control, under which allowed revenue is related to a forecast of the number of customers supplied and to the volume of electricity distributed. This form of regulation has proven effective in providing clear targets for companies and has led to significant price reductions and quality improvements for customers to date.
- 1.9 The advantages and benefits of RPI-X regulation are demonstrated through the achievements of the PESs. Distribution operating costs have been reduced in real terms by about one quarter between 1994/95 and 1997/98. At the same time, customers have generally benefited from significant improvements in the quality of supply – for example, minutes lost per customer have reduced by about 10 per cent between 1994/95 and 1997/98. In the light of these considerations it will be appropriate to continue with RPI-X type price controls.
- 1.10 Nevertheless, there are weaknesses in the way RPI-X has been applied or features which could be improved. In particular, ways need to be found to reduce the emphasis on periodic negotiation with the regulator, to increase the emphasis on outperforming peers, to address a potential imbalance between incentives to efficiency in respect of operating and capital costs, to maintain continuous pressure for improving efficiency and to give clearer incentives in respect of quality of supply.

Improving Incentives and Information

- 1.11 A number of measures have been adopted as part of this price control review to deal with some of the difficulties identified above. Nevertheless, there remain certain areas where there is scope for further improvements. The draft proposals suggested that it would be necessary to develop an on-going work programme to deal with these matters.

(i) Incentives on quality of supply

- 1.12 In order to address issues relating to quality of supply it is the intention to introduce additional incentive mechanisms from the beginning of 2002/03. Generally the PESs and other respondents to the draft proposals were supportive of the proposal to give clearer incentives to companies in respect of quality of supply. However, a number of the PESs said that they were concerned that the introduction of these mechanisms between price control reviews would increase risk. One PES suggested that the time required to put in place new systems meant that the earliest additional mechanisms could be introduced was April 2003.
- 1.13 The draft proposals recognised that the introduction of such mechanisms between reviews may be perceived as increasing the companies' exposure to risk. Therefore, it was proposed to limit the financial impact of any additional mechanisms to 2 per cent of price control revenue. One PES suggested that it would be prudent to limit the financial impact to plus or minus 1 per cent of price control revenue. On balance Ofgem considers that the benefit of reducing risk is outweighed by the dampening effect on incentives of moving to a 1 per cent cap. Therefore, the initial proposal has been retained and the financial impact of the additional mechanisms limited to plus or minus 2 per cent of price control revenue for each of the remaining years of the control period. Any residual risk will be reduced further by a detailed and transparent consultation process prior to the introduction of any new arrangements.
- 1.14 At this stage it is expected that this element of the work programme on Information and Incentives will be carried out in two stages. The first stage will define the set of outputs to be incentivised, in a way that reflects customer preferences. These outputs should be capable of objective measurement and comparison across companies and over time. Where particular targets for quality of supply have been established as part of this price control review, it is expected that broadly consistent targets will be reflected in these additional mechanisms.
- 1.15 A prerequisite to the completion of this first stage will be the study of how PESs should measure and report consistent operating and financial data. This may require PESs to change the way in which they measure outputs and/or account for their costs. It follows that it will be appropriate to review the regulatory accounting of the PESs early during the next review period.

- 1.16 The second stage will determine a set of financial rewards and penalties that will incentivise the PESs to deliver these outputs. The incentive regime should be transparent, fair and workable. It would also be advantageous if the additional mechanisms are not unduly complex.
- 1.17 There will be consultations with the industry and customer representatives in developing these additional incentive mechanisms. Ofgem expects to consult:
- on the output measures during summer 2000 and to have reached conclusions on the measures by autumn 2000; and
 - on draft proposals for the enhanced incentive regime towards the end of 2000 and to have reached final proposals on the enhanced incentive regimes by summer 2001.
- 1.18 In order to introduce the mechanisms it will be necessary to propose modifications to each PES's licence. This means that the PESs will have the right to reject the modifications. In these circumstances Ofgem may refer the matter to the Competition Commission, which will consider the relevant issues and make a determination in due course.
- 1.19 It remains the intention to introduce the enhanced incentive regime from April 2002. In reviewing the next price control for implementation in 2005, it will be important to consider how the enhanced incentive regime has worked in practice. At that stage Ofgem may decide to develop it further and will therefore want to review the appropriateness of continuing with the additional 2 per cent cap on the financial impact, which has been introduced as part of this price control review.

(ii) Scope of the Information and Incentives Project

- 1.20 In addition to the work which is described above, the Information and Incentives Project will encompass two further areas of work:
- the monitoring of companies between price control reviews; and
 - a review of the incentives created by the regulatory framework including, for example, looking at the balance of incentives to efficiency in respect of operating and capital expenditure.
- 1.21 There remain difficulties relating to the workload for the regulator and the companies associated with the periodic review process. One way of dealing with this would be to collect more high quality data on an ongoing basis. Therefore, it will be appropriate to review the information that is provided by the companies subject to price regulation. A particular area of concern relates to regulatory

accounting information. The introduction of the incentive regimes relating to quality of supply is also likely to lead to the PESs having to provide additional information on an ongoing basis. Ofgem expects to consult on the information requirements for PESs at the same time as it consults on the output measures during summer 2000.

- 1.22 Previous consultation documents have explained the advantages of yardstick regulation. In its purest form yardstick regulation sets the price which one company is allowed to charge by reference to the costs and quality of its peers. The development of yardstick regulation and its possible application to the PES distribution businesses will be considered as part of the Information and Incentives Project. However, it is not the intention to introduce yardstick regulation during the course of the price control period 2000-2005.
- 1.23 The conclusions from the Information and Incentives Project may in time inform Ofgem's regulation of other companies and not only the PES distribution businesses.

Scope

- 1.24 The present distribution price control covers all charges made by the PESs' distribution businesses, except those for excluded services and the pass-through of certain National Grid Company (NGC) charges. The 20 May consultation paper noted that there would be advantages in continuing to exclude most of those services presently treated as excluded and the pass-through of NGC transmission connection point exit charges. However, with respect to extra high voltage (EHV) charges and prepayment meter surcharges the 20 May consultation paper explained that it would be for consideration whether any revised arrangements for the regulation of these charges might be appropriate in the future.
- 1.25 Large users have expressed concerns that EHV charges have not reduced at the same rate as price controlled charges. Analysis of average EHV revenue per unit distributed suggests that EHV customers in a number of PES areas experienced little or no real price reduction over the period 1994/95 to 1997/98, while regulated distribution charges fell significantly. In response to the 20 May consultation paper a number of PESs indicated that EHV charges are to a significant extent asset-specific and would not be expected to move in the same way as regulated distribution charges.
- 1.26 It is clear that EHV customers need to be adequately protected by the regulatory regime. Simply including these charges within the scope of the price control would not guarantee charges to EHV customers would move in a particular way, as the price control regulates total revenue. There also appears to be some force in PES arguments that EHV charges are to some extent asset-specific and so cost reflective pricing

might suggest a different path of prices compared to regulated charges. However, it will be important to ensure that EHV customers benefit from an appropriate approach to issues such as the cost of capital and asset valuation.

- 1.27 In the light of these factors PESs have been given the opportunity to provide updated forecasts of EHV revenue. In general these indicate real reductions in distribution charges to EHV customers. However, as an additional reassurance to customers the licence condition relating to the treatment of excluded revenue will be strengthened to give the DGES additional power to cap EHV charges if PESs act in a way which is inconsistent with the assumptions made in setting the price control.
- 1.28 A consultation paper published in October 1999 explained the special considerations which apply to arrangements for prepayment meter customers.¹ The main implications for the distribution price control review relate to the excluded service revenue that is presently derived from distribution business prepayment meter surcharges. Analysis carried out by Ernst and Young addressed the maximum annual surcharge that should be made by the distribution business for each prepayment meter. Ernst and Young concluded that the maximum annual surcharge should be limited to £15 in nominal terms for each prepayment meter. This would provide an important additional element of protection to this group of customers. Given the potential for the development of competition in the provision of metering services it will be appropriate to continue to exclude distribution business prepayment meter surcharges from the distribution price control.

Structure

- 1.29 Price controls can be designed so that the permitted levels of total revenue vary with changes in volumes as well as being indexed to the RPI. Under the original distribution price control, allowed revenue increased in proportion to units distributed. The last distribution price control review concluded that the weight of units distributed in the revenue driver of the price control should be halved, from 100 per cent to 50 per cent. The remaining 50 per cent was fixed by relating it to a predetermined projection of customer numbers. This change was intended to avoid any artificial incentive on the PESs to promote increased sales of electricity. The retention of a weighting for units distributed, albeit at a reduced level, was intended to maintain the normal commercial incentives on companies to seek out and meet the needs of their customers. It would also avoid undue fluctuations in distribution charges per unit as the volume of output varied. In the light of these considerations the draft proposals explained that it will be appropriate to retain the 50 per cent fixed and 50 per cent unit revenue driver for the next price control period.

¹ “Prepayment Meters – A Consultation Document” Ofgem, October 1999

- 1.30 The 50 per cent unit component of the revenue driver is made up of a weighted average of low voltage (LV) and high voltage (HV) units distributed. The LV units are subdivided between three categories, representing the existing split in PES LV supply tariffs (unrestricted, restricted daytime units and restricted night time units). One respondent suggested these three subdivisions could be replaced with a unified LV basket. In general respondents to the draft proposals did not support this possible change and so the three LV baskets will be retained.

Duration

- 1.31 The draft proposals explained that a 5 year duration RPI-X distribution price control will be appropriate.

Energy Efficiency

- 1.32 The 20 May consultation paper set out an approach to energy efficiency that involved maintaining the existing incentives on PESs to reduce electrical losses from their distribution networks. Matters relating to energy efficiency Standards of Performance were dealt with in a consultation paper on energy efficiency issues published in July 1999.²
- 1.33 The draft proposals suggested a further strengthening of the incentives for energy efficiency by taking account of loss reduction in determining the overall level of price controlled revenue, thus maintaining balanced incentives with issues such as cost efficiency. These issues are considered in more detail in Chapter 6.

Metering and Separation

- 1.34 In order to promote competition in supply and metering, Ofgem's paper on separation of businesses, published on 19 May 1999, made a number of proposals for revised arrangements in relation to metering and the separation of the PESs' distribution and supply businesses. These included:
- the transfer of meter reading, data aggregation and data processing activities from distribution to supply from 2000/01 onwards;
 - enhancing the separation of distribution and supply businesses, including restrictions on the extent of joint services between the businesses; and
 - new obligations on the distribution business with respect to the provision of meter reading services of last resort from 2000/01.

² "Energy Efficiency: Standards of Performance 2000-2002" Ofgem, October 1999

- 1.35 The 19 May consultation paper on separation of businesses discussed the issues surrounding the continued provision of common services. It noted that these would only be permissible if they avoided distorting competition, did not involve any cross-subsidy between businesses and ensured that the service was obtained for distribution at the most effective price. Discussions with the PESs are continuing on their plans for compliance with the proposed new obligations.
- 1.36 PESs have provided Ofgem with plans for the separation of the distribution business from other businesses. These are being discussed with the companies with a view to the plans forming the basis for derogations to be issued while the separation plans are being implemented. During November, all PESs have provided revised business plans for the separation of their distribution and supply businesses. The definition of the separation requirements and likely derogations should be sufficient to allow companies to make an overall judgement on the acceptability of the proposals for separation and price controls.
- 1.37 The 20 May consultation paper described the implications of these proposals for the distribution price control review. These included the following main issues:
- the assessment of distribution business operating costs needs to take account of the transfer of metering activities from distribution to supply in 2000/01 and the proposals in the separation of businesses paper to minimise the opportunities for cross-subsidy between the distribution and supply businesses. Advertising, customer service and billing are of particular concern. The 20 May consultation paper included an initial analysis of these costs from 1997/98. Chapter 2 sets out a revised analysis of these costs;
 - the impact of the revised arrangements for separation on the day-to-day costs of running the distribution business were set out in the October update and have been included in the projections of costs described in Chapter 2; and
 - the costs and revenues associated with the meter reading service of last resort will be difficult to predict. Therefore, it will be appropriate to treat any revenue as an excluded service and outside the scope of the main price control.
- 1.38 The 20 May consultation paper noted it would be important to consider whether the present form of the distribution price control is consistent with the development of competition in meter ownership and meter operation, which will continue to be distribution business activities. As competition develops further in these activities and distribution businesses lose market share this should not lead to an increase in distribution profits. The draft proposals explained that it will be sensible to introduce an adjustment mechanism to reduce distribution business

revenue by an estimate of the savings in avoidable costs associated with reduced activity in these areas.

- 1.39 As noted in paragraph 1.28 distribution business prepayment meter surcharges are excluded from the main price control and so revenue will automatically adjust if prepayment meters are provided by other companies. Therefore, any further adjustment mechanism would need to focus on the provision of standard non half hour meters. Savings in distribution business avoidable costs would be greatest if the distribution business did not need to replace meters that had come to the end of their useful life, when customers changed tariffs or having to install meters for new customers.
- 1.40 If a PES wishes to sell its existing stock of meters to a third party this will present a broader set of issues and concerns. For instance, at present, meters are classified as network capital expenditure and included in the regulatory asset base. Therefore, if meters are sold it will be necessary to consider whether adjustments should be made to the asset base and the overall level of the price control.

2 OPERATING COSTS

Introduction

- 2.1 The October update set out Ofgem's overall approach to the analysis of operating costs. Under this approach, a number of adjustments were made to total operating costs in order to normalise costs. Subsequently assessments of efficiency were carried out by Ofgem's consultants, PKF and by regression analysis.
- 2.2 In response to the October update, many PESs criticised Ofgem's methodology as being insufficiently robust. PESs argued that the normalisation adjustments were inappropriate or excessive, and that the work of PKF and the regression analysis gave insufficient weight to economies of scale and other company specific factors. Ofgem has considered PESs views, but believes the overall approach to be valid.
- 2.3 The October update reflected the most recent figures prepared by PKF, as contained in addenda to their draft reports. PESs have now seen and commented upon the addenda and consequently a small number of adjustments have been made.
- 2.4 The analysis of operating costs is carried out in the remainder of this chapter in the following way. Costs are considered net of National Grid Company (NGC) exit charges, network depreciation and network rates. They are adjusted for differences in capitalisation policies, cost allocations and attributions, regional factors and one-off costs. The resulting base level of costs forms a basis for further analysis and assessment, which includes work by PKF, regression analysis and assessment by Peter Warry.

Capitalisation Policy

- 2.5 Ofgem asked its consultants to quantify the effects of different capitalisation policies. Table 2.1 sets out the consultants' updated estimates of the transfers to operating costs necessary to normalise costs for differences in capitalisation policy in 1997/98.

TABLE 2.1: ESTIMATES OF THE TRANSFERS TO OPERATING COSTS FROM CAPITAL EXPENDITURE TO NORMALISE FOR DIFFERENCES IN ACCOUNTING POLICY (1997/98 PRICES £MILLION)

PES	Repairs	Metering	Non Operational IT Depreciation	Project IT Depreciation	Other	Total
Eastern	-	-	-	(2.2)	-	(2.2)
East Midlands	-	(1.3)	-	-	-	(1.3)
London	-	-	1.1	11.9	-	13.0
Manweb	0.4	0.5	1.3	-	-	2.2
Midlands	-	5.0	3.0	1.1	-	9.1
Northern	-	0.4	-	-	-	0.4
NORWEB	3.6	0.6	-	-	1.0	5.2
SEEBOARD	8.5	2.1	0.8	-	-	11.4
Southern	3.7	2.5	-	(2.3)	-	3.9
SWALEC	5.0	(0.6)	-	3.7	-	8.1
South Western	-	0.7	0.4	-	3.3	4.4
Yorkshire	11.9	3.2	-	0.8	-	15.9
ScottishPower	0.7	1.7	2.0	-	2.7	7.1
Hydro-Electric	-	2.5	-	-	-	2.5
Total	33.8	17.3	8.6	13.0	7.0	79.7

2.6 With the exception of project IT depreciation, the transfers shown above are from network capital expenditure to operating costs.

Allocations, Attributions and Recharges

2.7 Ofgem asked PKF to investigate the present cost allocations and replace them, wherever possible, with attributions made on a usage basis, consistent with the proposals for separation. Since the October update, PESs have commented upon the addenda to the draft PKF reports, and as a result, further adjustments have been made to the figures for Midlands, Northern and Yorkshire.

2.8 Table 2.2 sets out updated estimates of the changes to distribution operating costs arising out of these revised allocations and attributions of costs.

TABLE 2.2: ESTIMATES OF THE ADJUSTMENTS TO DISTRIBUTION OPERATING COSTS ARISING FROM REVISED ALLOCATION AND ATTRIBUTION OF COSTS (1997/98 PRICES £MILLION)

PES	Advertising & Marketing	Customer Services	Billing	Metering	Corporate	Other	Total
Eastern	(0.8)	(15.3)	0.5	(9.1)	(5.5)	-	(30.2)
East Midlands	(3.6)	(2.3)	(3.3)	(9.8)	(5.4)	-	(24.4)
London	(1.5)	(21.8)	(0.8)	(9.4)	(2.3)	(5.5)	(41.3)
Manweb	(4.6)	(4.9)	0.5	(6.4)	(3.5)	-	(18.9)
Midlands	-	(1.5)	(0.5)	(10.8)	(2.4)	-	(15.2)
Northern	(0.9)	(5.1)	(0.2)	(4.6)	(1.9)	-	(12.7)
NORWEB	(1.1)	(6.7)	(1.8)	(4.9)	(3.8)	-	(18.3)
SEEBOARD	(5.0)	(11.5)	-	(7.1)	(1.9)	-	(25.5)
Southern	(1.0)	(4.7)	-	(3.8)	-	-	(9.5)
SWALEC	(1.7)	(3.8)	-	(2.9)	(2.9)	-	(11.3)
South Western	-	(2.7)	(0.3)	(4.0)	(1.9)	-	(8.9)
Yorkshire	-	(8.0)	0.3	(8.5)	(2.1)	(0.1)	(18.4)
ScottishPower	(5.3)	(2.0)	(2.4)	(8.2)	(3.7)	-	(21.6)
Hydro-Electric	-	(1.4)	0.1	(3.1)	(3.1)	-	(7.5)
Total	(25.5)	(91.7)	(7.9)	(92.6)	(40.4)	(5.6)	(263.7)

2.9 The analysis in the October update removed the margins on recharges from other companies in a PESs group, except where those companies carried out 50 per cent or more of their trade externally to the group. Table 2.3 sets out revised estimates for these adjustments.

TABLE 2.3: ESTIMATES OF ADJUSTMENTS TO DISTRIBUTION BUSINESS OPERATING COSTS ARISING OUT OF THE ANALYSIS OF RECHARGES (1997/98 PRICES £MILLION)

PES	£M
Eastern	0.0
East Midlands	(0.2)
London	(0.4)
Manweb	0.0
Midlands	(0.2)
Northern	(11.3)
NORWEB	(3.7)
SEEBOARD	0.0
Southern	(2.0)
SWALEC	(3.4)
South Western	(1.6)
Yorkshire	(0.5)
ScottishPower	0.0
Hydro-Electric	0.0
Total	(23.3)

Standardising Operating Costs in 1997/98

2.10 Table 2.4 combines controllable costs (total operating costs excluding network depreciation, network rates, NGC exit charges and profit and losses on the sale of fixed assets) for 1997/98 with the accounting adjustments shown in Tables 2.1, 2.2 and 2.3.

**TABLE 2.4: ADJUSTED CONTROLLABLE COSTS (1997/98 PRICES
£MILLION)**

PES	Controllable Costs	Capitalisation	Allocations and Attributions	Recharges	Adjusted Costs
Eastern	151.0	(2.2)	(30.2)	0.0	118.6
East Midlands	146.4	(1.3)	(24.4)	(0.2)	120.5
London	131.8	13.0	(41.3)	(0.4)	103.1
Manweb	84.5	2.2	(18.9)	0.0	67.8
Midlands	127.2	9.1	(15.2)	(0.2)	120.9
Northern	99.1	0.4	(12.7)	(11.3)	75.5
NORWEB	129.9	5.2	(18.3)	(3.7)	113.1
SEEBOARD	81.8	11.4	(25.5)	0.0	67.7
Southern	88.4	3.9	(9.5)	(2.0)	80.8
SWALEC	75.4	8.1	(11.3)	(3.4)	68.8
South Western	73.9	4.4	(8.9)	(1.6)	67.8
Yorkshire	101.3	15.9	(18.4)	(0.5)	98.3
ScottishPower	101.3	7.1	(21.6)	0.0	86.8
Hydro-Electric	59.9	2.5	(7.5)	0.0	54.9
Total	1451.9	79.7	(263.7)	(23.3)	1244.6

2.11 As set out in the October update, in order to make costs more comparable, a number of further adjustments have been made to the adjusted costs shown in Table 2.4. These are in respect of Data Management Services (DMS), Non-trading rechargeables (NTRs), other one-off costs, other commercial services, provisions and other adjustments. More detailed descriptions of these adjustments were provided in the draft proposals.

2.12 Since the October update, changes have been made to the figures for Eastern, Midlands, and NORWEB, reflecting comments received in respect of the addenda to the draft PKF reports. Revised standardised controllable costs are shown in Table 2.5.

**TABLE 2.5: STANDARDISED CONTROLLABLE COSTS (1997/98 PRICES
£MILLION)**

PES	Adjusted Net Costs	DMS	NTRs	One- Offs	Other Services	Provision	Other	Standardised Costs
Eastern	118.6	-	(20.1)	(13.6)	-	(5.9)	(5.3)	73.7
East Midlands	120.5	(10.0)	(10.1)	(13.2)	(6.1)	(0.1)	(0.5)	80.5
London	103.1	(17.9)	(11.4)	5.5	(2.4)	(0.6)	(2.1)	74.2
Manweb	67.8	-	(5.0)	(2.4)	-	(1.1)	(1.4)	57.9
Midlands	120.9	(4.0)	(13.4)	(6.7)	-	(0.8)	(1.8)	94.2
Northern	75.5	(1.1)	(5.4)	(1.0)	-	(0.3)	(1.1)	66.6
NORWEB	113.1	(6.3)	(12.8)	(3.2)	(0.3)	4.0	(1.2)	93.3
SEEBOARD	67.7	(0.3)	(8.3)	2.7	-	-	(0.1)	61.7
Southern	80.8	(5.7)	(9.8)	(0.9)	-	-	(1.0)	63.4
SWALEC	68.8	(3.3)	(5.2)	(11.0)	(1.9)	1.0	(0.5)	47.9
South Western	67.8	(0.3)	(2.8)	(1.0)	-	0.6	(0.6)	63.7
Yorkshire	98.3	(3.8)	(5.6)	(10.1)	-	1.3	(0.1)	80.0
ScottishPower	86.8	(0.3)	(7.3)	0.0	(18.3)	4.7	(1.2)	64.4
Hydro-Electric	54.9	(1.1)	(2.0)	(3.2)	(0.8)	0.4	(0.8)	47.4
Total	1244.6	(54.1)	(119.2)	(58.1)	(29.8)	3.2	(17.7)	968.9

2.13 In order to take account of certain company specific factors, regional adjustments have been made to the ongoing level of standardised controllable costs shown in Table 2.5. These include, for example, adjustments for the higher labour costs faced by London and for the different arrangements in Scotland, where the 132 kV networks are part of the transmission business, in contrast to England and Wales where they are part of distribution.

2.14 One alteration has been made to the regional adjustments contained in the October update. The update raised the question whether an adjustment should be made for Hydro-Electric, to reflect the extra costs associated with serving the Scottish islands. In the light of comments received from respondents, an adjustment of £2 million has been made to this analysis, and also that of PKF. When combined with the adjustment relating to the operation of 132kV networks this gives a net adjustment of £1.2 million.

TABLE 2.6: BASE COSTS (1997/98 PRICES £MILLION)

PES	Standardised Controllable Costs	Regional Adjustments	Base Costs
Eastern	73.7	-	73.7
East Midlands	80.5	-	80.5
London	74.2	(8.0)	66.2
Manweb	57.9	-	57.9
Midlands	94.2	-	94.2
Northern	66.6	-	66.6
NORWEB	93.3	-	93.3
SEEBOARD	61.7	-	61.7
Southern	63.4	-	63.4
SWALEC	47.9	-	47.9
South Western	63.7	-	63.7
Yorkshire	80.0	-	80.0
ScottishPower	64.4	6.1	70.5
Hydro-Electric	47.4	1.2	48.6
Total	968.9	(0.7)	968.2

- 2.15 The draft proposals and the October update set out in detail the regression analysis used to evaluate the level of base costs. In addition, the work of PKF and Peter Warry identified two distinct groups of PESs - a small group which were of above average efficiency and those which were less efficient. It is possible to think of a smaller selection of those PESs who are more efficient as representing companies at the efficiency frontier, with other PESs above the frontier to differing extents, depending on their relative efficiency.
- 2.16 The implication of this for the regression analysis was that it was not appropriate to group all PESs together. The analysis suggested that Eastern and Southern were presently at the frontier with SEEBOARD the next most efficient company.
- 2.17 It is reasonable to expect that, over time, all PESs should move toward the frontier. Accordingly, the results from the regression analysis have been used to support the work of PKF to derive an assessment of the relative efficiency of companies and to support their analysis of the level of cost reductions expected from the PESs over the period to 2004/05.

Consultants' Efficiency Study

- 2.18 The draft proposals and the October update contained details of the techniques used by Ofgem's consultants to assess the relative efficiency of PES distribution businesses. PKF's techniques have not altered since the October update. Except for the adjustment made to Hydro-Electric described above, neither has their view of an efficient

level of operating costs for each PES. However, the adjustments made to base operating costs since the update cause a slight increase in potential reductions in operating costs for certain PESs.

2.19 PKF's revised view of the overall cost reductions potentially achievable for each PES for the year 1997/98 are shown below in Table 2.7.

TABLE 2.7: PKF POTENTIAL REDUCTIONS IN STANDARDISED CONTROLLABLE OPERATING COSTS IN 1997/98 (PER CENT)

PES	REDUCTION
Eastern	2%
East Midlands	26%
London	29%
Manweb	27%
Midlands	32%
Northern	39%
NORWEB	41%
SEEBOARD	16%
Southern	(1)%
SWALEC	23%
South Western	31%
Yorkshire	33%
ScottishPower	22%
Hydro-Electric	18%
Average	25%

2.20 Table 2.8 compares the results of the regression analysis with the consultants' efficiency study.

TABLE 2.8: COMPARISON OF THE RESULTS OF THE EFFICIENCY STUDY AND REGRESSION ANALYSIS FOR 1997/98 (PER CENT)

PES	REGRESSION	EFFICIENCY STUDY
	POTENTIAL SAVING	POTENTIAL SAVING
Eastern	0%	2%
East Midlands	24%	26%
London	19%	29%
Manweb	20%	27%
Midlands	36%	32%
Northern	31%	39%
NORWEB	37%	41%
SEEBOARD	13%	16%
Southern	(4)%	(1)%
SWALEC	18%	23%
South Western	27%	31%
Yorkshire	30%	33%
ScottishPower	24%	22%
Hydro-Electric	23%	18%
Average	22%	25%

2.21 Table 2.8 shows that the level of potential efficiency available to PESs is typically a little higher in the efficiency study than in the regression. While there is some variation between the figures both in the absolute level of potential efficiencies and in the relative position of PESs, the picture presented appears broadly similar.

Future Costs

2.22 In addition to the work on costs in the base year, the October update also considered the efficient level of operating costs between the base year 1997/98 and 2004/05.

2.23 Respondents to the October update were broadly supportive of the approach described. Consequently, with one minor adjustment, it is proposed to retain that approach, which is as follows:

- to take the lesser reduction from the PKF revised report and the regression analysis;
- high cost companies to move three quarters of the way to the frontier by 2001/02 and then retain that position relative to the frontier;
- to allow all PESs £3 million per year in respect of asset management IT systems;
- to allow £1 million per year ongoing cost for all PESs for the period of the control in consideration of the proposals for business separation;
- an allowance for one off costs which falls to zero by 2002/3; and
- not to tighten the efficiency frontier from 1998/99 onwards

2.24 An adjustment has been made in respect of the licence fees payable by distribution businesses. Over the course of the next price control period it would seem likely that the level of licence fee payable will exceed that experienced in the base year, 1997/98. Consequently an increase in cost has been allowed for, proportionate to the size of each PES's present licence fee. The adjustment adds between £100,000 and £300,000 per annum to the future cost projections of each PES.

2.25 The above approach gives an average annual fall in cost of 2.3 per cent.

2.26 The method of calculation of one off costs is as described in the draft proposals. The aggregate figure for 1997/98 has been revised to £58.1 million, as shown in Table 2.5.

2.27 Table 2.9 shows the impact of these assumptions on the level of allowed operating costs for each company in 2004/05.

TABLE 2.9: THE RANGE FOR STANDARDISED CONTROLLABLE COSTS INCLUDING ALLOWANCE FOR ONE-OFF COSTS (£MILLION 1997/98 PRICES)

PESs	1997/98	2004/5
Eastern	80.6	78.1
East Midlands	85.7	70.5
London	78.1	68.1
Manweb	61.0	53.3
Midlands	99.2	75.8
Northern	69.7	55.5
NORWEB	98.1	71.4
SEEBOARD	65.8	60.0
Southern	69.1	70.0
SWALEC	50.1	45.4
South Western	66.9	54.9
Yorkshire	84.5	66.5
Scottish Power	68.7	57.8
Hydro-Electric	49.4	45.2
Total	1027.0	872.5

2.28 The rateable values of PES distribution businesses are to be reassessed for the five years from April 2000. Although a number of Government consultations have occurred, there is still an element of uncertainty regarding the level of formula rates payable for the 5 years to 2004/05, especially in Scotland. Previous calculations assumed that the level of network rates would remain constant in real terms at the level experienced in 1997/98. Based on information received from Government departments, the table below sets out Ofgem's latest expectation of the level of formula rates in 2002/03, the middle year of the price control period, as compared to the figures for 1997/98. The middle year of the period has been selected because it appears to represent a reasonable average of the annual level of cost over the five year period.

TABLE 2.10: ESTIMATED CHANGES TO FORMULA RATES - 1997/98 TO 2002/3 (£MILLION 1997/98 PRICES)

PESs	1997/98	2002/3
Eastern	24.3	22.4
East Midlands	18.4	21.3
London	19.9	18.3
Manweb	12.1	13.4
Midlands	20.5	21.0
Northern	14.5	13.2
NORWEB	18.6	17.0
SEEBOARD	14.7	13.5
Southern	23.3	30.5
SWALEC	8.6	10.5
South Western	14.3	13.6
Yorkshire	20.5	19.3
Scottish Power	15.2	18.1
Hydro-Electric	7.9	9.4
Total	232.8	241.5

- 2.29 It can be seen that, although on average the level of rates is broadly flat, there is significant variation between PESs, with some experiencing increases in the level of cost and others reductions.
- 2.30 It is expected that any further changes to the amount of rates payable will be announced by DETR, and the Scottish Executive. It is proposed to amend the distribution price control proposals to take account of any such changes once they are announced.
- 2.31 As described in the October update, the existing separate allowance for DMS work will continue, but will be divided between the supply and distribution businesses, with two thirds of the allowance remaining with the distribution business.
- 2.32 The DMS revenue allowance is split into two parts, one in respect of set up costs, another in respect of operating costs. At the time the allowance was set, Ofgem proposed that the set up costs allowance would run for five years, from 1998/99 to 2002/3, and also that the level of allowance would be reviewed once the systems were operating. Many PESs have argued that the cost of setting up DMS systems has proved considerably higher than the associated revenue allowance. At the time of setting the DMS allowances OFFER agreed that it would reconsider the level of the allowances in the light of the outturn level of costs. In light of this commitment and having considered the PESs arguments, it seems appropriate to extend the life of the DMS set up costs allowance for a further two years, from 2002/03 to 2004/05.

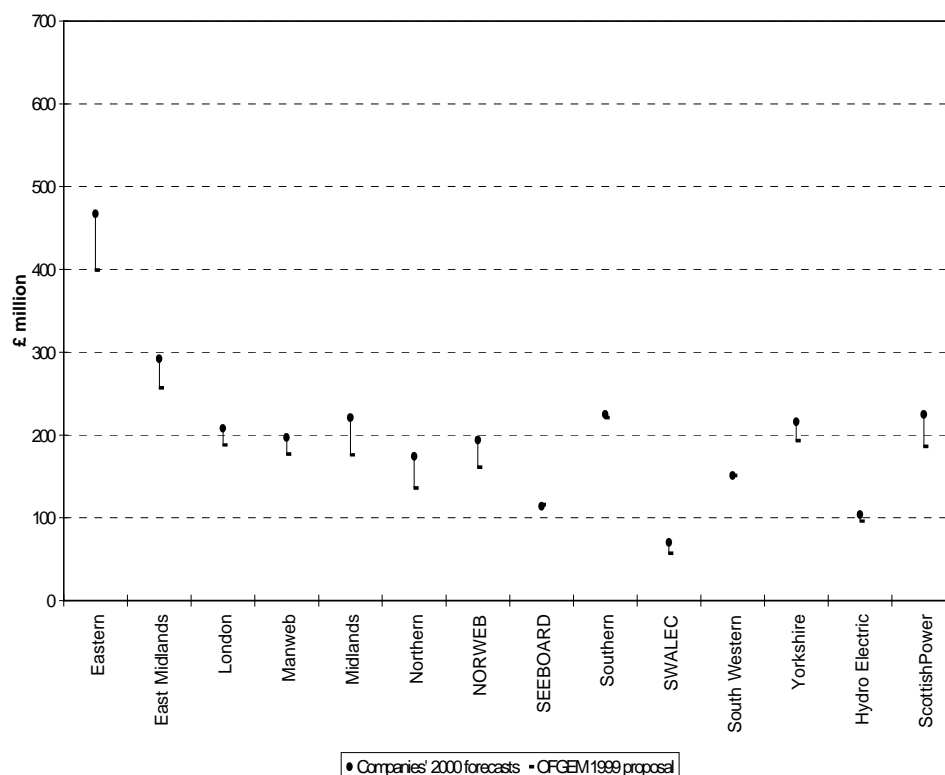
3 Capital Expenditure

- 3.1 The May 1999 consultation paper included a review of companies' capital expenditure in the present price control period and their proposals for expenditure in the forthcoming price control period.
- 3.2 The draft proposals described Ofgem's initial approach to modelling capital expenditure requirements for the period 2000-2005. Initial capital expenditure proposals were developed from benchmarking against median company performance. The October update included further capital expenditure modelling analysis. This differed from the analysis in the draft proposals in that allowances were derived from benchmarking at a level midway between median company performance and upper quartile company performance.
- 3.3 These final proposals take account of all views expressed about the earlier modelling and Ofgem's intention to set capital expenditure allowances at an appropriate level for the period 2000-2005. Subject to adjustments described below, Ofgem confirms the approach of the October update which benchmarked capital expenditure at a level midway between median and upper quartile company performance. This is intended to provide adequate capital allowances for relatively efficient companies but recognises that not all companies will be able to achieve the degree of capital expenditure efficiency which has been demonstrated by some companies in the period 1995-2000.

Load related capital expenditure

- 3.4 Using the modelling techniques and benchmarking described in the draft proposals and the October update, Ofgem's projections of load related expenditure (LRE) for each company for the period 2000-2005 are shown in Figure 3, compared with the companies own forecasts.
- 3.5 The companies with the largest reductions are Northern (22 per cent), Midlands (20 per cent) and SWALEC (19 per cent).

FIGURE 3.1: OFGEM'S FINAL LOAD RELATED CAPITAL EXPENDITURE PROJECTIONS FOR THE FORTHCOMING PRICE CONTROL PERIOD (1997/98 PRICES £MILLION)



Non-load related capital expenditure

3.6 As described above, modelling techniques used in the October update have been used to calculate Ofgem's final non-load related capital expenditure projections.

3.7 In the light of views expressed by some companies that the modelling might not properly represent some features of non-load related expenditure, adjustments have been made to the model output to incorporate additional capital expenditure for which companies have provided robust justification. These adjustments relate to:

- LV Consac cables – Consac cables were installed in the 1970s and early 1980s; they are showing some signs of premature failure. Additional allowances have been included for Midlands, Northern, NORWEB and Southern to reflect their claims that Consac cable

will need to be replaced at a higher rate than would be expected from normal replacement modelling; and

- HV switchgear – An additional capital expenditure allowance has been included for SWALEC which is engaged in a programme of replacement of a particular type of HV switchgear which is unsafe.

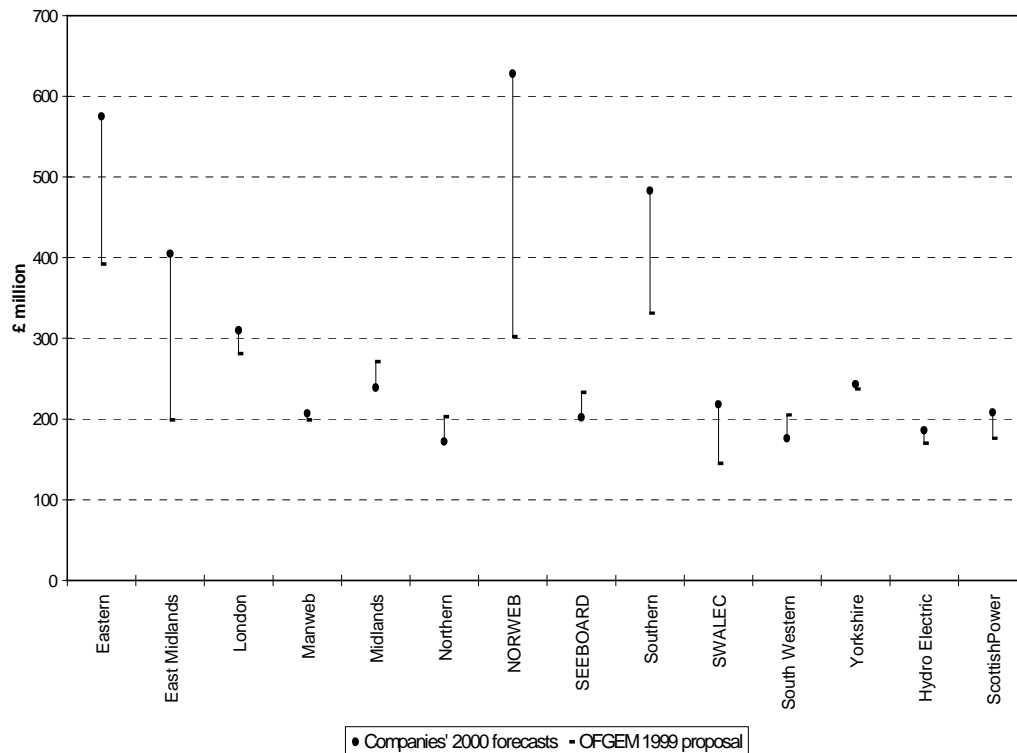
3.8 Other adjustments to the modelling have been made to reflect inaccuracies in earlier modelling or updated information from companies.

3.9 Some companies argued for further adjustments to Ofgem's projections to account for expenditure in the following categories:

- asset management IT systems - Several companies claimed that Ofgem's earlier capital expenditure and operating expenditure projections contained insufficient provision for asset management IT expenditure. Such expenditure is more appropriately treated as operating expenditure rather than capital expenditure and to reflect this an allowance has been made for IT expenditure in the operating expenditure projections described in Chapter 2;
- metering capital expenditure - Some companies argued for additional capital expenditure to replace certain types of electronic meters during the period 2000-2005; there was also concern about the treatment of meter refurbishment costs. Although it is likely that higher numbers of certain types of meter will fall to be replaced in the period 2000-2005, it is not clear why customers should bear the additional burden of companies' past discretionary expenditure decisions. Accordingly, no adjustment has been made to Ofgem's projections. However, recognition will be given at the next review to meter refurbishment costs which arise as a direct alternative to capital expenditure on meter replacement; and
- operation and maintenance on-costs in connection charges - London referred to the possible impact on connection charge receipts of a recent determination by Ofgem relating to the amount chargeable for future operation and maintenance costs of connection assets. The difference in overall revenue resulting from this is likely to be no greater than recent differences observed between forecast and actual capital receipts from connections. Accordingly, no adjustment has been made for this factor in arriving at Ofgem's final projections.

3.10 Figure 3.2 below shows the companies' 2000 forecasts and Ofgem's revised projected non-load related capital expenditure for 2000-2005.

FIGURE 3.2: OFGEM'S FINAL NON LOAD RELATED CAPITAL EXPENDITURE PROJECTIONS FOR THE FORTHCOMING PRICE CONTROL PERIOD (1997/98 PRICES £MILLION)



3.11 For the following companies the modelling indicates significant downward adjustments:

- NORWEB 52 per cent;
- East Midlands 51 per cent;
- SWALEC 33 per cent;
- Eastern 32 per cent; and
- Southern 31 per cent.

3.12 The reasons for these adjustments remain as described in the draft proposals.

Quality of Supply Expenditure

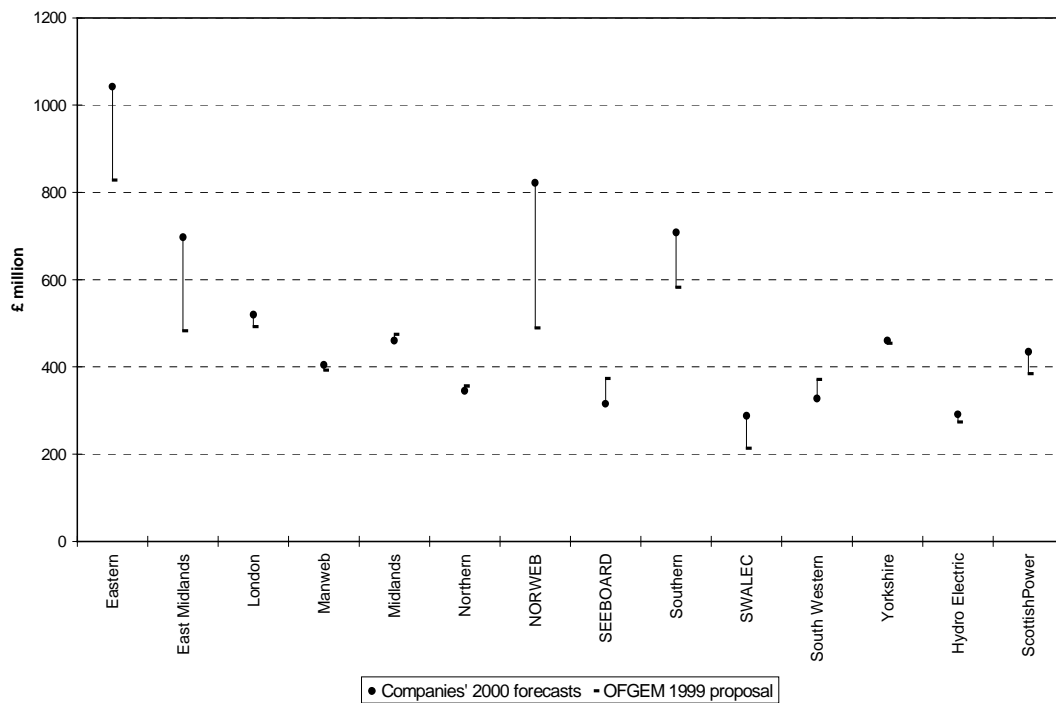
3.13 The draft proposals indicated that an expenditure allowance for quality of supply improvement measures in the range of £1 - £4 per customer per year might be appropriate for the period 2000-2005. The October update included a notional capital expenditure allowance of £1 per customer per year in its revenue calculations.

3.14 The quality improvements included in these final proposals and the tightening of certain quality standards will clearly have capital expenditure implications. In view of the indications of the likely cost of quality improvements in future implied by companies' quality cases, and an identified willingness for customers to support modest extra costs for improved quality, it seems appropriate to continue to allow the same level of quality expenditure for 2000-2005 as for 1995-2000, that is £2.30 per customer per year.

Overall capital expenditure requirements

3.15 Ofgem's final projections for overall capital expenditure requirements are shown graphically in Figure 3.3 below and in tabular form in Table 3.1.

FIGURE 3.3: OFGEM'S FINAL CAPITAL EXPENDITURE PROJECTIONS FOR THE FORTHCOMING PRICE CONTROL PERIOD (1997/98 PRICES £MILLION)



**TABLE 3.1: CAPITAL EXPENDITURE ALLOWANCES (1997/98 PRICES
£MILLION)**

Capital Expenditure allowances	Load Related Capital Expenditure		Non Load Related Capital Expenditure		Total Capital Expenditure		Quality of Supply	Overall Capital Expenditure	
	Companies' 2000 forecasts	Ofgem 1999 proposal	Companies' 2000 forecasts	Ofgem 1999 proposal	Companies' 2000 forecasts	Ofgem 1999 proposal		Ofgem 1999 proposal	Companies' 2000 forecasts
PES									
Eastern	467	399	575	392	1042	791	36	1042	827
East Midlands	292	257	405	199	697	456	27	697	483
London	208	188	310	281	519	469	23	519	492
Manweb	197	177	207	199	404	376	16	404	392
Midlands	221	176	239	271	460	447	26	460	473
Northern	174	136	172	203	345	339	17	345	356
NORWEB	194	161	628	302	822	463	25	822	488
SEEBOARD	114	116	202	233	315	349	24	315	373
Southern	225	221	483	331	708	552	30	708	582
SWALEC	70	57	218	145	288	202	11	288	213
South Western	151	151	176	205	327	356	15	327	371
Yorkshire	216	193	243	237	460	430	24	460	454
Hydro-Electric	104	96	186	170	291	266	7	291	273
ScottishPower	225	186	208	176	434	362	21	434	383
TOTAL	2858	2514	4252	3344	7112	5858	302	7112	6160

3.16 The results indicate an average reduction of 13 per cent for all companies from their forecasts (company forecasts total £7,112 million while the modelling indicates expenditure requirements of £6,160 million over the price control period).

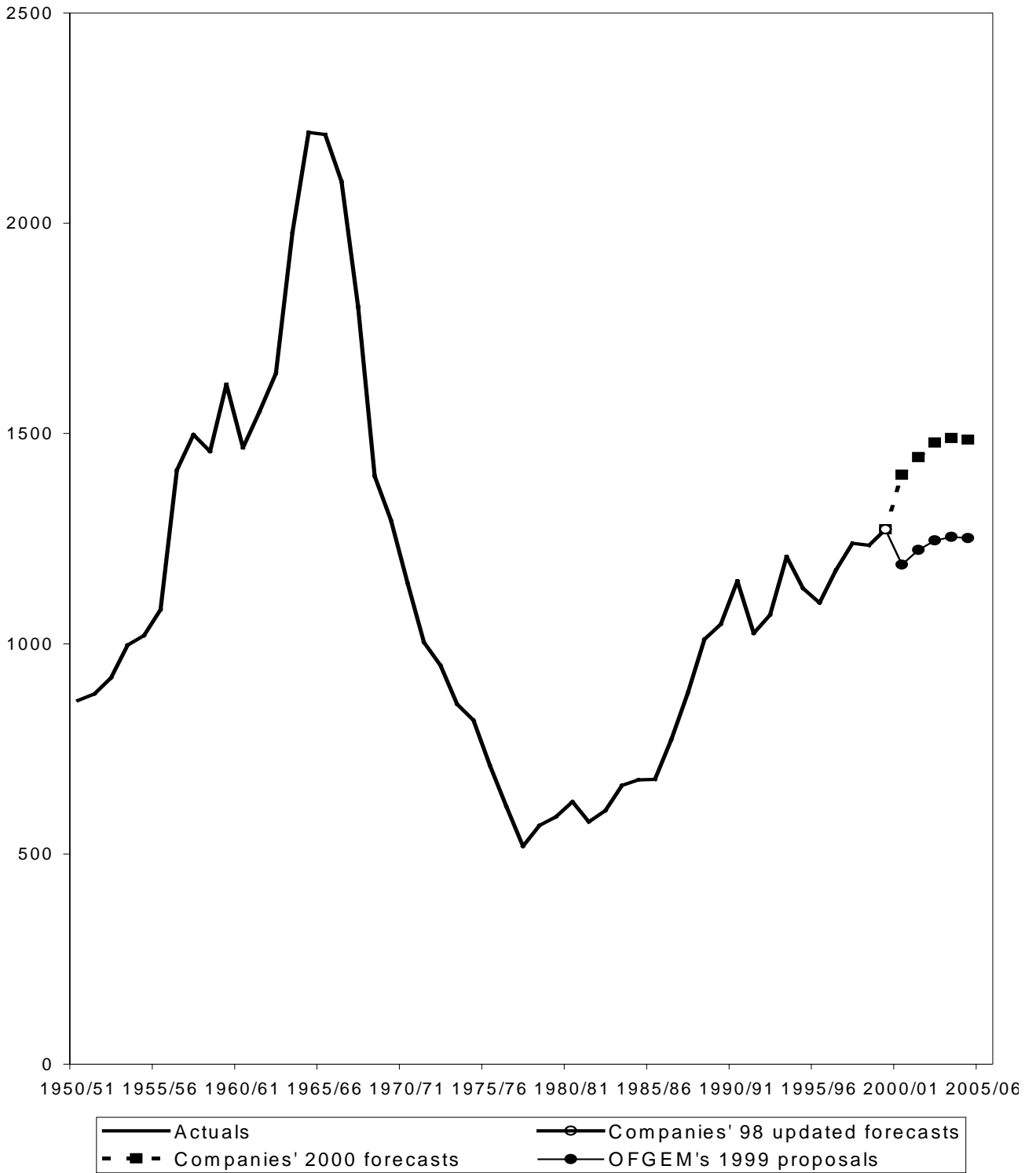
3.17 The overall pattern of adjustment by company is similar to that for non-load related expenditure. Six companies – London, Manweb, Midlands, Northern, Yorkshire and Hydro-Electric – are subject to changes of less than 10 per cent in their overall capital expenditure forecasts.

3.18 The companies with the highest indicated downward adjustments are:

- NORWEB 41 per cent;
- East Midlands 31 per cent;
- SWALEC 26 per cent;
- Eastern 21 per cent; and
- Southern 18 per cent.

3.19 The long term historical path of capital expenditure is shown in Figure 3.4. This figure also shows the future path of capital expenditure implied by the companies' 2000 forecasts and Ofgem's final projections. Notwithstanding the reductions from companies' 2000 forecasts, Ofgem's final projections show spending at a level similar to that which has occurred in the period 1995-2000.

**FIGURE 3.4: DISTRIBUTION BUSINESS CAPITAL EXPENDITURE
(1997/98 PRICES, £MILLION)**



- 3.20 In deciding where and at what level to carry out capital and operating expenditure, companies must also consider the range of obligations they are required to meet. These include not only obligations resulting from these proposals but also a much wider range of duties including those which result from health and safety, and environmental legislation. Ofgem's proposals are intended to allow companies, if managed efficiently, to meet all their obligations in these respects. In accepting Ofgem's proposals, companies must be clear that they can discharge all their duties in a satisfactory way. It will not be appropriate for them to claim later that insufficient allowances were made in the review.
- 3.21 Proposals for capital expenditure are based on present legislative requirements. Companies may be at risk as a result of changes in environmental or health and safety constraints. For example, there might be a need to lay more cables underground than had been anticipated, or to respond to concerns over the effects of magnetic fields. Companies are not alone in having to face risks of adverse legislative changes, but their flexibility may be limited by their licence obligations. Ofgem is therefore prepared to give the companies an undertaking on this issue. If, during or following a public inquiry for which the result is not yet known, or as a result of a change in the law, a company considered it must undertake additional expenditure during the price control period, Ofgem would consider whether to adjust the price control to allow pass through of those costs which it considered reasonable.

4 Quality of Supply

4.1 Improvements in quality of supply form an important part of the final proposals for distribution price controls. They include measures which will improve the quality of supply for customers in general and worst served customers in particular. New quality of supply targets will be imposed along with new and revised quality of supply standards. Some of the proposals will be introduced from April 2000; others will follow on from the Incentives and Information Project during the next price control period. This project will also ensure there are appropriate penalties in place to deal with poor performance.

4.2 In the draft proposals and the October update, Ofgem described a range of proposals for improvements in quality which were then under consideration. These included:

- whether to make Guaranteed Standards payments automatic and whether the severe weather exemption remains appropriate;
- the reduction of the period of interruption after which a Guaranteed Standards payment is due from 24 to 18 hours (perhaps with a similar reduction in the level of payment);
- the introduction of a new standard relating to telephone answering performance;
- a tightening of OS1a (Percentage of Interruptions Restored within 3 Hours) by 3 percentage points; and,
- a requirement on the companies to underground 5 per cent of HV overhead lines during the period 2000-2005.

4.3 A number of responses have been received to the draft proposals and October update. These have been given careful consideration in defining new targets, particularly in the following areas:

- the companies' ability to meet tighter quality of supply targets. In particular, whether sufficient allowances have been made for the necessary expenditure;
- the attitude of customers, and particularly the Consumers' Committees, to any changes; and
- the ability of the companies to measure performance required under the proposed new targets.

New Targets for Overall System Performance

4.4 Revised targets for overall system performance were described in the October update. They are shown in Table 4.1 below.

TABLE 4:1 DRAFT SECURITY AND AVAILABILITY TARGETS

PES	Availability target for 2004/05	Security target for 2004/05
Eastern	64	68
East Midlands	71	85
London	40	30
Manweb	58	43
Midlands	86	109
Northern	77	83
NORWEB	64	55
SEEBOARD	60	78
Southern	42	65
SWALEC	117	152
South Western	56	81
Yorkshire	54	78
ScottishPower	71	65
Hydro-Electric	210	133

Note: Security of supply is measured in terms of the number of interruptions per 100 customers and availability of supply in terms of the number of customer minutes lost per customer.

4.5 These imposed modest improvements in average performance in availability and security for all companies. Among the responses to these proposals, companies gave the following views which Ofgem has taken into account in arriving at final targets:

- Southern said that Ofgem's proposed availability target of 42 minutes lost partly reflected improvements resulting from the high level of non-load related capital expenditure spent on overhead networks in the present price control period. Further improvements in future would depend on the level of quality improvement capital expenditure included in the new control;
- Midlands and SEEBOARD said that recent improvements in counting customers had shown that they were previously underestimating their measured performance. Midlands accepted Ofgem's method of calculating initial targets except for the use of their own 1995-2000 targets, which were based on the old counting system. SEEBOARD requested a change of the availability target from 60 to 67 customer minutes lost to reflect the new method; and
- Hydro-Electric pointed out that Ofgem's proposed security target, at 133 interruptions per 100 customers, was significantly lower than

their best performance to date (of 146). The company also volunteered a tighter availability target.

4.6 Notwithstanding these further views, no respondent has proposed an alternative, systematic way of setting these targets which could be satisfactorily applied to all companies.

4.7 In the light of this, the method of calculation and most of the targets set out in the October update have been retained. However, it seems appropriate to modify the targets to take account of the above specific concerns. Final proposed quality targets are shown in Table 4.2 below.

TABLE 4.2: FINAL SECURITY AND AVAILABILITY TARGETS

PES	Availability target for 2004/05	Security target for 2004/05
Eastern	64	68
East Midlands	71	85
London	40	30
Manweb	58	43
Midlands	96	116
Northern	77	83
NORWEB	64	55
SEEBOARD	67	78
Southern	55	65
SWALEC	117	152
South Western	56	81
Yorkshire	54	78
ScottishPower	71	65
Hydro-Electric	195	140

Note: Security of supply is measured in terms of the number of interruptions per 100 customers and availability of supply in terms of the number of customer minutes lost per customer.

4.8 Performance against these targets will be measured in the same way as described in the October update for the present price control period. This involves tracking the underlying trend in system performance by excluding results for those years affected by severe weather. This approach will be reviewed as part of the Information and Incentives Project.

4.9 It remains appropriate to exclude unusually severe weather from the measurement of these targets. However, companies have separately been asked by Ofgem to produce a strategy for dealing with storms. Ofgem will be reviewing these strategic plans shortly.

Changes to Guaranteed and Overall Standards

Supply restoration standards GS2 and OS1b

4.10 Guaranteed Standard 2 (GS2) currently requires that a penalty payment is due if supply to a customer is not restored within 24 hours. This period will be reduced to 18 hours with effect from April 2000. Companies will be required to make penalty payments automatically under this standard from April 2002. The associated Overall Standard (OS1b) will be set at a target restoration rate of 99.5% within 18 hours for all companies from April 2000.

Multiple interruption standards

4.11 The draft proposals and the October update described Ofgem's initial proposals for standards related to quality of supply for worst-served customers. A Guaranteed Standard was proposed from April 2000 with penalty payments for customers suffering more than five interruptions per year. Consideration was also given to introducing an Overall Standard.

4.12 Companies argued such standards were inappropriate at this time. Some companies considered the penalty, or target levels of the standard, too harsh, particularly for rural networks; companies also pointed to difficulties in quantifying targets or measuring achieved standards in the light of the present lack of measured data in this area.

4.13 Consumers' Committees, on the other hand, strongly supported introduction of some standards for multiple interruptions.

4.14 In the light of these views, and in recognition of the evident present difficulties of measurement, the introduction of Standards in this area will be phased to allow collection and analysis of performance data to inform the exact level of penalties for breaching these standards.

4.15 There will be a new Overall Standard covering the maximum number of supply interruptions experienced by customers, such that, from April 2002, of the order of 99 per cent of customers should be subject to not more than a specified number of interruptions a year. Ofgem's initial view is that the maximum number of interruptions should be set at 5 per year, although this proposal is subject to further work. Further, the standard may differ between companies to reflect geographical and network differences.

4.16 A new Guaranteed Standard will also apply from April 2002 with customers suffering more than a specified number of interruptions being entitled to a penalty payment. The Information and Incentives Project will determine the way in which these standards are to be applied.

- 4.17 Any company which cannot provide robust and accurate data to Ofgem's specification on the number of interruptions suffered by customers can expect to incur a revenue penalty. It will be appropriate to consider the size of such a penalty in the light of relevant circumstances at that time. Comparison with other adjustments in this price control suggests that 0.25 per cent of revenue may be appropriate. This penalty would be additional to the proposed 2 per cent band for output incentives described in Chapter 1 for the next price control period. Methods of collecting data must be auditable and accurate to within +/-5 per cent, excluding interruptions arising from single-phase low voltage events where companies must use reasonable endeavors to identify customers affected.

Transient interruptions

- 4.18 In 1995 the companies were required to install transient interruption tracking systems and to provide annual reports on transient interruptions (those interruptions which do not last longer than one minute). The draft proposals indicated that Standards for transient interruptions would not be introduced at this review. Nevertheless, the obligation to count and report on transient interruptions remains. Companies will therefore be required to have in place the necessary facilities by April 2001 and in the interim they will be required to report on their progress in establishing these systems.

Telephone response standards

- 4.19 Experiences during recent winter storms have highlighted the need for distribution businesses to be able to respond effectively to enquiries from customers who are affected by interruptions in supply. There will be a new Overall Standard covering substantive telephone response times, with 90 per cent of calls to be answered within 15 seconds in normal circumstances and 80 per cent of calls to be answered within 30 seconds in exceptional circumstances. Companies will be required to have suitable telephone systems operational by April 2002 with the Overall Standard to be introduced at this time.

OS1a - Increased Percentage of Interruptions Restored within 3 Hours by 3 Percentage Points

- 4.20 There is some support for tightening this standard but the companies remain opposed. They say that as overall network performance is improved by measures designed to reconnect large groups of customers affected by high voltage system faults more rapidly, the percentage of customers remaining affected by faults on lower voltage systems with slower restoration times is increased. As a result, some

companies say that OS1a already gives perverse incentives which tend to discourage cost effective improvements at higher voltage levels. In the light of this, it seems more appropriate to maintain its present levels during the next price control period but consider other ways of seeking improvements in this performance area as part of the Information and Incentives Project.

Undergrounding 5 per cent of HV Overhead Lines

4.21 Ofgem presently considers it inappropriate to set a standard in this area, while expecting that companies will continue to be responsive to undergrounding in environmentally sensitive circumstances.

Severe weather exemptions

4.22 Ofgem confirms the position described in the draft proposals, that there will be no change to the existing severe weather exemptions which apply to Standards. However Ofgem will monitor closely companies' claims invoking any exemptions. The treatment of severe weather exemptions will be reviewed as part of the Information and Incentives Project.

Quality of Supply annual reports

4.23 The requirement for companies to publish annual Quality of Supply Reports was introduced in 1995. This requirement will continue for the forthcoming price control period. In line with the indications in the draft proposals, a common reporting format will be introduced from 2000/2001. This will be informed by best practice in present Quality of Supply Reports and by the views of Consumers' Committees.

5 FINANCIAL ISSUES

Introduction

- 5.1 The 20 May consultation paper and draft proposals set out a framework for the analysis and assessment of financial issues as part of the distribution price control review. This chapter deals with these issues, starting with an assessment of the cost of capital and matters relating to asset valuation. It then describes the supporting checks that have been carried out on the financial position of each PES and discusses issues relating to the path of distribution charges over time.

Cost of Capital

- 5.2 The level of return that is required by the financial markets is called the cost of capital. The cost of capital is usually calculated as a weighted average of the cost of debt and equity finance.

(i) Gearing and the Weighted Average Cost of Capital

- 5.3 Companies can be financed by both debt and equity. The proportion of debt to debt plus equity is referred to as gearing. In calculating an average cost of capital it is necessary to make an assumption about gearing. Gearing also influences the cost of both debt and equity finance. The 20 May consultation paper and draft proposals explained that it would be appropriate to assume that companies have reasonably efficient levels of gearing to encourage financial efficiency and protect the interests of customers.
- 5.4 Specialist credit rating agencies assign rating grades to individual debt issues by assessing the degree of credit risk. These ratings are reviewed on a regular basis. Those rating categories that represent the lowest risk are classified as investment grade, indicating suitability for a wide range of investors. Ratings representing higher risk are classified as speculative, indicating suitability only for limited types of investor. In consequence, there is a marked difference in the ease of access to, and cost of, debt finance for speculative grade issuers.
- 5.5 The 20 May consultation paper suggested that a level of gearing of 50 per cent would be consistent with each PES maintaining a reasonably efficient capital structure and an investment grade credit rating for its debt. Nevertheless, this approach was designed to encourage financial efficiency rather than prescribe any particular capital structure. Provided each PES complies with its licence obligations to maintain an investment grade credit rating for debt it is free to arrange its finances to target whatever level of gearing it deems appropriate. Therefore, it is not necessarily of concern if a PES deviates from this level of gearing. In general PESs have not suggested that a 50 per cent level of gearing is unsustainable. One PES has indicated that a 50 per cent level of gearing

would be consistent with it maintaining a single A credit rating for its debt. Although this makes the gearing level appear relatively generous it is important that the assumptions underlying the revised price controls allow PESs the flexibility to fund investment programmes. In response to the draft proposals the PESs made no new substantive points regarding the level of gearing. Given these considerations a 50 per cent level of gearing has been used in calculating the cost of capital.

(ii) The cost of debt finance

- 5.6 The cost of debt finance can be thought of as having two components, a risk free component and a company specific risk premium.
- 5.7 Although the risk free rate is not directly observable, it is possible to derive an estimate from the return available on UK Government index linked and conventional gilts. Respondents to the 20 May consultation paper supported this approach.
- 5.8 In its 1998 report on Cellnet and Vodafone, the MMC estimated a range for the real risk free rate of between 3.5 and 3.8 per cent, taking account of longer-term historical evidence. In general the PESs suggested similar estimates for the risk free rate, consistent with longer term averages of returns on index linked gilts.
- 5.9 As noted in the 20 May consultation paper, the longer present relatively low yields on index linked and conventional gilts persist, the more persuasive becomes the argument that these lower yields are not simply a feature of short term market conditions. The 20 May consultation paper also indicated that present market rates tend to provide the best informed view of future trends, in that the market already discounts views about past and future trends. The draft proposals considered whether short term market conditions may be causing undue volatility in estimates based on present market rates and concluded this was not the case.
- 5.10 At present yields on index linked gilts with five or more years to maturity are in the range 2 to 2¾ per cent. After adjusting for expectations of inflation the yields on 5 and 20 year conventional gilts are in the range 2 to 3½ per cent. Gilts of both sorts with 10 years to maturity have real yields of about 2¼ per cent. Taking all this information in to account suggests the range of 2¼ to 2¾ per cent for the risk free rate remains a valid estimate.
- 5.11 The debt risk premium reflects the additional return required by the providers of debt finance to hold corporate rather than Government debt and can be estimated as a premium over the real risk free rate. It will depend on a number of company specific factors including the company's business profile, its level of gearing and overall financial position, the size and liquidity of the debt issue and its maturity, and

wider economic factors. These matters are assessed by credit rating agencies. As explained in the previous section it will be appropriate to assume that PES debt maintains its investment grade status. The draft proposals estimated average premiums on BBB rated utility debt at around 140 basis points, or 1.4 percentage points. There is some evidence that the premiums on utility debt with about 5 years to maturity are lower and premiums on utility debt with longer maturities (such as 20 years) are higher. Nevertheless, 1.4 per cent remains a reasonable estimate for the average debt risk premium for PES distribution businesses.

- 5.12 While present market rates are likely to give the best indication of future rates it is important to bear in mind that a reasonably efficient capital structure would have required PESs to have significantly increased debt since the last price control review. Because of the fall in bond yields and lower expectations of inflation, estimates for the cost of debt based on present market rates may not allow companies to meet in full the cost of fixed rate debt taken out between 1995/96 and 1997/98.
- 5.13 The draft proposals explained that assuming the PESs had taken out half their debt during this period, that $\frac{2}{3}$ of this was fixed rate and that $\frac{2}{3}$ of it had a maturity of greater than 5 years, an adjustment would be required in relation to about $\frac{1}{4}$ of total debt. The yield on index linked gilts averaged about $3\frac{1}{2}$ per cent at this time, which is between 75 and 125 basis points higher than the assumptions for the risk free rate set out above. In addition expectations of inflation were about 100 basis points higher, but debt risk premiums were about 50 basis points lower, suggesting total net additional costs ranging between 125 (75+100-50) and 175 (125+100-50) basis points. Therefore, assuming a risk free rate of $2\frac{1}{4}$ and $2\frac{3}{4}$ per cent, this suggests an adjustment for long-term debt that would increase the overall cost of debt finance by about 45 basis points ($175*0.25$) and 30 basis points ($125*0.25$) respectively.
- 5.14 A number of PESs have continued to suggest that the adjustments for long term debt should be made on a company specific basis to reflect the actual costs of financing each distribution business. However, this would not be consistent with the overall approach to the distribution price control review, which seeks to benchmark performance, including financial efficiency, and reward companies with low costs and good quality of supply.
- 5.15 Bringing these estimates together suggests a range for the cost of debt finance of between 4.1 and 4.45 per cent, consistent with the calculations set out in the draft proposals.

(iii) The cost of equity finance

- 5.16 The 20 May consultation paper and draft proposals set out estimates for the cost of equity finance based on the capital asset pricing model (CAPM) and the dividend growth model (DGM).
- 5.17 CAPM derives an estimate for the cost of equity finance by adding an estimate of the real risk free rate to an estimate of the appropriate equity risk premium (ERP). Estimating the real risk free rate is discussed in the section on the cost of debt finance. In estimating the appropriate ERP two factors are taken into consideration, the ERP for the market as a whole and the riskiness of the company relative to the market. The appropriate method of estimating the ERP for the market as a whole has been the subject of considerable debate. This has mainly focused on whether the ERP should be based on observing historical returns, surveying investors' expectations or combining estimates of dividend yields and of real dividend growth.
- 5.18 A number of PESs have continued to suggest an ERP of between 3½ per cent and 5 per cent, consistent with estimates used by the MMC in its 1998 report on Cellnet and Vodafone. CAPM provides a framework to estimate the return required by financial markets for investing in a particular company given its risk. As investment decisions are made on the basis of expectations of the future it seems appropriate to focus attention on present market evidence rather than averages of historic returns. This approach also avoids the practical difficulties associated with judging the period and method for calculating historic averages of returns.
- 5.19 The draft proposals quoted various estimates for the ERP based on the present expectations of City institutions and investors. This evidence suggests a range for the ERP of between 2 and 5 per cent with an average value of 3½ per cent. The calculations set out in the draft focused on a narrow band round this average value, giving a range of 3¼ to 3¾ per cent. These estimates provide an appropriate range for the ERP.
- 5.20 An indication of the specific riskiness of a company relative to the market is given by the beta coefficient. This aims to predict the extent to which a company's share price would tend to change in response to changes in the level of the overall market, and seeks to measure a company's non-diversifiable risk relative to equities generally. The draft proposals used an assumption of 1.0 for the average equity beta. This reflected the low risk nature of the distribution business, which has the characteristics of a natural monopoly, together with the assumption of 50 per cent gearing. In response to the draft proposals a number of PESs said that 50 per cent gearing would lead to equity beta values of greater than 1. This would imply there is more risk associated with a distribution business that is able to retain investment grade status for

debt than for a typical investment in equities. This seems unlikely and so an estimate of 1.0 for equity beta remains valid.

- 5.21 Bringing these estimates together suggests a range for the cost of equity finance of 5.5 to 6.5 per cent, consistent with the calculations set out in the draft proposals. This is broadly in line with the calculation of the cost of equity based on the DGM and set out in the 20 May consultation paper.

(iv) Adjusting for taxation

- 5.22 As well as paying dividends and interest, companies must also finance corporation tax payments. Given that interest payments are allowable against corporation tax, the cost of debt finance does not need to be adjusted upwards to take account of corporation tax.

- 5.23 In its report on Cellnet and Vodafone the MMC adjusted the cost of equity finance upwards by a tax wedge to take account of corporation tax payments. In calculating the tax wedge the MMC assumed that companies would pay the mainstream rate of corporation tax, giving a multiplier of $1/(1-0.3)$ or 1.429. This would be consistent with an effective tax rate (ETR) of 30 per cent, assuming the ETR is calculated using the depreciation derived from the regulatory asset base rather than the depreciation charge in the financial accounts. Evidence from Ofgem's financial modelling does not suggest that the above approach is inappropriate for the distribution businesses. It also retains incentives on PESs to manage their tax liabilities efficiently.

(v) The weighted average pre-tax cost of capital

- 5.24 The draft proposals estimated the pre-tax WACC in the range 6 to 6.9 per cent. This range remains valid, although the yield on Government bonds is no longer falling and so there seems rather less evidence to support a sustainable expectation that the pre-tax WACC would fall to the bottom of that range. Nevertheless, it does not appear necessary to assume a number toward the top end of the range. In the light of these factors it will be prudent to assume a 6½ per cent cost of capital in calculating revised price controls for the distribution business. Table 5.1 shows how this is calculated.

TABLE 5.1: WEIGHTED AVERAGE PRE-TAX COST OF CAPITAL

COMPONENT	CENTRAL CASE
Cost of Debt	
Risk free rate	2.5%
Debt risk premium	1.4%
Adjustment for long term debt	0.4%
Cost of debt	4.3%
Cost of Equity	
Risk free rate	2.5%
Equity risk premium	3.5%
Equity beta	1.0
Post-tax cost of equity	6.0%
Taxation adjustment	1.429
Pre-tax cost of equity	8.6%
WACC	
Gearing	50%
Pre-tax WACC	6.5%

Valuation of Assets

5.25 In order to secure continuing access to funds on acceptable terms, an enterprise needs to provide a return on the capital invested in its business. In the last distribution price control review the capital invested in each PES's distribution business was considered in two parts, the initial capital at privatisation and investment made since then.

(i) Assets acquired at flotation

5.26 The 20 May consultation paper explained that the capital at privatisation of the RECs was valued on the basis of their market value on flotation. Certain adjustments were necessary in order to translate the value of each company as a whole into a value for each distribution business. Somewhat different considerations have applied to the Scottish companies. In its May 1995 report on Hydro-Electric the MMC translated the flotation value for the company as a whole into a value for the distribution and transmission businesses by subtracting a value for the generation business of Hydro-Electric. The value for the distribution business that emerged from this was close to the value used by the Scottish Office in setting Hydro-Electric's original distribution price control, and it was this original price control value that the MMC used as a basis for its 1995 price control proposals.

5.27 As explained in the draft proposals it will be reasonable to adopt an approach to valuing flotation assets consistent with that used in the last distribution price control review. These were set out in the 20 May consultation paper.

(ii) Investment Since Flotation

- 5.28 The present price control was set to include provision for the financing of network capital expenditure over the period 1990/91 to 1994/95 and the projected spending for the period 1995/96 to 1999/2000. The July 1998 consultation paper proposed that in the present price control review only the actual network capital expenditure for the period 1995/96 to 1999/00 would be financed rather than the projected level of spending, provided that the actual expenditure represented a prudent level of spending.
- 5.29 As discussed in Chapters 2 and 3, a number of PESs have made changes to their accounting policies since the last price control review. Some PESs are capitalising expenditures that were previously treated as operating costs while others have classified expenditure previously designated non-operational expenditure as network capital expenditure. It is not appropriate for a PES to gain at a price control review because of a change in accounting policy. Therefore, capital expenditures have been adjusted for changes in capitalisation policy made between 1994/95 and 1999/00.
- 5.30 It has become apparent that the existing distinction between network capital expenditure and operating costs may provide PESs with incentives to distort spending. For instance some PESs have treated meter re-certification costs as operating expenditure and purchases of new meters as network capital expenditure. This has tended to encourage PESs to purchase new meters, since network capital expenditure is thereby added to the asset base. In future it will be appropriate to calculate the asset base assuming that all PESs capitalise re-certification costs.

(iii) Asset Lives

- 5.31 The 20 May consultation paper explained that in setting the last distribution price control, OFFER assumed that the flotation values associated with each REC's distribution business would be written off on a uniform annual basis, typically over 10 to 15 years, depending on the average age of each REC's assets at Vesting. OFFER also assumed that investment made since flotation would be written off on a uniform annual basis, over a period of 33 years, reflecting the RECs' accounting treatment of these assets, which involved depreciation at 3 per cent per year.
- 5.32 Different considerations applied in the case of the Scottish companies. In its report on Hydro-Electric the MMC assumed a 20 year life for Vesting assets and a 38 year life for post-Vesting assets.

- 5.33 In deciding on the approach to asset lives for the period after 2000/01, it is important to bear in mind the impact of any assumptions on the financial position of the distribution business and on the path of prices to customers over the period of the proposed price control and beyond. The 20 May consultation paper explained that, if the existing assumptions with respect to depreciation are used in setting the revised price controls on the RECs' distribution businesses, there would be a sharp fall in depreciation after 2000, followed by increasing allowances in the longer term. This could impact adversely on the financial position of the RECs' distribution businesses in the short-term and put upwards pressure on prices in the long term.
- 5.34 As explained in the draft proposals it will be appropriate to tilt the depreciation on the RECs post-Vesting assets in order to deal with these difficulties. The calculations in Chapter 6 are made on the basis of tilted depreciation assuming a 20 year asset life with the one-off adjustment smoothed over 15 years. These changes are made only after the Vesting depreciation allowances come to an end and so in the 2000/01 to 2004/05 price control period they affect only NORWEB, SWALEC and SEEBOARD. The tilting of depreciation is not intended to reward or penalise individual companies, or offset Ofgem's projections of operating costs and capital expenditure. Rather, it is a means of increasing certainty with respect to the financial position of the distribution business and the path of prices in the longer term. The benefits of this will be felt by both customers and companies.
- 5.35 The issues relating to the two Scottish PESs are somewhat different from those in England and Wales. As explained in the draft proposals the supporting checks on the overall financial position of the Scottish PESs and the longer term path of prices do not suggest that it will be necessary to tilt depreciation for these companies.

(iv) Investment Over the Period of the Next Price Control

- 5.36 The expectation that at a price control review asset values will be rolled forward to the start of the review period using actual capital expenditure, rather than the projections of capital expenditure on which the existing control was based, will tend to reduce incentives on PESs to operate efficiently. This will take two forms: a general reduction in the incentives on PESs to make efficiencies in capital expenditure; and an incentive to defer spending to the end of the price control period.
- 5.37 The draft proposals explained that these perverse incentives could be reduced by making a commitment in this price control review to adjusting asset values in the next price control review by actual, rather than projected, spending on a rolling basis after the lapse of a five year period. This commitment is conditional on PESs meeting their obligations with respect to the security and quality of supply. Also it

does not apply to metering assets, where different considerations may apply with the development of competition.

Financial Modelling

- 5.38 Ofgem has used financial modelling to inform judgements about the effect on the financial position and viability of each PES of revisions to the distribution price control. In the light of the financial ring-fencing provisions in PES licences, judgements have focused on the ability of the PES to maintain an investment grade credit rating, on the basis of Ofgem's projections of the efficient level of costs.
- 5.39 Credit rating agencies use a variety of methods and techniques to assess credit ratings. In particular, they assess the business profile of the issuer and carry out financial analysis of historical and forward looking data, examining the issuer's earnings, cash flow and capital structure in relation to its debt service obligations, working capital needs and capital expenditure requirements. Particular emphasis is placed on parameters such as the coverage of fixed financial charges by cash flow and the ratio of free cash flow to total debt.
- 5.40 In general, transmission and distribution businesses have strong business profiles, reflecting limited business risk. They are therefore able to sustain lower interest coverage and higher gearing, compared to businesses that operate in a more competitive environment with greater cash flow volatility. Based on statistics published by Standard & Poor's, giving median values for certain key financial ratios of power utilities rated BBB, the draft proposals explained that it would be reasonable to assume that PESs whose projected financial positions under a revised price control are broadly consistent with these ratios would be able to sustain investment grade credit ratings. In addition, it would be appropriate to have regard to the EBITDA coverage ratio.
- 5.41 Some PESs suggested that the financial indicators should be less demanding. Nevertheless, discussions with City institutions and investors support the view that, in relation to PESs, these indicators would in general be consistent with long-term ratings above the minimum investment grade. In the light of these considerations Ofgem has continued to have regard to the level and trend of the financial indicators set out in the draft proposals and repeated in Table 5.2.

TABLE 5.2 OFGEM'S FINANCIAL INDICATORS

Indicator	Level
EBIT interest coverage	Min 1.5 x
EBITDA interest coverage	Min 2.25 x
FFO interest coverage	Min 2 x
FFO to total debt	Min 12%
Gearing (D/D+E)	Max 65%

- 5.42 In the financial modelling of the PESs, a variety of scenarios have been considered, using a range of data, including assumptions consistent with those underlying the price control calculations.
- 5.43 The present financial structures of the PESs are generally not consistent with the assumptions about efficient financing set out in this document. In order to model the financial effects of the proposals and associated assumptions on PESs, it was appropriate to assume an initial gearing level of 50 per cent for each distribution business, consistent with the assumption underlying the cost of capital. To reconcile this assumption to the forecast balance sheets of the PESs at 31 March 2000, a stylised adjustment has been made to increase or decrease the amount of shareholders' funds.
- 5.44 The dividend stream from the resulting shareholders' equity in distribution (i.e. 50 per cent of the distribution asset base) has been set consistent with an assumed nominal post-tax equity return of 9 per cent. Assuming volume growth in the distribution business of 1¼ per cent and inflation around 3 per cent, the implied yield is around 4¾ per cent. It should be noted that this level of dividend may differ substantially from the actual dividends paid by PESs in recent years.
- 5.45 In applying the minima and maximum in Table 5.2 Ofgem has had regard to trends as well as to absolute levels, both during the period of the control and beyond 2005. In no case has any of these factors acted as a constraint.

6 PRICE CONTROL CALCULATIONS

Introduction

6.1 It is important to be transparent about the way in which price controls are calculated. This chapter explains how Ofgem has derived the final proposals for distribution price controls for each PES over the next five years, incorporating the analysis set out earlier in this paper. Setting RPI-X price controls requires an estimate of the revenue that would be sufficient to finance an efficient business. The principles governing the calculation of the controls are summarised in Chapter 1, while commentary on individual cost components can be found in Chapter 2 (operating costs), Chapter 3 (capital expenditure) and Chapter 5 (financial issues). Consistent with the principles set out in Chapter 1, it will be important to balance incentives for cost reduction with those for quality of supply. The overall approach was explained in the draft proposals. The majority of respondents to the draft proposals supported the overall method, although the PESs tended to suggest that individual components of the analysis were flawed or provided insufficient incentives to encourage efficiency. Other respondents questioned whether some of the assumptions were sufficiently demanding on the PESs. The ECCs expressed concerns about the projections of capital expenditure and the future quality of supply.

6.2 Over time, distribution prices may be considered the sum of:

- the allowed operating expenditure;
- an allowance for depreciation on the asset base; and
- a return on the asset base.

In addition as noted above, it will be appropriate to retain balanced incentives on PESs with respect to cost reduction and quality of supply in establishing the appropriate level for price control revenue.

6.3 The focus of this chapter is to determine the total price control revenue requirement for each PES's distribution business over the next review period. There is also the question of how to sculpt that revenue over that period, thus generating annual price reductions. The price reduction in the first year of the next price control period is referred to as P_0 . The subsequent annual reduction in prices is referred to as X . The balance between P_0 and X is considered below.

The Balance between P_0 and X

6.4 At the time of the 1994 price control review, the balance of the revenue reduction was allocated to P_0 rather than X , on the basis that customers would prefer a larger immediate price cut and that companies preferred a financial profile that did not deteriorate throughout the period. High levels of X also risk giving a misleading

picture of the sustainable level of price cuts over time, as well as creating a greater risk of unsustainably low prices at the end of a review period.

- 6.5 On the other hand, loading all the anticipated cost savings into the P_0 reduction appears unjustified, as it would give a misleading picture of the scope for ongoing efficiency and lead to nominal price increases for distribution in four out of the five years.
- 6.6 As explained in the draft proposals the same arguments apply to the present review. For the reasons set out above, it is proposed in respect of all companies to set the value of X at 3 for the remaining years of the next price control period.
- 6.7 As with all the measures proposed in this chapter, the effects have been considered in the light of the financial profiles of the PESs. Ofgem is satisfied that the balance between P_0 and X does not cause undue strain on these profiles.

Operating Expenditure

- 6.8 The projections of allowed operating expenditure set out in Chapter 2 assume that the most efficient companies are entitled to retain all the benefit of future cost savings beyond Ofgem's view of the efficient operating cost level in 1997/98.
- 6.9 It is intended that those companies which are more efficient should earn a higher rate of return. This could be achieved by allowing the most efficient companies an initial cost allowance higher than their actual or projected cost levels. A different approach would be to give efficient companies an allowance for operating costs which remains constant over the next review period, thereby allowing these companies to retain all the benefits of future cost reduction and so earn a higher level of return. There need be no difference in the present value of the anticipated benefit to the efficient PES over the next price control period under either method.
- 6.10 A number of PESs suggested that the first of these approaches would be most appropriate as the most efficient companies should be able to earn an above average return on an on-going basis. Nevertheless, as explained in the draft proposals the second of these methods seems preferable. Customers of the efficient PES should enjoy the benefit of the cost savings already made by that PES from the start of the next price control period. Such companies will have a continuing incentive to find further cost savings and should be able to earn above-average returns later in the price control period, assuming they continue to operate efficiently.

Capital Expenditure

- 6.11 In order to determine the level of the asset base and the associated allowances for depreciation it is necessary to consider the path of capital expenditure over the period of the revised price controls. The projections of capital expenditure are consistent with the information set out in Chapter 3. These should be achievable by all companies using the best techniques presently available, without detriment to the short or medium term system performance. Chapter 4 explains that it will be important for companies to continue to improve quality of supply and a specific allowance to improve quality has been included in the projections of capital expenditure. In addition it is the statutory responsibility of each company to ensure that the level of its operating and capital expenditure is consistent with the safe operation and maintenance of its network.
- 6.12 Within the final proposals there are a number of areas where capital efficiency has been incentivised. These include the decision to allow companies which spent less on capital items than expected at the time of the last review to keep the full benefit of this underspend; an allowance of £3 million per year for non-operational capital expenditure to set against the cost of installing and maintaining IT systems designed to improve capital efficiency and quality of supply; and, in some cases, Ofgem's projections of capital expenditure are higher than the forecasts provided by companies.
- 6.13 Ofgem has sought to balance incentives to maintain a good quality of service with the promotion of operating and capital efficiency. Where companies have a choice between capital and operating expenditure to meet a particular standard, the price control regime should not distort this choice.

Cost of Capital and Asset Valuation

- 6.14 In respect of the cost of capital, the calculations assume a weighted average cost of capital (WACC) of 6.5 per cent. The approach to asset valuation is consistent with the conclusions of Chapter 5.

Summary

- 6.15 The elements set out above (operating expenditure, an allowance for depreciation and a return on the asset base) can be brought together in a present value calculation, in order to give an appropriate level of price control revenue over the period of the revised price controls. The October update used this method to derive draft proposals for distribution price controls. Since then there have been a number of modifications to the analysis.

- 6.16 Chapter 2 summarises the revisions to the analysis of operating costs. In general the biggest changes relate to the new information that is now available on the future level of formula rates that will be levied by the Government on each distribution business. This information suggests that it will be necessary to relax the price controls on East Midlands, SWALEC and ScottishPower by about 1 per cent and for Southern by about 2 per cent. In addition the inclusion of a regional adjustment for Hydro-Electric, to take account of the costs of serving the Scottish Islands, has led to a relaxation of its price control by about 2 per cent. Chapter 3 sets out revised projections for capital expenditure. There are some modest increases in non-load related expenditure for certain companies, higher allowances for quality of supply expenditure and some changes to the projections of connection charge receipts. Nevertheless the impact on the overall level of the price controls is modest, with these changes typically leading to a relaxation in the price controls of about ½ per cent. In addition there have been some changes to the projections of excluded revenue. This has led to a relaxation of Manweb's price control by over 1 per cent, largely reflecting a reduction in revenue from EHV customers.
- 6.17 The effect of these modifications on the base level of price control revenue is set out in Table 6.1. The net impact is relatively modest, with price control revenue changing by 1 per cent or less. The three columns on the right hand side of the table show a breakdown of the changes to P_0 .

TABLE 6.1: CHANGES TO THE BASE LEVELS OF THE PRICE CONTROLS BETWEEN THE OCTOBER UPDATE AND THE FINAL PROPOSALS

PES	October Base Level P₀ (%)	December Base Level P₀ (%)	Difference (%)	Operating Costs (%)	Capital Expenditure (%)	Excluded Service Revenue (%)
Eastern	28	28	-0.3	0.5	-0.4	-0.4
East Midlands	25	24	-1.1	-1.1	0.1	-0.1
London	26	26	-0.3	0.5	-0.5	-0.3
Manweb	22	19	-2.5	-0.8	-0.5	-1.2
Midlands	24	23	-0.8	-0.3	-	-0.5
Northern	24	24	0.2	0.5	-0.8	0.5
NORWEB	27	27	-0.7	0.3	-0.7	-0.3
SEEBOARD	36	35	-1	0.5	-1.0	-0.5
Southern	21	18	-3.1	-2.2	-0.8	-0.1
SWALEC	27	25	-2.1	-1.3	-0.5	-0.3
South Western	20	20	-0.2	0.3	-0.2	-0.3
Yorkshire	23	23	-0.1	-	-0.4	0.3
ScottishPower	12	10	-2.1	-1.1	-0.3	-0.7
Hydro-Electric	-27	-30	-3.2	-2.7	-0.2	-0.3

Note: For ease of reference the base level P₀'s have been rounded to the nearest whole number.

Making Further Adjustments To Base Levels

6.18 The draft proposals explained that in reaching a final judgement on the distribution price controls it would also be appropriate to take account of a range of additional factors, including measures which seek to reflect quality of supply performance and total cost efficiency. The October update set out in detail a range of proposed adjustments.

6.19 In response to the draft proposals document and the October update a number of PESs expressed concern at the use of within range adjustments. It was argued that they were retrospective in nature and amounted to a re-opening of the last distribution price control, thereby adding to regulatory uncertainty and increasing the perception of risk. PESs also made a number of specific points on each adjustment. These are considered in more detail below.

6.20 Other respondents, including ECCs, generally welcomed the proposed adjustments to revenue, although there were some concerns about how the adjustments were calculated and whether some were appropriate.

6.21 The adjustments to revenue set out in the October update were designed to reward or penalise PESs with respect to performance against a range of factors. It is recognised that the adjustments reflect performance under the existing price control. Nonetheless, it is important that PESs are given incentives to improve the overall quality

of service that they provide while maintaining incentives to reduce costs. The adjustments to revenue are a step towards achieving this objective. Ofgem is committed to an ongoing programme of work – the Information and Incentives Project - that will look at these issues in more detail. This is discussed in more detail in Chapter 1.

6.22 The adjustments should not significantly increase regulatory uncertainty nor the perception of risk, since the maximum adjustment to revenue for any one particular measure is limited to 0.5 per cent of revenue. Furthermore, in total the greatest adjustment made to revenue for any one PES is less than 1.5 per cent of revenue.

(i) Quality of Supply

6.23 A small number of PESs were concerned that Ofgem had incorrectly classified their targets for interruptions per 100 customers and minutes lost per customer. They argued that their targets were severe and that recognition of this should be taken into account. Another PES suggested that there was no clear evidence that their targets could not be met and that they should not be penalised.

6.24 Ofgem is satisfied that the classifications of targets for interruptions per 100 customers and minutes lost per customer are appropriate and that the assessment of whether there is clear evidence that companies will achieve these targets is reasonable. On this basis the adjustments relating to quality of supply will be retained.

6.25 A small number of PESs indicated that over the course of the present price control period they had introduced improved measurement systems for network performance and that this had resulted in greater accuracy in the information reported to Ofgem. They provided convincing evidence that this had led to the identification of a higher level of interruptions per 100 customer and minutes lost per customer than otherwise would have been the case. It seems inappropriate to penalise those companies that have demonstrated that they have improved their measurement systems. Accordingly, the downward adjustments to revenue for Midlands and SEEBOARD have been removed.

(ii) Customer Satisfaction

6.26 A small number of PESs commented specifically on the adjustment to revenue for customer satisfaction. One suggested that increased weighting should be given to absolute performance rather than to performance relative to other PESs. This would not be consistent with the intention to make increased use of comparative analysis and therefore it is not proposed to alter the method of calculating the adjustment to revenue.

6.27 Another PES argued that the absolute number of complaints it received had only increased by 3 and that given possible measurement inaccuracies it was inappropriate to make a downward adjustment to revenue. This argument appears to have some merit and it is proposed therefore to reduce the adjustment for Northern from -0.25 per cent of revenue to -0.125 per cent of revenue.

(iii) Total Cost Analysis and Capital Efficiency

6.28 The October update set out two measures of capital efficiency, one based on movements in the asset base and the other a yardstick calculation of non-load related capital expenditure. A number of PESs expressed strong concerns over the appropriateness of an adjustment to revenue based on movements in the asset base. It was variously argued that movements in the asset base were significantly influenced by the initial flotation value set by the Government at privatisation; no account had been taken of underlying drivers of capital expenditure; and that no attempt had been made to distinguish between efficiency savings and other forms of capital underspend.

6.29 It is now nearly ten years since the PESs were privatised and consequently the most significant influence on movements in the asset base will be the level of capital expenditure, over which each PES has a significant degree of control. It is also in customers' interests that companies should seek to reduce their regulatory asset base, or at least minimise the rate of increase, provided this is consistent with maintaining system performance in the longer term and meeting quality of supply targets.

6.30 Some PESs said that the adjustment for capital efficiency should be increased. However, the analysis underlying the price control proposals already encourages capital efficiency. For example, companies have been allowed to retain all the savings in financing costs associated with reduced network capital spending, and the approach to asset valuation has been modified for the period 2000 to 2005 to increase the reward for capital efficiency. Until work associated with the Information and Incentives Project is completed it would be premature to further increase the rewards for capital efficiency.

6.31 Few PESs commented specifically on the yardstick calculation of non-load related capital expenditure. One PES argued that it was important to ensure that the MEA values underlying the calculation had been assessed consistently across PESs and that the impact of asset mix was taken in to account. Ofgem and its consultants, PB Power, are

confident that the MEA values are robust. It is not proposed to make any changes to the way in which the adjustment to revenue is calculated.

- 6.32 Taking all these factors into account it is proposed to retain the adjustment to revenue for movements in the asset base and for the non-load related capital expenditure yardstick.

(iv) Energy Efficiency

- 6.33 A number of PESs said that the price control already included an incentive on PESs to reduce losses and that the introduction of a further adjustment to revenue was not appropriate. It was also argued that levels of losses are not totally within the control of each PES. It is clear that the existing losses incentive has not been sufficient to prevent a noticeable rise in losses during the present price control period. While there are certain factors affecting losses that are outside the control of PESs, the design and operation of the network have a significant influence on the overall level of losses. In the light of these factors it is appropriate to retain this adjustment to revenue.

(v) Forecasting Accuracy

- 6.34 The October update indicated that it was of continuing concern that companies have an incentive to distort their forecasts of key elements of information at a price control review and that an adjustment of –0.25 per cent of revenue had been made to Eastern, East Midlands and SWALEC. Those PESs that commented argued that it was not appropriate to make an adjustment as the differences between company forecasts and Ofgem's projections represented differences of opinion rather than a deliberate attempt to distort forecasts. While there may be differences in underlying assumptions it is clear that the present arrangements provide an incentive to companies to distort their forecasts of costs by basing them on unrealistic assumptions. Therefore, it is appropriate to retain the adjustment to revenue for forecasting accuracy.

Summary of Adjustments

- 6.35 The following table summarises the adjustments described above. The adjustments to revenue are given effect by adjusting the base levels of P_0 in revised price controls. A 1 per cent change in revenue would translate into an adjustment to P_0 of 1 percentage point.

TABLE 6.2: FURTHER ADJUSTMENTS TO REVENUE (PER CENT)

PES	Quality Of Supply	Customer Complaints	Capital Efficiency	Energy Efficiency	Accuracy Of Forecasts	Total
Eastern	-	(0.25)	(0.25)	-	(0.25)	(0.75)
East Midlands	0.25	0.25	0.25	0.25	(0.25)	0.75
London	-	(0.25)	(0.5)	-	-	(0.75)
Manweb	0.5	-	0.25	(0.25)	-	0.5
Midlands	-	0.25	0.25	0.25	-	0.75
Northern	-	(0.125)	0.25	0.25	-	0.375
NORWEB	(0.375)	-	-	0.25	-	(0.125)
SEEBOARD	-	0.25	1.0	-	-	1.25
Southern	-	-	(1.0)	(0.25)	-	(1.25)
SWALEC	-	-	(0.75)	0.25	(0.25)	(0.75)
South Western	0.5	0.25	(0.25)	0.25	-	0.75
Yorkshire	-	0.25	-	-	-	0.25
ScottishPower	(0.25)	-	0.25	-	-	-
Hydro-Electric	-	0.25	(0.25)	-	-	-

Final Adjustments to Revenue

(i) Mergers

6.36 Every PES has been involved in some form of merger or take-over. As such transactions are initiated with the aim of creating value, it is appropriate that customers should share in that additional value. The different types of merger need to be analysed and proposals considered for sharing the benefits in each case.

6.37 As far as electricity distribution is concerned, the mergers can broadly be identified in three categories:

- mergers between groups comprising two PES distribution businesses (for example ScottishPower/Manweb, Southern/Hydro-Electric and, prospectively, Yorkshire/SEEBOARD);
- mergers between groups comprising a PES distribution business and another regulated utility business in the UK (for example ScottishPower/Southern Water, North West Water/NORWEB (United Utilities) and Welsh Water/SWALEC (Hyder)); and
- mergers between a group comprising a PES distribution business and another group with no other regulated utility business in the UK.

6.38 The identification of merger savings is not straightforward. Measurement of value creation by reference to management projections or share price movements is unreliable and not always possible. Attribution of cost savings to either of the merged parties is judgmental.

- 6.39 Nevertheless, it is clear that the merger of two PES distribution businesses creates the potential for considerable savings attributable directly to the distribution businesses of the merged entity. Certain reductions in fixed costs, such as corporate costs, can be estimated with a high degree of confidence. There are undoubtedly other fixed cost reductions and may be other benefits. These savings would not necessarily show in the regulatory accounts for each PES distribution subsidiary of the merged group.
- 6.40 Given the reasonable expectation that such savings can be achieved, it is appropriate for customers to see benefits in line with other efficiency savings. Ofgem's advisers have estimated that approximately one half of the fixed costs of a PES may be required to maintain any PES system, irrespective of corporate structure. The other half of these costs should be capable of being eliminated by the merged group. The fixed costs of a PES have been estimated by Ofgem's advisers at between £20 million and £25 million. Accordingly it is proposed that an additional sustained reduction of the order of £12 million be made from the combined operating costs of ScottishPower and Manweb and of Southern and Hydro-Electric. In the October update it was assumed that these groups would retain the benefits of any merger savings made during the five years after merger. This led to a 2 per cent reduction in revenue for ScottishPower and Manweb (given that the take-over was in 1995/96) and a ½ per cent reduction in revenue for Southern and Hydro-Electric (given that the take-over was in 1998/99). In response to the draft proposals and October update ScottishPower and Manweb suggested these adjustments were inappropriate. They said that five years was an insufficient period for companies to retain savings, that other companies could achieve similar levels of cost reduction and even with no specific adjustments to revenue that over time merger savings would become apparent and so be available to inform the analysis of operating and capital costs.
- 6.41 The preceding paragraphs have addressed the issues in connection with efficiency savings arising from mergers. However, there remains the issue of the quality and comparability of information available to the regulator when mergers occur. There can be no doubt that both the quality of information and the comparability of information deteriorates with each transaction. The impact of this on the ability to regulate effectively is more difficult to assess.
- 6.42 In the case of the merger of groups including more than one PES distribution business, there is a real diminution in comparators available for the kind of analysis which has proven valuable in this review. This is because the number of different management approaches is reduced; the real number of observable data-points for any efficiency measure is reduced; and the scope for inappropriate cost allocation increased. As the number of comparators dwindles, so

the scope for collusion may increase. There may be particular issues relating to the merger of adjacent PES distribution businesses.

6.43 These arguments have considerable force and there is scope for detriment arising out of PES/PES distribution mergers. Nevertheless, the pressure on total costs and the desire of PES distribution businesses to achieve further efficiency savings, which Ofgem wishes to promote, may prompt further proposals for PESs to merge their distribution businesses. Given these conflicting pressures, it will be appropriate to retain the merger adjustments for ScottishPower and Manweb, and Southern and Hydro-Electric, although in the light of the arguments made by ScottishPower and Manweb it will be appropriate to reconsider these matters at the time of the next price control review. In addition it is likely that Ofgem, subject to any special circumstances, will wish to recommend that the next proposed merger of PES distribution businesses should be referred to the Competition Commission for detailed consideration of the public interest issues involved.

(ii) Operating Costs

6.44 The October update explained that in order to encourage efficiency in the future, the three companies (Eastern, Southern and SEEBOARD) closest to the efficiency frontier for operating costs had been allowed an extra 1 per cent of price control revenue. In general these companies suggested much larger adjustments in their favour. However, it is important that customers share in the benefit of efficiency as well as companies. Therefore, while these adjustments have been retained, they have not been made more favourable to the companies.

(iii) Data Management Services (DMS)

6.45 The calculations in the October update excluded the costs and revenue associated with the provision of DMS. The changes to the DMS allowances are described in Chapter 2. In overall terms the transfer of costs and revenues to the supply business increases the overall reduction in each PESs distribution price control revenue in 2000/01.

The Final Proposals

6.46 On the basis of all the information available to Ofgem, and taking into account the considerations described above, it is proposed that all companies should have an X of 3 for each of the years 2001/02 to 2004/05. The ranges for P_0 for each company are shown in Table 6.3 below.

TABLE 6.3: FINAL PROPOSALS FOR P₀

PES	October Base Level P₀ (%)	December Base Level P₀ (%)	Further Adjustments² (%)	Final Changes³ (%)	Final P₀ (%)
Eastern	28	28	1	(1)	28
East Midlands	25	24	(1)	0	23
London	26	26	1	0	27
Manweb	22	19	(0)	2	21
Midlands	24	23	(1)	1	23
Northern	24	24	(0)	0	24
NORWEB	27	27	0	0	27
SEEBOARD	36	35	(1)	(1)	33
Southern	21	18	1	(0)	19
SWALEC	27	25	1	0	26
South Western	20	20	(1)	1	20
Yorkshire	23	23	(0)	0	23
ScottishPower	12	10	0	3	13
Hydro-Electric ¹	(27)	2	0	2	4

Notes: 1 After the application of Hydro-Benefit.

2 For further adjustments see para. 6.18ff.

3 For final changes see para. 6.36ff.

Hydro Benefit

6.47 Under the present price control Hydro Benefit is transferred to the distribution business of Hydro-Electric and serves to reduce distribution charges in the North of Scotland. The sums transferred arise from the relatively low cost of Hydro-Electric's hydro power stations, in part reflecting the written-down asset values at the time of privatisation. The application of Hydro Benefit in the present price control reflected the level needed to equalise Hydro-Electric's distribution prices with those of other PESs, particularly ScottishPower's, this sum being lower than the sum available to be transferred from the Generation Business of Hydro-Electric. The level of Hydro Benefit applied for the present price control period was £29.2 million per annum in 1994/95 prices (equivalent to £32.8 million in today's prices).

6.48 The distribution price controls for April 2000 proposed herein suggest that the underlying costs of distribution in Hydro-Electric's area are rising relative to other PESs, including ScottishPower. On the basis of these final proposals, the sum required to equalise distribution charges between the two Scottish PESs would be about £50 million. In addition, the sum available to be transferred has reduced, primarily as a result of falling generation prices in the electricity Pool. Hence the level of Hydro Benefit is no longer constrained by the sum needed to equalise prices with other PESs, including ScottishPower, but is constrained by the sum available for transfer. As a consequence, distribution prices in the North of Scotland are expected to rise in the future relative to those in other PES areas.

- 6.49 Ofgem's October update noted that, under the present arrangements, Hydro-Electric might have incentives not to invest in maintaining its hydro-electric generation if, by not investing, it reduced the availability of Hydro Benefit; and not to invest in distribution assets if additional investment in distribution assets led to an increase in the level of Hydro Benefit applied. Hydro-Electric has therefore sought to establish a formula for the calculation of Hydro Benefit so that these disincentives would not be perpetuated.
- 6.50 The present licence arrangements set limits for the sums transferred to distribution (at £29 million in 1990/91 prices) and transmission (at £11 million in 1990/91 prices) based on figures estimated at the time of privatisation by the Scottish Office to reflect the possible need of Hydro Benefit. Ofgem has considered the option of retaining the existing arrangements as they were accepted by the company and shareholders at the time of privatisation. However, this would not necessarily address the issues relating to the disincentives for future investment raised by the company. There would also be the risk that such sums exceeded the benefit available, which Ofgem considers not to be appropriate. Therefore alternative arrangements are proposed to establish the level of available Hydro Benefit and thereby the sum transferred to the distribution business in any year.
- 6.51 Ofgem proposes a formula for deriving the future level of Hydro Benefit, viz:

$$\text{Hydro Benefit} = (P*U) - C$$

where:

P = a generation price, proposed to be 2.99 p/kWh in 2000/01 prices. This price would be adjusted annually by reference to the movement in a basket of domestic tariffs (after deducting distribution and transmission charges). This should have the effect of tying future reductions in Hydro-Benefit to lower customer prices;

U = a measure of output proposed to be constant at 3200 GWh (the average of the output from the relevant hydro stations over the last ten years). The constant nature of this term will ensure that the principle of Hydro Benefit survives indefinitely;

C = an allowance for the cost of maintaining the output, proposed as £56.6 million in 2000/01 prices. This term includes an operating cost allowance of £39.7 million and a capital allowance of £16.9 million. The capital allowance is designed to permit Hydro-Electric to replace the electrical and mechanical equipment over a 25 year period and recovered over an expected asset life of 40 years. The terms will each be subject to an annual adjustment reflecting inflation, appropriate to its components.

- 6.52 If $(P^*U) - C < 0$ in any year then the level of Hydro Benefit will be set to zero.
- 6.53 The level of Hydro Benefit in 2000/01 is expected to be £39.1 million on the basis of this formula. The Hydro Benefit in future years will depend on the operation of the annual adjustment factors.
- 6.54 By including the formula as a licence modification, Ofgem and Hydro-Electric intend that the formula should survive subsequent price control reviews. However, it is possible that changes in, for instance, regulation or taxation could have a profound effect on the relative value of the relevant generating plant, whether positive or negative. In these circumstances, Ofgem would expect the various components to be reconsidered.
- 6.55 Ofgem considers such a formula to be in the interests of distribution customers in Scotland, through the actual level of Hydro Benefit available in the next price control period; by improving the incentive on Hydro-Electric to invest in the distribution system and by preserving the principle of Hydro Benefit indefinitely. There should also be wider benefits from the removal of the disincentive to invest in hydro-electric power stations which represents a potentially economic “green” source of power.
- 6.56 In framing the proposals for the future of Hydro Benefit, Ofgem has had regard to the likely path of electricity prices in Hydro-Electric’s area. Taken in conjunction with the final supply proposals, the operation of the Hydro Benefit should ensure that the average standard domestic bill in Hydro-Electric’s area falls in nominal terms in 2000/01.

Analysis

- 6.57 For the reasons given above, there is a complex relationship between the level of P_0 and the judgement made about a company’s efficiency, particularly with regard to future anticipated cost savings. In order to aid understanding of Table 6.3, there is, in Annex 2, a stylised analysis showing how an aggregated P_0 and X can be analysed in terms of the principal factors driving the revenue reduction.

Licence Modification

- 6.58 The approach to the licence modification was summarised in Annex G of the October update. Distribution business price control revenue in 2000/01 will be based on the adjusted price control revenue figure set out in the present value calculations in Annex 2, plus an allowance for DMS revenue. The growth of the predetermined projections of customer numbers will be one per cent per annum.

SUMMARY OF RESPONSES TO 12 AUGUST 1999 DRAFT PROPOSALS PAPER ON DISTRIBUTION PRICE CONTROL REVIEW

- 1.1 There were 41 responses from a range of interested parties – 14 Public Electricity Suppliers (PESs), 13 Electricity Consumers' Committees (ECCs) and the National Electricity Consumers' Council, and 14 others.

Views of Public Electricity Suppliers

Form of Control

- 1.2 PESs supported the continuation of an RPI-X type price control. Error Correction Mechanisms were viewed as inappropriate as they could distort incentives towards efficiency. PESs supported a five year duration for the price control.
- 1.3 PESs agreed in principle to the proposals to improve the system of regulation in the areas identified by the Information and Incentives Project, although there were concerns that this may lead to increased regulatory uncertainty and a greater perception of risk, at least in the shorter term. It was argued that the financial impact of any changes to the system of regulation should be limited to an overall percentage of revenue of between 1 and 2 per cent
- 1.4 PESs supported continuing with the present scope of the price control and did not support the inclusion of EHV charges within the price control. Four PESs argued that the proposed £15 cap on the distribution element of the prepayment meter surcharge was not sufficient to cover the additional costs of serving these customers.
- 1.5 PESs agreed that the price control revenue driver should continue to be based on 50 per cent units and 50 per cent customer numbers. One PES suggested that a unified LV basket might provide perverse incentives.
- 1.6 A number of PESs suggested that the losses incentives in the price control should be increased to provide stronger incentives towards energy efficiency. One PES suggested replacing the losses term with a requirement on PESs to ensure that any enhancements to the distribution networks are energy efficient and economic.
- 1.7 PESs were concerned that there should be full recovery of legitimately incurred costs associated with the separation of PES distribution and supply businesses. A number of PESs agreed that it was appropriate to allow costs associated with administering the tender process for the provision of meter reading services of last resort within the main

distribution price control, and that any revenue would be treated as an excluded service and outside the scope of the main price control. Three PESs however argued that the proposals were unnecessarily complex and needed to be rethought. There was also concern at the possibility that there might be restrictions, at least initially, on the level of charges PESs could make.

Operating Costs

- 1.8 A majority of PESs supported the principle of standardising and benchmarking operating costs, but criticised Ofgem's methodology and analysis as insufficiently robust. PESs argued that the level of adjustments to normalise costs were excessive, or in certain instances, inappropriate particularly in the areas of customer service, billing, metering and corporate overheads. The PKF efficiency review and regression analyses were criticised for failing to recognise economies of scale and other company specific factors. Several PESs reiterated the need for a comparison of total costs.
- 1.9 A number of PESs argued that operating cost efficiencies should be retained for a fixed period of five years, regardless of when the savings were made. It was argued that this would provide stronger incentives towards efficiency and would be more consistent with the approach adopted by OFWAT. PESs generally argued that as the analysis was not sufficiently robust there should not be an assumed 100 per cent catch-up to the efficient level of costs. Some PESs argued that a 60 per cent catch-up should be adopted to achieve more consistency with the approach used by OFWAT. Two PESs proposed a 50 per cent catch-up. PESs variously argued for additional allowances to cover other costs including those associated with DMS set-up, business separation and other one-off costs. Several PESs argued that Ofgem's forecasts of operating costs were not achievable and could have an adverse impact on network performance and quality of supply.

Capital Expenditure

- 1.10 There was overall support for the analysis of capital expenditure by Ofgem's consultants, PB Power. However a number of PESs questioned some capitalisation adjustments and some of the key assumptions made within the modelling process. A few PESs argued that customer contributions and metering capital expenditure had been incorrectly assessed. Several PESs were concerned that the modelling of non-load related expenditure did not deal adequately with deferred asset replacement, public safety issues and long term performance of the network. A number of PESs warned that the proposed reductions to their forecasts of non-load expenditure could adversely affect existing standards of network performance.

Quality of Supply

- 1.11 Most PESs supported initiatives to improve the accuracy and consistency of quality of supply reports, although several PESs commented that there would be significant costs associated with improving data collection systems.
- 1.12 PESs generally welcomed proposals to strengthen incentives to improve quality of supply performance. There was some support for Ofgem's intention to develop and impose specific targets for each company. A number of PESs suggested that targets should be based on PESs average performance over time.
- 1.13 A majority of PESs supported tightening the restoration target for GS2 and OS1b to 18 hours. PESs claimed that a further reduction to 12 hours was not viable and could create the wrong incentives. Two PESs argued that a more appropriate target was needed for the north of Scotland.
- 1.14 PESs were concerned at the proposal to make Guaranteed Standards payments automatic because of the costs of putting in place appropriate systems, particularly for LV customers. They argued that if payments were made automatic there should be recovery of associated costs. All PESs supported the retention of the severe weather exemption.
- 1.15 There was support for the introduction of a standard for worst served customers but PESs had a number of concerns. It was argued that the types of interruption to be included in the standard needed to be carefully defined. Several PESs suggested that interruptions outside the control of a PES should be excluded. A few PESs suggested that payments to any one customer in a particular year should be subject to an overall limit. Some PESs maintained that targets should be company specific. A number of PESs preferred an Overall Standard to a Guaranteed Standard.
- 1.16 There was qualified support for a telephone response standard subject to recognition of associated costs and clearer definitions. Most PESs agreed that present levels of the standard OS1A should be maintained. PESs supported Ofgem's conclusions on undergrounding and transient interruptions.
- 1.17 PESs supported an additional allowance for non-load related capital expenditure to improve quality of supply. However some PESs argued that the proposed allowance of between £1 and £4 per customer per year was inadequate.

Financial Issues

- 1.18 A number of PESs argued that it would be more appropriate to assume that the minimum investment grade rating consistent with an efficient capital structure would be single A or BBB+, rather than BBB– as assumed by Ofgem. It was argued that this would represent a more sustainable target and would allow companies to conserve sufficient unused borrowing capacity. One PES recommended using a notional gearing level of 40 per cent.
- 1.19 PESs argued that the evidence did not justify a reduction in the cost of capital to 6 ½ per cent. PESs argued that the estimates of both the cost of debt and equity finance were too low. They generally criticised Ofgem’s reliance on current market data and survey information for estimating the risk free rate of return and the equity risk premium. PESs argued that it was more appropriate to use longer term averages. Several PESs remarked that OFWAT used a similar method to Ofgem and yet drew different conclusions for the risk free rate of return and the equity risk premium.
- 1.20 A number of PESs argued that the adjustment for embedded fixed debt was not sufficient. One PES proposed that a company specific adjustment should be made rather than an average adjustment across all PESs.
- 1.21 PESs supported the retention of 15 per cent uprate to flotation assets. There was also support for the use of a rolling adjustment to the regulatory asset base for actual capital expenditure and for the adjustment to depreciation profiles.

Adjustments to P_0

- 1.22 A majority of PESs criticised Ofgem’s proposed within range adjustments to P_0 as retrospective in nature and therefore likely to damage incentives, increase regulatory uncertainty and the cost of capital. A number of PESs regarded many of the proposed adjustments as inappropriate and lacking in clarity and suggested that incentives needed to be forward looking and more appropriately defined in order to be effective.
- 1.23 Some PESs argued that the adjustment for being close to the efficiency frontier was insufficient and that to maintain incentives to achieve further efficiencies it should be at least doubled.
- 1.24 In general PESs agreed that customers should share the benefits of merger savings, but a number of PESs warned that Ofgem’s proposals could act as a disincentive to future capital market activity.

Views of Electricity Consumers' Committees

Form of Control

- 1.25 ECCs supported strengthening incentives on companies to increase efficiency and reduce costs while maintaining and improving the quality of supply. ECCs continued to support RPI-X form of price control for a period of 5 years. Where comments were made, ECCs acknowledged the drawbacks of error correction mechanisms.
- 1.26 ECCs supported the increased use of yardstick mechanisms and comparative analysis with financial penalties and rewards. They supported continuous monitoring of distribution business performance against price controls to reduce the emphasis on the periodic review process. A number of ECCs stressed the need for independent auditing and publication of data on a regular and consistent basis to facilitate comparative analysis.
- 1.27 ECCs agreed that EHV charges should be excluded from the price control. One ECC said that such charges should be required to fall at a similar rate to price controlled charges. Most ECCs welcomed proposals to limit the maximum surcharge which could be made for the provision prepayment meter services, although some ECCs questioned whether the £15 limit was too high. There was general support for continuing with the present revenue driver, although several ECCs recommended further analysis of the related issues.
- 1.28 There was support for increasing incentives on PESs to reduce losses. One respondent said that incentives were also needed to encourage embedded generation.
- 1.29 Several ECCs said that Ofgem should reconsider its proposals on metering. One ECC disagreed that the distribution business should provide a meter reading service of last resort. There was some support for the use of an adjustment mechanism to reduce distribution allowed revenue as competition in meter provision and reading developed.

Operating Costs

- 1.30 There was support for the work by Ofgem's consultants on normalising operating costs across PESs. ECCs generally preferred an approach which placed less reliance on PES forecasts of operating costs. Several ECCs asked for more detail to be made public to better inform judgements.
- 1.31 Two ECCs said that Ofgem needed to focus on overall expenditure rather than deal with operating and capital expenditure separately. One ECC commented that the allocation of costs between distribution and supply seemed variable across PESs. Another ECC indicated that

the percentage of corporate overhead costs remaining in the distribution business was too high.

Capital Expenditure

- 1.32 ECCs welcomed the commitment to detailed and consistent monitoring of capital expenditure. They argued that this was necessary to prevent PESs from underspending in order to increase profits. They also argued that Ofgem should scrutinise carefully any proposals to increase capital expenditure following a period of underspend.
- 1.33 One ECC suggested that Ofgem should require PESs to provide risk assessments as well as evidence of efficiency savings to justify any significant underspend in the future. Several ECCs said that any degradation in quality of supply should be met with tough penalties which should increase in proportion to the extent of the failure.

Quality of Supply

- 1.34 ECCs supported targets to improve quality of supply performance with a particular focus on improvements for worst served customers. There was strong support for the imposition of penalties on companies which failed to meet targets. Most ECCs agreed that penalties in the range of £1m to £5m were reasonable. One ECC said that the penalty should take the form of a reduction in allowed revenue. ECCs advocated improved data collection systems, and a common format for quality of supply reports to aid comparison across PESs.
- 1.35 ECCs endorsed the proposal to tighten GS2 on restoration of supply from 24 hours to 18 hours, although one ECC claimed this was unfair to Hydro-Electric. Some ECCs recommended a reduction to 12 hours within five years. There was support for the proposal to make GS payments automatic by 2002. One ECC said that the monitoring equipment required would provide additional benefits to customers. Several ECCs suggested that ex gratia payments made by PESs should be monitored.
- 1.36 ECCs welcomed the introduction of a new standard for a maximum number of interruptions for worst served customers. Most ECCs agreed that an Overall Standard of 3 interruptions per annum for 99.5 per cent of customers was reasonable. There was support for a £50 penalty for more than 5 interruptions, although one ECC recommended a higher penalty. There was support for a new telephone response standard; raising the Overall Standard for restoring supplies within 3 hours; and, monitoring transients. ECCs agreed that the proposed capital expenditure allowance of £1 to £4 per customer per year was appropriate.

Financial Issues

- 1.37 ECCs agreed that Ofgem had struck a reasonable balance by assuming that a credit rating of BBB –, together with a notional gearing of 50 per cent, was consistent with maintaining a minimum of investment grade credit rating. ECCs generally supported the conclusion to allow a 6 ½ per cent cost of capital.
- 1.38 While there was some support for continuing with the 15 per cent uprate on flotation asset values, a number of ECCs maintained that it should be reduced to 7 ½ per cent in line with the MMC report on NIE. There was support for proposals on tilting depreciation; adjusting the regulatory asset base by actual capital spend on a rolling five year basis; and, the approach to financial modelling including the level of financial indicators.

Adjustments to P₀

- 1.39 ECCS generally supported the within range adjustments to P₀ particularly those associated with capital efficiency, losses, forecasting accuracy and customer satisfaction. However, some ECCs questioned the merits of introducing adjustments that appeared retrospective in some cases.
- 1.40 ECCs endorsed the principle that more efficient companies should earn a higher rate of return and therefore supported the reward for being close to the efficiency frontier.
- 1.41 ECCs supported Ofgem's proposals on the treatment of merger savings. They agreed that consumers should share in the additional value created by mergers. Some ECCs recommended similar action for mergers involving other companies in other utility sectors. There was strong support for the proposal to recommend a referral to the Competition Commission of any future merger of PES distribution businesses.

Views of Other Parties

Form of Control

- 1.42 There was general support for RPI-X system of price control along with an increased emphasis on comparative analysis. A few respondents were concerned that the proposals for improving the system of regulation in certain areas indicated a move towards annual reviews and rate of return form of regulation. A number of respondents sought greater transparency in the review process and encouraged the publication of more information.

- 1.43 Four respondents disagreed that EHV charges should be excluded from the scope of the price control. There was support for the proposed cap on PPM surcharges. One respondent recommended a review of the 50 per cent unit and 50 per cent customer weighting in the revenue driver.

Operating Costs

- 1.44 A majority of respondents supported Ofgem's normalisation and benchmarking of operating costs. A few respondents argued that the adjustments were too low particularly for corporate overhead costs. They claimed that there was scope for further reductions in distribution operating costs. A number of respondents urged Ofgem to make PKF's report on PES efficiency available in full to interested parties.

Capital Expenditure

- 1.45 There was support for monitoring of capital expenditure and for Ofgem's process of modelling and benchmarking. One respondent questioned the reasoning for allowing companies to retain the financial benefit of past underspend. One respondent recommended that greater emphasis should be placed on embedded generation, combined heat and power plant (CHP) and load management as a means of reducing capital expenditure.

Quality of Supply

- 1.46 Where comments were made, respondents welcomed the range of proposals for quality of supply. Several respondents said that standards should be set for all customers, not just domestic customers. One respondent suggested that improved data collection systems should be in place by April 2001. There was support for the imposition of penalties for failure to meet quality of supply targets.

Financial Issues

- 1.47 There were mixed views on Ofgem's approach to estimating cost of capital. Several respondents criticised the use of current market data and survey evidence to estimate the risk free rate of return and the equity risk premium. However, other respondents stressed the low risk nature of distribution and proposed that the cost of capital should be lower than 7 per cent.
- 1.48 One respondent argued that Ofgem's approach to the treatment of asset lives and the proposals to tilt depreciation profiles was not in the interests of customers and that a better approach would be to allow PESs a constant allowance based on an annuity of long-term depreciation. There was support for Ofgem's proposal to use a rolling five year adjustment for capital expenditure.

Adjustment to P_0

- 1.49 Where comments were made, there was some support for strengthening incentives using within range adjustments to P_0 . Two respondents requested further clarification on the adjustment related to customer satisfaction. One respondent argued that the adjustment for forecasting accuracy should be higher than 0.25 per cent of allowed revenue.
- 1.50 There was some support for Ofgem's proposals on mergers, but one respondent warned that there could be an adverse impact on corporate restructuring.

LIST OF RESPONDENTS TO AUGUST 1999 DRAFT PROPOSALS

Public Electricity Suppliers

Eastern Electricity
East Midlands Electricity
London Electricity plc
Manweb
Midlands Electricity
Northern
NORWEB
SEEBOARD
SWALEC
South Western Electricity
Yorkshire Electricity Group plc
ScottishPower
Scottish and Southern Energy

Electricity Consumers' Committees

Eastern ECC
East Midlands ECC
London ECC
Midlands ECC
Merseyside and North Wales ECC
North East ECC
North West ECC
South East ECC
Southern ECC
South West ECC
South Wales ECC
Yorkshire ECC
North of Scotland ECC
National Electricity Consumers Council

Other Respondents

British Energy Generation Ltd
British Gas Trading
British Steel plc
Energy Intensive Users Group
Energy Saving Trust
Electricity Supply Trade Union Council
Mr Shah
Mr Shaw
National Consumer Council
National Microelectronics Institute
National Power (Energy Co.) Ltd (MEB Supply)
RJB Mining (UK) Ltd
The Chartered Institute of Purchasing & Supply
UK Energy (Air Products)

ANNEX 2

Present Value Calculations

TABLE 1: CALCULATION OF PRICE CONTROL REVENUE FOR EASTERN (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		156	161	169	173	169
2	Connection charges		-41	-42	-45	-46	-44
3	Net network capex		115	119	125	127	125
4	Opening asset value		1052	1071	1090	1110	1130
5	Depreciation		-97	-100	-104	-108	-90
6	Net network capex		115	119	125	127	125
7	Closing asset values		1071	1090	1110	1130	1165
8	Return		69	70	71	73	75
9	Depreciation		97	100	104	108	90
10	Operating costs		126	124	121	119	118
11	Total		292	294	296	299	283
12	PV of totals	1247	280	266	251	238	211
13	Base price control rev	363	265	260	255	250	245
14	Excluded revenue	32	35	35	35	35	35
15	Total revenue (excl DMS)	395	300	295	290	285	280
16	PV of totals	1247	291	269	248	229	211
17	Adj price control rev	363	266	261	256	251	246
18	DMS revenue	9	6	6	6	6	6
19	Total price control rev	373	272	267	262	257	252
20	P _o 's and X values		P _o	28%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			27%			
	Analysis of revenue reduction						
22	Forecast variances			-4%			
23	Return			2%			
24	Depreciation			0%			
25	Operating costs			29%			

TABLE 2: CALCULATION OF PRICE CONTROL REVENUE FOR EAST MIDLANDS (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		92	97	98	98	97
2	Connection charges		-28	-30	-31	-29	-29
3	Net network capex		64	67	67	69	68
4	Opening asset value		905	895	887	878	867
5	Depreciation		-73	-75	-77	-79	-81
6	Net network capex		64	67	67	69	68
7	Closing asset values		895	887	878	867	854
8	Return		58	58	57	57	56
9	Depreciation		73	75	77	79	81
10	Operating costs		114	109	108	108	108
11	Total		245	242	243	244	245
12	PV of totals	1038	236	219	206	194	183
13	Base price control rev	284	220	215	211	207	203
14	Excluded revenue	38	31	31	30	30	30
15	Total revenue (excl DMS)	322	250	246	242	237	233
16	PV of totals	1038	243	224	206	190	176
17	Adj price control rev	284	222	217	213	209	205
18	DMS revenue	8	6	6	6	6	6
19	Total price control rev	292	227	223	219	215	211
20	P ₀ 's and X values		P ₀	23%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			25%			
	Analysis of revenue reduction						
22	Forecast variances			5%			
23	Return			3%			
24	Depreciation			-1%			
25	Operating costs			18%			

TABLE 3: CALCULATION OF PRICE CONTROL REVENUE FOR LONDON (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		97	97	99	101	99
2	Connection charges		-21	-20	-19	-17	-16
3	Net network capex		76	77	80	85	83
4	Opening asset value		850	862	872	883	897
5	Depreciation		-64	-66	-69	-71	-74
6	Net network capex		76	77	80	85	83
7	Closing asset values		862	872	883	897	907
8	Return		56	56	57	58	59
9	Depreciation		64	66	69	71	74
10	Operating costs		106	102	100	99	99
11	Total		226	225	226	228	231
12	PV of totals	966	217	203	192	182	173
13	Base price control rev	276	207	203	199	195	191
14	Excluded revenue	32	27	26	26	26	26
15	Total revenue (excl DMS)	308	233	229	225	221	217
16	PV of totals	967	226	208	192	177	163
17	Adj price control rev	276	204	201	197	193	189
18	DMS revenue	8	5	5	5	5	5
19	Total price control rev	284	210	206	202	198	195
20	P ₀ 's and X values		P ₀	27%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			27%			
	Analysis of revenue reduction						
22	Forecast variances			-1%			
23	Return			2%			
24	Depreciation			-1%			
25	Operating costs			27%			

TABLE 4: CALCULATION OF PRICE CONTROL REVENUE FOR MANWEB (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		78	79	78	79	79
2	Connection charges		-18	-18	-18	-18	-18
3	Net network capex		61	61	60	61	61
4	Opening asset value		603	617	630	640	649
5	Depreciation		-46	-48	-50	-52	-53
6	Net network capex		61	61	60	61	61
7	Closing asset values		617	630	640	649	657
8	Return		40	41	41	42	42
9	Depreciation		46	48	50	52	53
10	Operating costs		75	73	72	72	72
11	Total		161	161	163	165	167
12	PV of totals	695	155	145	138	131	125
13	Base price control rev	182	148	146	143	140	137
14	Excluded revenue	25	20	19	19	18	18
15	Total revenue (excl DMS)	207	168	165	162	159	155
16	PV of totals	695	163	150	138	127	117
17	Adj price control rev	182	146	143	140	137	135
18	DMS revenue	7	5	5	5	5	5
19	Total price control rev	189	151	148	145	142	140
20	P ₀ 's and X values		P ₀	21%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			22%			
	Analysis of revenue reduction						
22	Forecast variances			-3%			
23	Return			2%			
24	Depreciation			-1%			
25	Operating costs			24%			

TABLE 5: CALCULATION OF PRICE CONTROL REVENUE FOR MIDLANDS (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		87	91	96	98	102
2	Connection charges		-13	-14	-14	-15	-15
3	Net network capex		74	77	81	84	87
4	Opening asset value		837	845	853	864	874
5	Depreciation		-67	-69	-71	-74	-76
6	Net network capex		74	77	81	84	87
7	Closing asset values		845	853	864	874	884
8	Return		55	55	56	56	57
9	Depreciation		67	69	71	74	76
10	Operating costs		118	112	110	110	110
11	Total		239	235	237	240	243
12	PV of totals	1017	230	213	201	191	182
13	Base price control rev	286	223	218	214	210	206
14	Excluded revenue	27	23	22	22	22	22
15	Total revenue (excl DMS)	313	245	241	236	232	228
16	PV of totals	1017	238	219	202	186	172
17	Adj price control rev	286	225	221	216	212	208
18	DMS revenue	8	6	6	6	6	6
19	Total price control rev	294	230	226	222	218	214
20	P ₀ 's and X values		P ₀	23%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			24%			
	Analysis of revenue reduction						
22	Forecast variances			3%			
23	Return			3%			
24	Depreciation			0%			
25	Operating costs			18%			

TABLE 6: CALCULATION OF PRICE CONTROL REVENUE FOR NORTHERN (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		67	69	72	72	76
2	Connection charges		-15	-14	-16	-16	-16
3	Net network capex		52	55	56	56	60
4	Opening asset value		490	501	514	527	538
5	Depreciation		-40	-42	-44	-45	-39
6	Net network capex		52	55	56	56	60
7	Closing asset values		501	514	527	538	559
8	Return		32	33	34	35	36
9	Depreciation		40	42	44	45	39
10	Operating costs		80	76	74	73	71
11	Total		153	150	151	153	146
12	PV of totals	642	147	136	128	122	109
13	Base price control rev	181	139	136	133	131	128
14	Excluded revenue	17	17	16	16	16	15
15	Total revenue (excl DMS)	198	155	152	149	146	144
16	PV of totals	642	150	138	127	117	108
17	Adj price control rev	181	139	137	134	131	129
18	DMS revenue	7	5	5	5	5	5
19	Total price control rev	189	144	142	139	136	134
20	P ₀ 's and X values		P ₀	24%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			25%			
	Analysis of revenue reduction						
22	Forecast variances			-4%			
23	Return			3%			
24	Depreciation			1%			
25	Operating costs			25%			

TABLE 7: CALCULATION OF PRICE CONTROL REVENUE FOR NORWEB (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		90	97	101	101	99
2	Connection charges		-9	-10	-10	-10	-9
3	Net network capex		81	87	91	92	89
4	Opening asset value		720	719	739	782	821
5	Depreciation		-83	-67	-48	-53	-57
6	Net network capex		81	87	91	92	89
7	Closing asset values		719	739	782	821	853
8	Return		47	47	49	52	54
9	Depreciation		83	67	48	53	57
10	Operating costs		111	104	102	100	98
11	Total		240	218	199	205	210
12	PV of totals	918	232	197	169	163	157
13	Base price control rev	261	194	190	186	183	179
14	Excluded revenue	32	28	27	27	27	27
15	Total revenue (excl DMS)	293	221	217	213	210	206
16	PV of totals	918	214	198	182	168	155
17	Adj price control rev	261	193	190	186	183	179
18	DMS revenue	8	5	5	5	5	5
19	Total price control rev	270	199	195	192	188	184
20	P _o 's and X values		P _o	27%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			27%			
	Analysis of revenue reduction						
22	Forecast variances			1%			
23	Return			0%			
24	Depreciation			7%			
25	Operating costs			19%			

TABLE 8: CALCULATION OF PRICE CONTROL REVENUE FOR SEEBOARD (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		74	75	75	76	74
2	Connection charges		-16	-14	-13	-13	-12
3	Net network capex		58	61	62	63	63
4	Opening asset value		468	481	495	508	531
5	Depreciation		-45	-47	-49	-41	-37
6	Net network capex		58	61	62	63	63
7	Closing asset values		481	495	508	531	556
8	Return		31	32	33	34	35
9	Depreciation		45	47	49	41	37
10	Operating costs		86	84	82	81	80
11	Total		162	162	163	155	152
12	PV of totals	679	156	147	138	124	114
13	Base price control rev	217	143	140	137	135	132
14	Excluded revenue	26	21	21	21	20	20
15	Total revenue (excl DMS)	243	164	161	158	155	152
16	PV of totals	679	159	146	135	124	115
17	Adj price control rev	217	147	145	142	139	137
18	DMS revenue	8	5	5	5	5	5
19	Total price control rev	225	153	150	147	145	142
20	P ₀ 's and X values		P ₀	33%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			35%			
	Analysis of revenue reduction						
22	Forecast variances			-2%			
23	Return			5%			
24	Depreciation			4%			
25	Operating costs			28%			

TABLE 9: CALCULATION OF PRICE CONTROL REVENUE FOR SOUTHERN (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		118	117	117	116	114
2	Connection charges		-15	-15	-15	-15	-15
3	Net network capex		104	102	103	101	99
4	Opening asset value		1319	1328	1332	1334	1332
5	Depreciation		-95	-98	-101	-104	-107
6	Net network capex		104	102	103	101	99
7	Closing asset values		1328	1332	1334	1332	1325
8	Return		86	86	87	87	86
9	Depreciation		95	98	101	104	107
10	Operating costs		109	112	110	110	110
11	Total		289	296	298	301	303
12	PV of totals	1262	278	267	252	239	226
13	Base price control rev	335	278	273	267	262	257
14	Excluded revenue	29	27	26	26	26	26
15	Total revenue (excl DMS)	364	304	299	294	288	283
16	PV of totals	1262	295	272	251	231	213
17	Adj price control rev	335	275	270	265	260	255
18	DMS revenue	9	6	6	6	6	6
19	Total price control rev	343	281	276	271	266	261
20	P ₀ 's and X values		P ₀	19%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			19%			
	Analysis of revenue reduction						
22	Forecast variances			-3%			
23	Return			1%			
24	Depreciation			-2%			
25	Operating costs			23%			

TABLE 10: CALCULATION OF PRICE CONTROL REVENUE FOR SWALEC (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		44	44	43	42	41
2	Connection charges		-4	-4	-4	-4	-4
3	Net network capex		39	40	38	38	37
4	Opening asset value		499	497	501	505	507
5	Depreciation		-42	-35	-34	-36	-38
6	Net network capex		39	40	38	38	37
7	Closing asset values		497	501	505	507	506
8	Return		32	32	33	33	33
9	Depreciation		42	35	34	36	38
10	Operating costs		66	64	63	63	63
11	Total		140	131	130	132	134
12	PV of totals	568	134	118	110	105	100
13	Base price control rev	155	117	115	113	111	109
14	Excluded revenue	23	20	19	19	19	19
15	Total revenue (excl DMS)	178	137	135	132	130	128
16	PV of totals	568	133	122	113	104	96
17	Adj price control rev	155	116	114	112	110	108
18	DMS revenue	7	5	5	5	5	5
19	Total price control rev	162	121	119	116	114	112
20	P ₀ 's and X values		P ₀	26%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			26%			
	Analysis of revenue reduction						
22	Forecast variances			1%			
23	Return			2%			
24	Depreciation			4%			
25	Operating costs			19%			

TABLE 11: CALCULATION OF PRICE CONTROL REVENUE FOR SOUTH WESTERN (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		74	75	75	73	74
2	Connection charges		-12	-12	-12	-12	-12
3	Net network capex		62	64	63	61	62
4	Opening asset value		620	636	651	664	674
5	Depreciation		-46	-48	-50	-52	-54
6	Net network capex		62	64	63	61	62
7	Closing asset values		636	651	664	674	682
8	Return		41	42	43	43	44
9	Depreciation		46	48	50	52	54
10	Operating costs		77	73	71	71	71
11	Total		164	162	164	167	169
12	PV of totals	702	157	147	139	133	126
13	Base price control rev	193	157	154	151	148	145
14	Excluded revenue	15	13	13	13	13	12
15	Total revenue (excl DMS)	208	169	166	163	160	157
16	PV of totals	702	164	151	139	129	118
17	Adj price control rev	193	158	155	152	149	146
18	DMS revenue	7	5	5	5	5	5
19	Total price control rev	201	163	160	157	154	151
20	P ₀ 's and X values		P ₀	20%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			22%			
	Analysis of revenue reduction						
22	Forecast variances			-3%			
23	Return			2%			
24	Depreciation			0%			
25	Operating costs			23%			

TABLE 12: CALCULATION OF PRICE CONTROL REVENUE FOR YORKSHIRE (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		85	88	91	94	97
2	Connection charges		-28	-29	-29	-29	-29
3	Net network capex		57	59	62	65	67
4	Opening asset value		789	780	771	764	759
5	Depreciation		-66	-67	-69	-71	-73
6	Net network capex		57	59	62	65	67
7	Closing asset values		780	771	764	759	753
8	Return		51	50	50	49	49
9	Depreciation		66	67	69	71	73
10	Operating costs		100	94	91	91	91
11	Total		216	211	210	211	213
12	PV of totals	905	208	191	178	168	159
13	Base price control rev	252	197	194	190	186	183
14	Excluded revenue	24	21	21	21	20	20
15	Total revenue (excl DMS)	276	219	215	211	207	203
16	PV of totals	905	212	195	180	166	153
17	Adj price control rev	252	198	194	190	187	183
18	DMS revenue	8	5	5	5	5	5
19	Total price control rev	260	203	200	196	192	189
20	P ₀ 's and X values		P ₀	23%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			24%			
	Analysis of revenue reduction						
22	Forecast variances			-2%			
23	Return			4%			
24	Depreciation			0%			
25	Operating costs			22%			

TABLE 13: CALCULATION OF PRICE CONTROL REVENUE FOR SCOTTISH POWER (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		71	78	78	79	79
2	Connection charges		-16	-16	-17	-17	-16
3	Net network capex		55	61	62	62	62
4	Opening asset value		1267	1233	1204	1173	1141
5	Depreciation		-89	-91	-92	-94	-96
6	Net network capex		55	61	62	62	62
7	Closing asset values		1233	1204	1173	1141	1108
8	Return		81	79	77	75	73
9	Depreciation		89	91	92	94	96
10	Operating costs		105	103	102	102	102
11	Total		276	273	271	271	270
12	PV of totals	1157	265	246	230	215	202
13	Base price control rev	270	245	240	236	231	227
14	Excluded revenue	36	34	34	34	34	33
15	Total revenue (excl DMS)	306	279	274	269	265	260
16	PV of totals	1157	270	249	230	212	196
17	Adj price control rev	270	240	235	231	226	222
18	DMS revenue	8	5	5	5	5	5
19	Total price control rev	278	245	240	236	231	227
20	P ₀ 's and X values		P ₀	13%	X	3%	
21	Revenue reduction 99/00 to 00/01-04/05			12%			
	Analysis of revenue reduction						
22	Forecast variances			3%			
23	Return			3%			
24	Depreciation			0%			
25	Operating costs			6%			

TABLE 14: CALCULATION OF PRICE CONTROL REVENUE FOR HYDRO-ELECTRIC (£MILLION 1997/98 PRICES)

		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
1	Network capex		56	56	56	53	53
2	Connection charges		-5	-5	-5	-5	-5
3	Net network capex		51	51	50	48	47
4	Opening asset value		698	708	716	723	727
5	Depreciation		-41	-42	-43	-45	-46
6	Net network capex		51	51	50	48	47
7	Closing asset values		708	716	723	727	726
8	Return		46	46	47	47	47
9	Depreciation		41	42	43	45	46
10	Operating costs		59	58	57	57	57
11	Total		146	146	148	149	151
12	PV of totals	627	140	132	125	119	112
13	Base price control rev	110	144	142	139	136	134
14	Excluded revenue	7	7	7	7	7	7
15	Total revenue (excl DMS)	117	151	149	146	143	141
16	PV of totals	627	147	135	125	115	106
17	Adj price control rev	110	144	141	138	136	133
17 (a)	Hydro Benefit		36	35	35	34	33
17 (b)	Sub Total	110	108	106	104	102	100
18	DMS revenue	7	4	4	4	4	4
19	Net price control rev	116	112	110	108	106	104
20	P ₀ 's and X values		P ₀	4%	X	3%	

Note: A full analysis of Hydro-Electric's P₀ has not been provided, since the change of method in respect of Hydro Benefit makes a proper comparison difficult to present.